MANAGEMENT AND OPERATIONS STUDY

AND BEST PRACTICE REVIEW

FOR THE NEW YORK CITY

OFFICE OF THE COMPTROLLER'S

ASSET MANAGEMENT FUNCTION

SETTING A COURSE FOR THE FUTURE

FINAL REPORT

December 14, 2015

Funston Advisory Services LLC

Funston Advisory Services LLC

December 14, 2015

The Honorable Scott Stringer
Comptroller
City of New York
1 Centre Street, 5th Floor
New York, New York 10007

Dear Comptroller Stringer:

We are pleased to submit our final report regarding the Management and Operations Study and Best Practice Review for the New York City Office of the Comptroller's Bureau of Asset Management. Our project began on June 15, 2015 and was concluded on October 30, 2015. We wish to extend our appreciation to your office; the Trustees of the five Systems; BAM's Chief Investment Officer, executives and staff; and the investment managers, consultants and other service providers for their cooperation and the timely accumulation and production of numerous documents, interviews and requests for clarification. We recognize this has been a very time consuming process. They are to be commended for their extraordinary responsiveness.

While much has recently been accomplished by the Comptroller and the Systems, such as the addition of Risk and Compliance resources, compensation increases and new facilities, there remain a number of significant challenges including the need for additional resources and modern systems. Our report is a lengthy one as the scope of the Request for Proposal covered 20 different aspects of operations with 184 specific elements.

We have made approximately 240 recommendations and have also provided extensive supporting appendices (under separate cover) to provide additional guidance regarding our recommendations. During the course of our review, in addition to these specific requirements, we identified a number of organization-wide themes that pertain to people and organization, policies and processes, systems and information for decision-making as well as external factors.

We sincerely hope this report and the implementation of its recommendations will mark another step in the transformation and modernization of the Bureau of Asset Management to better serve the needs of the beneficiaries of the City's five retirement Systems.

Sincerely,

Frederick Funston
Managing Partner
Funston Advisory Services LLC

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SECTION I: EXECUTIVE SUMMARY

Introduction

The Comptroller of the City of New York (the **"Comptroller"**) is custodian by law and responsible by delegation for the investment of the $162.9 billion in assets (as of June 30, 2015) of the five (5) New York City retirement systems (each, a **"System"** and collectively, the **"Systems"** or **"NYCRS"**) and 11 related variable and miscellaneous supplemental funds (**"Related Funds"**). The Systems include: (1) Teachers' Retirement System of The City of New York, (2) New York City Employees' Retirement System, (3) New York City Police Pension Fund, (4) New York City Fire Department Pension Fund, and (5) Board of Education Retirement System of The City of New York. Together, the Systems protect the retirement security of over 700,000 New Yorkers.

Since 2001, the value of the Systems' investment portfolio has nearly doubled and the Comptroller's Bureau of Asset Management ("BAM") program has become increasingly complex as new asset classes were added to the portfolio to improve diversification and the expected risk-adjusted returns. The System Boards approved funding to support additional BAM headcount and related costs in 2005 (37 additional investment staff) and in 2012 (24 additional investment staff) to assist in managing this added scale and complexity.

This Best Practice Review is part of a systematic process of reform undertaken by the Comptroller and the five Systems to transform BAM into a world class organization. The Review focused on a study and analysis of the management, operations, processes and performance of BAM and includes a number of recommendations on best practices. The Comptroller and the Systems recognize this will take years given the constraints under which BAM must operate and that the transformation must be accomplished in incremental steps.

The current transformation process began in January 2014, when, with the support of the Systems, Comptroller Stringer introduced a number of reforms in the way BAM oversees and manages the assets of the Systems, including a six-point plan to improve compliance and assure integrity; the appointment of a highly respected Chief Investment Officer; the appointment of an internal auditor for the entire agency; and the appointments of a chief risk officer and a chief compliance officer for BAM. The internal auditor, chief risk officer and chief compliance officer each report directly to the Comptroller, to ensure that these reforms operate effectively.

In October 2015, BAM also modernized its facilities and combined them on the 8th floor of 1 Centre Street. Additionally, the Systems also recently agreed to the Comptroller's request to fund compensation increases for the BAM investment staff with compensation set at the median level for public pension funds. This is expected to improve BAM's ability to attract and retain qualified investment professionals.

Finally, on December 3, 2015, the Comptroller and the Systems announced that they had agreed to move to a single Common Investment Meeting ("CIM") from 54 individual meetings per year amongst the five Systems. The CIM will occur a minimum of 6 times per year, with other meetings to be scheduled when necessary for the timely processing of investment recommendations.

This is a major accomplishment that should significantly increase the time available for BAM staff to focus on high priority tasks such as investment manager due diligence and monitoring. It is an important and necessary step to transforming BAM into a world-class investment organization and we understand that this has been a matter of discussion between the Comptroller's Office and the Systems for some time. It was an issue that repeatedly arose during the course of our review and that led to a number of related findings, conclusions and recommendations throughout our report. We anticipate that this will facilitate improved management of System assets and more efficient and cost-effective use of Comptroller's Office staff.

The Purpose of the Review

The purpose of this review was to complete "a comprehensive examination and independent evaluation of the Comptroller's current asset management policies, processes, procedures and internal controls; gauge the cost effectiveness and efficiency of BAM's asset management operations; identify operational weaknesses and opportunities for improvement based on industry and market trends; and, identify industry best practices and the needs of BAM."

As part of our review, Funston Advisory Services ("FAS") conducted surveys of the Comptroller's Office staff and the Trustees and Executive Directors of the five Systems (see *Appendix 2* for a summary of the BAM Self-Assessment results). We interviewed over 75 people (some multiple times) from BAM staff, the Comptroller's Office staff from other Bureaus, Trustees and Executive Directors, as well as investment managers, consultants, transition managers, evaluators of transitions, the custodian bank, the foreign exchange and securities lending providers, and the external auditor.

In addition, we evaluated profiles of each division and compared them to our benchmark knowledgebase. We also received more than 3300 documents for our review. We evaluated the collective performance of BAM, but not the performance of individuals. We submitted two draft reports and sought and incorporated feedback from BAM to validate and verify the factual basis of our findings, refine our conclusions and recommendations and identify any missing elements.

Accordingly, FAS prepared a gap analysis comparing the current state of BAM's operations to industry leading practices taking into account the unique conditions and constraints under which BAM has operated. We do not believe there is a single "best practice" applicable to all organizations at any stage of development. Accordingly, we have identified what we believe to be "leading practice" and leave it to the judgment of BAM, the Comptroller and the Systems to determine what is best for BAM given its unique circumstances.

Throughout this report we have identified the expected capabilities, processes and procedures of leading practice organizations and compared BAM's operations to those standards. The recommendations included throughout the report address these capability gaps. The recommendations are evaluated for priority in *Appendix 3: Recommended Priorities and Related Appendices*.

It should be noted that Funston Advisory Services LLC is not an investment advisor, and no conclusions or recommendations contained in this report should be construed as investment advice. Any references to the fund or investment portfolio are with respect to the capabilities and capacity of the current BAM organization to effectively and efficiently manage the portfolio and advise the Systems.

The Scope of the Review

The Comptroller's Request for Proposal required an in-depth review of 20 areas of operation with 184 specific elements, a comparison of current practices to leading practices and the identification of priority gaps and recommendations to close them. The Summary Dashboard at the end of this Executive Summary provides an overview of our evaluation and a summary of our recommendations for improvement but the core of the report lies in approximately 240 recommendations regarding people and organization, policies and processes, systems and information for decision making and external factors. These recommendations have been tailored to the specific circumstances and current capabilities of BAM.

As requested, we have attempted to provide considerable specificity in these recommendations (i.e., not just what needs to be improved but also how) to assist BAM to use them as input for their development of an operating manual. Our specific findings and conclusions leading to these recommendations are contained in the main body of our report and are generally organized and numbered according to the structure of the RFP. We have also recommended a set of priorities and a high-level sequence and roadmap for transformation.

We identified gaps in staffing, organization, policies, procedures and information infrastructure based upon the requirements to effectively manage the current portfolio. To close these gaps, BAM needs to develop in-house finance, budgeting, HR and IT planning capabilities. Staff need training; policies, procedures and information systems need to be modernized; and, some existing resources need to be redeployed to higher value-added activities.

Overall Conclusions

Thus far, BAM has been able to avoid serious operational failures due to heroic efforts by the staff, the extensive use of investment consultants, and the support of the Systems and the Comptroller. Given the level of portfolio complexity and the demands of serving the five Systems, BAM remains understaffed and under-resourced, notwithstanding staffing and compensation increases and office facilities improvements.

There is key person dependency (as institutional knowledge resides in a few key people and they are increasingly eligible for retirement); there is a lack of documentation; processes use many idiosyncratic workarounds; staff lacks training; there is no formal succession planning; and, many processes that are automated at other funds are manual at BAM.

Our overall conclusion is that additional resources are required or the current investment strategy presents a very high level of operational risk. This is a problem that has been growing over the course of multiple administrations. It requires a long-term solution, long-term leadership, the support of the Systems, and long-term resourcing, but it also demands immediate action.

Continuous improvement (doing what BAM already does, but better) is necessary but not sufficient. Discontinuous improvement (doing new things in new ways) is also required. Unfortunately, given its existing resources and demands, BAM's management currently has little or no capacity to implement many of the recommendations of this report.

The reduction in the number of investment committee meetings will go a long way toward alleviating BAM's workload. This reduction will free up executive time to address much needed strategic and operational improvements, but BAM still requires additional resources for both staffing and modernized systems. In combination with our recommendations, BAM can make significant progress toward becoming a world-class investment operation.

If the proposed reduction of investment committee meetings had failed to be accepted, we believe BAM and the Systems would have had a basic choice to consider: 1) increase the level of BAM resources to fully implement the recommendations (people, processes and systems) contained in this report; or 2) reduce the complexity of the asset allocation to a level which can be supported by the current level of resourcing.

In either of these scenarios and even in the current scenario, new capabilities within BAM still needs to be developed and some existing resources redeployed to higher value-added activities for a successful transformation. We have provided a roadmap of recommended priorities and a sequence of implementation for the operational transformation. Although System board governance matters as they relate to BAM were not part of our mandate, we recommend these should be the subject of a future review. We have provided several examples of domestic and international governance models as *Appendix 4*.

Inertia is one of nature's most powerful forces. Bodies at rest remain at rest unless acted upon by external forces. In organizations, those forces can be external crises or visionary leadership. Lasting solutions require visionary and courageous leadership by all key stakeholders to change the operating conditions and the culture. In the case of BAM, setting a course for the future requires bold and stable leadership and the long-term support of its key stakeholders in the best interests of the beneficiaries and the taxpayers.

Background

BAM serves the Comptroller's asset management function under the direction of the Deputy Comptroller for Asset Management / Chief Investment Officer. The Comptroller's Bureau of Asset Management (BAM) supports the Systems and Related Funds in selecting and managing investment advisors, consultants and related service providers in public and private markets totaling approximately 300 firms. State Street Bank and Trust Company, N.A., is the Systems' current master custodian bank (the **"Master Custodian Bank" or "Custodian"**).

The Systems invest in a variety of asset classes, including US and Non-US Equity (Emerging Markets, EAFE), REIT, Private Equity and Real Assets (including Real Estate, Infrastructure and Commodities), Enhanced Yield, Bank Loans, Convertible Bonds, Opportunistic Fixed Income, Hedge Funds, Structured Assets and TIPS.

In addition, the Systems seek to achieve a target allocation of 2% of assets to Economically Targeted Investments (**"ETIs"**) where practical and consistent with the standards and policies of each system. ETIs may cross a variety of asset classes, but are predominantly real estate-related equity and debt. Although ETIs were not included in the scope of the RFP, ETIs are a high-profile aspect of the investment program and BAM coordinates closely with Bureau of Economic Development on the ETI program. FAS has, therefore, included a brief overview of the ETI investment processes in *Appendix 5*.

BAM also manages the Systems' and Related Funds' cash, directs allocations to the investment advisors, rebalances the portfolio, and assures the investments recommended by the advisors meet legal requirements. BAM also analyzes the performance of individual advisors, based on their investments and transactions, for compliance and fulfillment of investment guidelines. In addition, BAM executes short-term trading for the liquid assets of the Systems and the City and, on behalf of the Systems' and Related Funds' Boards of Trustees (**"Trustees"**), votes the proxies for shares held by the Systems and Related Funds, and coordinates Corporate Governance and the shareholder initiatives programs.

Additionally, BAM works with the Comptroller's Bureau of Accountancy (**"BOA"**) to develop reports and execute other asset management functions. The Bureau of Accountancy is responsible for maintaining the official financial accounting records of the City. It prepares and issues the City's Comprehensive Annual Financial Report (CAFR) and oversees the independent audits of the City, the Systems and Related Funds. In addition, BOA is primarily responsible for the design and management of the accounting aspects of the City's centralized accounting and budgeting system, the Financial Management System, or "FMS Accounting."

On a monthly basis, the BOA's Fiduciary Services Division - Pension Accounting Unit reviews and analyzes investment data received from BAM, prepares journal entries and processes them using a commercial General Ledger System and produces reports which are sent to the Systems and Related Funds for use in preparing their financial statements.

Two other units within the Fiduciary Services Division are responsible for processing the monthly pension payrolls, providing BAM with disbursement information for funding purposes, recording cash receipts and cash disbursements and reconciling the pension (cash) bank accounts.

At 2015 fiscal year end (June 30, 2015), BAM was responsible for overseeing approximately $162.9 billion. The investments under management were comprised as shown below:

($Billions)

	U.S Equity	Int'l. Equity	Fixed Income[1]	Opport. Fixed Income	Private Equity	Real Assets[2]	Hedge Funds	Cash[3]	NYCRS Total Fund Size
Systems[4] Total	**$55.8**	**$27.8**	**$47.0**	**$3.8**	**$10.0**	**$8.8**	**$3.3**	**$6.4**	**$162.9**

[1] *Fixed Income* includes TIPS, Enhanced Yield, Bank Loans, and Convertible Bonds.

[2] *Real Assets* includes Real Estate, REITs, and Infrastructure

[3] *Cash* includes securities lending, State Street short-term and BNY Mellon CD accounts.

[4] System includes: (1) Teachers' Retirement System of The City of New York, (2) New York City Employees' Retirement System, (3) New York City Police Pension Fund, (4) New York City Fire Department Pension Fund, and (5) Board of Education Retirement System of The City of New York.

Organization of BAM

BAM's asset management functions are executed by several divisions which are the subject of this review:

A. Investment Control
B. Investment Strategy
C. Cash Management
D. Short-Term Trading
E. Compliance and Risk Management
F. Corporate Governance
G. Administration and Pensions
H. Financial Reporting
I. Contracts
J. Bureau of Accountancy (another Bureau within the Comptroller's Office)

Legal Constraints

Unlike most very large public pension funds, BAM has not achieved significant operational independence. BAM remains subject to a complex and unique set of binding legal constraints and control agency reviews. These constraints significantly impact its organization, funding and governance.

The Comptroller's Office of the General Counsel (OGC) has provided FAS with a summary of applicable New York State laws and New York City laws and procedures that are applicable to BAM that is included in *Appendix 6*. FAS has considered this body of law and policy in reaching our conclusions and making our recommendations. In the few instances where a given recommendation might require a change in either State law or City law or policy, we have noted this accordingly.

Systemic Recommendations

As noted, the RFP identified 184 specific areas for review organized into 20 different areas. This report contains approximately 240 specific recommendations which the FAS team developed as a result of our findings and conclusions.

In addition to the detailed recommendations which address gaps in areas specified in the RFP, in this executive summary we are providing 30 systemic recommendations in six areas which address critical needs which may or may not be directly addressed in the RFP scope but which are within the control of the Comptroller's Office to address, with the support of the Systems. Those 30 recommendations follow.

Organization and Administration

To improve effectiveness and efficiency, financial management, planning and administration and reduce operational risk:

R.1 BAM should be reorganized to create manageable spans of control and add needed capabilities which do not exist today.

See *Appendix 7* for a proposed organization structure to create:

a. An Assistant Comptroller and Deputy Chief Investment Officer (Deputy CIO)

b. An Assistant Comptroller and Chief Operations Officer (COO)

c. An Assistant Comptroller and Chief Administrative Officer (CAO)

d. A Head of Asset Allocation and Fund Analytics (reporting to the Deputy CIO)

e. A Head of Strategic Initiatives (in the short term the CIO may choose to have this as a temporary direct report position to develop and lead the execution of a strategic plan and its associated initiatives and projects. In the longer term this position could report to the CAO.)

f. An internal BAM human resources capability (under the CAO)

g. An internal BAM information technology planning capability (under the COO)

R.2 BAM should create an internal Investment Committee (see *Appendix 7* Proposed BAM Target Organization and *Appendix 8* Example Internal Investment Committee Charter)

R.3 BAM should create an Operational Risk Committee (see *Appendix 7* Proposed BAM Target Organization and *Appendix 9* Example Operational Rick Management Committee Charter)

R.4 The position of Chief Administrative Officer (CAO) responsibilities would include budgeting, financial reporting, human resources, contracting and strategic planning. See example job description in *Appendix 10* for the financial responsibilities.

R.5 The Head of Strategic Initiatives should be responsible for the development and oversight of the strategic plan and supporting change management.

R.6 As part of the reorganization, the goals should be to shift from largely repetitive clerical tasks in support areas to high value-added analysis; provide oversight and the development of a true back- and middle-office; and create an internal BAM financial reporting and control function.

Particular emphasis should be paid to the current Divisions of Investment Control and Financial Reporting to improve not only value added insight but also timeliness and reliability of reporting. Some redeployment opportunities exist.

R.7 BAM should develop a comprehensive staffing plan to provide effective day-to-day oversight of service providers and perform essential functions.

R.8 Assuming the Systems confirm the current asset allocation or some similarly complex investment program as a result of the current, ongoing asset allocation study, and that BAM develops a supporting business case and budget, the Systems should fund the incremental costs required for BAM to implement the recommendations of this report. The costs of the investment operations should be borne by the Systems in proportion to their share of the assets managed by BAM.

See also additional recommendations within each area of Specific Scope in the main body of this report.

Staff Development and Training

To continuously improve the capabilities of personnel and improve BAM's staff capacity and ability to manage workload:

R.9: The CIO (working in conjunction with the Deputy Comptroller for Administration where necessary) should institute an urgent human resources initiative within the Bureau of Asset Management designed to:

a. **Fill all BAM vacancies, with a focus on those in Investment Strategy.**

b. **Create a training program that features onboarding training of new hires, annual individual development plans, skills training, and compensation increases for applicable educational and professional credentials.**

c. Create structures to encourage information sharing across units and divisions.

R.10 The position of Head of Human Resources should be created, under the CAO, to address this recruiting and staff development priority. See proposed job description attached in *Appendix 11*.

R.11 The Head of Human Resources should identify key positions and ensure succession plans are developed.

R.12 There should be a comprehensive training and development program, led by the Head of Human Resources, for all BAM employees in addition to mandatory ethics and fiduciary training. Such programs should be developed and conducted in-house.

R.13 Training and development programs should be linked to the development of individualized career paths.

R.14 BAM should create the position of Head of Information Technology Planning, reporting to the COO. The Head of Information Technology Planning would coordinate with BIST and be responsible for the development, oversight and implementation of a comprehensive BAM IT strategic plan, including new application requirements, and to fully leverage the capabilities of its Custodian. This plan should also include a budget for productivity aids such as printers, screens, terminals etc.

R.15 Cross-functional communications should be improved through cross-functional committees, cross-training and formal internal communications.

See also additional recommendations within each area of Specific Scope in the main body of this report.

Investment Management

To improve investment management effectiveness and efficiency and improve investment risk management:

R.16: Risk management, working with the Investment Strategy asset class heads, should identify appropriate quantitative tools for each asset class.

The quantitative tools should be robust enough to assess total fund risk and to perform performance and risk attribution. Procurement of such systems(s) should be prioritized.

R.17: Due diligence and monitoring strategies should be codified, in a cooperative and coordinated effort between Compliance and Investment Strategy.

Those policies and procedures should include operational due diligence and portfolio "fit" in addition to investment due diligence. Contemporaneous logs of due diligence events should be kept.

R.18: BAM should review its performance benchmarks.

Among those benchmarks which deserve special focus are those which are bespoke to BAM and which have not been changed in decades (e.g., fixed income) and those which contain hurdles or are expressed as absolute returns (e.g., real estate, private equity, opportunistic fixed income, infrastructure) to judge whether they are reasonable in the current market environment.

BAM should also urge each system to adopt a total fund benchmark designed to reflect progress against offsetting pension liabilities (in addition to the current benchmarks which are designed to measure relative performance).

See also additional recommendations within each area of Specific Scope in the main body of this report.

Strategic Plan and Budget

To address BAM's chronic under-staffing and absence of critical capacity and capabilities:

R.19 BAM should develop a long-term strategic plan and budget to enable it to transform its current operations.

a. The budgets should be developed at the division level to reflect approved priorities and to improve the clarity of delegated authority.

b. Implementation of a long-term plan will require leadership stability.

c. Subject to the submission of a supporting business case and budget, BAM should obtain additional needed resources.

R.20 In the absence of additional resources, significantly reduce and simplify BAM's current portfolio.

a. BAM should determine whether the incremental returns and related risks justify the level of effort required to invest in private assets in terms of, for example, the added complexity of LP structures, demands on both Board and Staff time, related accounting and valuation issues, etc.

b. The level of BAM and the Systems' ongoing investments in private assets will have implications for the organizational structure recommendations later in this report.

See also additional recommendations within each area of Specific Scope in the main body of this report.

Risk and Compliance

To improve transparency and effectiveness of risk and compliance:

R.21 Portfolio risk should be systematically monitored with formal risk identification, assessment and management processes, quantitative analytical tools, and training.

R.22 BAM executives and System trustees should receive regular and timely risk reports to provide a line of sight into portfolio risk.

R.23 Risk and Compliance functions should work with the asset classes to develop a common understanding and prioritization of risks.

R.24 Risk and Compliance policies should be properly documented.

R.25 Operational risk should be regularly monitored and progress reported to the CIO and the System Trustees by the BAM Head of Risk Oversight using an accepted framework such as those provided by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) or the International Standards Organization (ISO). See the supplemental appendices for a description of each framework.

See also additional recommendations within each area of Specific Scope in the main body of this report.

Policies, Procedures and Record Management

To improve policies and procedures throughout BAM and improve access to documentation and files:

R.26 Policies should be updated, documented, and approved, and a schedule for periodic review and updating should be established. Specific policy improvement recommendations are embedded throughout this report.

R.27 There should be a central, electronic policy repository to enable easy access to such policies.

R.28 Procedures should be reviewed, streamlined and simplified as part of a comprehensive automation and technology plan.

R.29 Procedures should be well documented to reduce reliance on the knowledge of key individuals.

R.30 A standardized filing and document management system should be developed to enable ready access to historical records. Litigation holds should be enforced. A document retention and classification policy and process should be developed.

See also additional recommendations within each area of Specific Scope in the main body of this report.

Summary Dashboards

Overall Dashboard

As part of our review, we assessed each of the 20 areas of scope in the RFP and assessed current performance. We rated each area on a 1 to 3 scale, where:

1 = Weak / Lagging practice

2 = Adequate / Prevailing practice

3 = Strength / Leading Practice

We also assessed the criticality of improvement in each area to the overall performance of BAM as either “Critical”; “Important”; or “Leading Practice”, with the greatest urgency for those designated “Critical”.

Those designated “Leading Practice” would play a role in elevating BAM’s capabilities to world class but are not as critical to improving overall BAM performance as the other areas. The table on the following page is a summary of our assessments, with the most critical areas listed at the top.

Detailed Dashboard

In addition to the Summary Dashboard shown on the following pages, we have included as *Appendix 3* a summary list of all recommendations pertaining to the 184 areas of scope. These recommendations are ranked using the same criteria as described above. They also reference the relevant Appendices which contain examples of prevailing and leading practices corresponding to each recommendation. The recommendations also identify whether support is needed from the Comptroller’s Office, the System or potentially (and rarely) a change in City policy or legislation. Each reference identifies the relevant Appendix, the section and the pertinent recommendation.

Overall Dashboard

DIVISION / FUNCTION	Rating	Criticality	Key Implementation Focus
1B. Investment Control	1	Critical	Critical need to transition from general ledger, redeploy resources and build back-office capabilities
1E.2. Risk Management	1	Critical	Create an ERM framework and provide tools/training
2J. Information Systems Performance	1	Critical	Optimize my.statestreet.com capabilities, identify and plan for critical application needs, automate key manual processes to improve quality
1H. Financial Reporting	1.5	Critical	Build a middle office which leads internal and external reporting as well as planning and budgeting
1A. Investment Strategy / 2B. Investment Team Performance	2	Critical	Build staffing, obtain/utilize analytical tools and improve due diligence, esp. portfolio fit
1C. Cash Management	1.5	Important	Complete eCFM implementation
1E.1. Compliance	1.5	Important	Continue to build capabilities
2A. Investment Performance	1.5	Important	Improve analytical capabilities/ review benchmarks
1I. Contracts Division	2	Important	Add staffing and build contract management system
1J. Bureau of Accountancy	2	Important	Complete transition to State Street as book of record
1D. Short-Term Trading	2	Important	Focus on reducing “cash drag”
1G. Administration and Pensions / 2I. BAM Interaction with the Systems	2	Important	Work with the Systems to streamline reporting and meeting schedules
2C. Master Custodian Services	2	Important	Leverage implementation of my.statestreet.com platform, esp. reporting capabilities, assign lead responsibility for day-to-day relationship management
2F. Consulting Services	2	Important	Change the focus of consultants from day-to-day business of the funds to higher value added areas
2G. Transition Management Services	2	Leading Practice	Refine the Transition Management selection process
2H. Transition Management Evaluation Services	2	Leading Practice	Improve learning from evaluations
2D. Foreign Exchange Services	2.5	Leading Practice	Select performance monitor and renegotiate Russell fees
2E. Securities Lending Services	2.5	Leading Practice	Assign day-to-day oversight responsibility and obtain benchmarking data
1F. Corporate Governance	3	Leading Practice	Improve proxy voting platform/statement of purpose

Implementation Roadmap

There are several initiatives which we recommend BAM should undertake during the next three months to support implementation of the overall FAS recommendations:

1. Develop an overall strategic plan as a roadmap to guide the overall transformation
    a. Determine the level of funding the Systems will support
    b. Set the organizational strategy and staffing plans
    c. Develop the budget framework for spending on people, systems and other priorities
2. Expand current recruitment efforts to fill open positions and onboard key staff
    a. Identify internal and external candidates and fill the Deputy CIO, COO and CAO and heads of HR, IT and Strategy positions
    b. Continue to fill open Investment Strategy positions
3. Decommissioning the general ledger system and reducing manually-intensive reconciliation processes should be accomplished as soon as possible as it will facilitate development of new back- and middle-office capabilities
4. Establish a new internal Investment Committee and an Operational Risk Committee and develop charters for each
5. Review investment benchmarks as part of the ongoing asset allocation strategy process
6. Continue to formalize policies within Investment Strategy
    a. Due diligence policies
    b. Monitoring and travel policies

See also *Appendix 12: BAM Priority Implementation Roadmap* for suggested timeframes.

SECTION II: MANAGEMENT AND OPERATIONS STUDY, PERFORMANCE ANALYSIS REPORT AND "BEST PRACTICE" PROTOCOL

This section of the report includes the requirements included in Parts 1, 2 and 3 of the RFP in an integrated fashion, including "best practice" protocols. We have supplemented the leading practice recommendations in this section with detailed examples of guidelines, formats, templates, charters, job descriptions and other helpful references in an appendix which is provided separately from this report document. The examples of leading and prevailing practices from other funds and service providers will require translation to meet the specific requirements of BAM. It is up to BAM to determine what is "best" given its unique circumstances and requirements.

1A. Investment Strategy Division and Investment Team Performance [1A +2B]

Description Provided by BAM

"The Investment Strategy Division, in conjunction with outside investment consultants selected by each System, develops and recommends investment policy and strategy, asset allocation and investment manager selection for adoption by the Trustees and develops investment manager guidelines. The Investment Strategy Division staff oversees the following asset classes: Fixed Income; U.S Equity; Non-US Equity; Private Equity; Hedge Funds; and Real Assets (including Real Estate, Infrastructure and Commodities). This division also provides oversight of portfolio managers, prepares agendas for investment meetings, prepares quarterly investment performance reports and other assessments for each System, and prepares executive summaries for the Comptroller."

Scope of Review – (RFP 1A and 2B)

Our review of the Investment Strategy Division (ISD) focused on the effectiveness and efficiency of its operations. We reviewed each of the following areas and identified a number of overall themes which emerged from this more detailed analysis. First, we describe our summary analysis and then we describe our findings and conclusions in each of these specific areas.

The scope in the RFP included the following specific areas for item 1A:

A. Monitoring, reviewing and performance analysis
B. Manager selection and monitoring
C. Asset allocation and rebalancing

D. Transition management
E. Evaluation of BAM's procedures used to measure manager's performance
F. Contract negotiations and interaction with General Counsel's office
G. Board of Trustee interaction
H. Investment process by asset class from inception to completion
    i. Fixed Income
        1. Public
        2. Private (Opportunistic Fixed Income)
    ii. Hedge Funds
    iii. U.S. Equity and Non-U.S. Equity
        1. Private
        2. Public
    iv. Real Assets
        1. Real Estate
        2. Infrastructure
I. Review of any new asset classes which will exist at the time the Consultant begins this engagement, *e.g.*, commodities.

In addition, the RFP scope includes the following for section 2B. Investment Team Performance:

A. Quality and Depth of Team
B. Quality of BAM'S Investment Activities

While all these specific areas of scope are included in this section (or, in some cases, cross-referenced to other sections of this report), we have combined some of those sections to better reflect the way BAM actually is organized and run, and to better describe issues which are intertwined. We have also added major sub-sections (in both the initial, ISD-wide set of conclusions, and in "Investment Structures") which are integral to understanding the functioning of ISD.

Sources of Information:

- FAS leading practices knowledgebase
- BAM Self-Assessment Survey conducted by FAS
- System Self-Assessment Survey conducted by FAS
- Document Reviews, including specifically RFP's, draft investment process memoranda, investment policy statements, performance reviews, due diligence memoranda, organizational charts and human resources data, academic and practitioner literature
- Internal interviews with BAM and Comptroller's Office Staff
- External interviews with Trustees, investment managers (14) and consultants (8)
- Existing CEM survey, supplemented through conversations with CEM
- Professional opinions of our team

Summary

The BAM investment program has become highly complex over the past ten years. At the same time, the level of staffing and resourcing has not kept up with the significant increase in requirements. As a result, operational risk is very high and an operational failure is increasingly likely. There is no quantitative investment risk management, which limits BAM's ability to effectively structure its investment portfolios and gain needed insight into portfolio risk. In addition, after many years of working with budget restrictions and lack of autonomy, the ISD culture has become self-limiting.

Summary of Conclusions

C-1A.1: The investment program has become highly complex over the past fifteen years.

C-1A.2: Operational risk is very high and an operational failure is likely.

C-1A.3: There is a lack of adequate staff and resourcing.

C-1A.4: There is no quantitative risk management program, which limits BAM's ability to structure its investment portfolios and gain needed insight into portfolio risk.

C-1A.5: The ISD culture is self-limiting.

Summary of Recommendations

R-1A.1: BAM and the Comptroller's Office generally should accelerate their efforts to fill vacancies though a coordinated recruitment campaign that advertises the new compensation levels and uses social media targeted to the specific job functions now vacant. Use of recruitment firms specializing in asset management should be considered. The vacancies are so severe that the recruitment effort deserves weekly tracking by a special internal task force of the CIO and the Deputy Comptroller for Administration or their key staff.

R-1A.2: BAM should develop staff development plans for all ISD staff. This should include, in addition to the annual performance reviews, individualized programs for education, skills development (such as training on my.statestreet.com, risk management tools, and sector-specific tools).

R-1A.3: BAM should establish a rule that there will never be a single person in any asset class, so as to mitigate key person risk. Should such a situation occur, the CIO should work with the other asset class heads to find an investment professional to step in on a temporary basis into the understaffed unit.

R-1A.4: **BAM should benchmark ISD staff compensation against peers on a periodic basis. We suggest every three years, which should balance timeliness against costs.**

R-1A.5: **Given the prohibition against City reimbursement for professional training and/or certification programs taken off City premises which are not available to all employees, BAM ought to consider several options as to how to better improve staff skills. Options could be to sponsor in-house Certified Financial Analyst preparation open to all BAM or Comptroller's employees and creating compensation increments for CFA charter holders, other relevant certifications or relevant advanced degrees. There is ample precedent for this in various other City agencies, which increase compensation with increased expertise and education.**

R-1A.6: **Asset class heads now produce an annual strategic plan for the Boards, but such plans are focused on investments, not on the conditions necessary to invest well. In conjunction with the annual strategic plans, asset class heads should create an internal strategic plan which should include asset class education, hiring, training, succession planning and other internal functions. Such plans should be approved by the CIO formally and shared across BAM.**

R-1A.7: **As part of that strategic plan, asset class heads should identify any analytical tools and/or databases needed. See also R-1A.9, below (unit budgeting).**

R-1A.8: **Risk management, in conjunction with the asset class heads, ought to continue its evaluation of FactSet as well Investor Analytics and other potential risk management engines to determine if one can be used effectively by BAM. If Investor Analytics is chosen, a training program for IA should commence immediately. If another risk system is desired risk management should, in conjunction with the asset management heads, begin the procurement process for a quantitative risk tool immediately. A list of commonly used risk management systems is included as part of Appendix A-2J.8.3.1 Applications and Vendors.**

R-1A.9: **To empower ISD staff, each unit's strategic plan (see R-A1.6) should include a budget request. That request should include both headcount and Other than Personal Services (OTPS) budget, which would include the cost of unit-specific analytical tools, databases, subscriptions, travel, and other tools necessary. Devolving budgetary authority should improve accountability and eliminate the overwhelming feeling of being dis-empowered. The CIO should work with the unit budgets as well as the Deputy Comptroller for Administration to create the overall BAM budget.**

R-1A.10: **The CIO should create a written, multi-faceted travel policy.**

- **It should be coordinated with the due diligence and monitoring policies (see R-A1.20 below). Failure to travel to meet the diligence and monitoring**

requirements, not the request to travel, should be considered the exception needing CIO approval.

- **It should conform to NYC travel policies.**
- **Compliance with the travel policy (as with compliance generally) should be considered in each senior staff member's performance review.**

R-1A.11: **In addition to the weekly senior staff meetings that serve as due diligence and managerial progress meetings, the CIO should create the following information sharing mechanisms:**

- **A monthly investment meeting. While the content and format of the meeting will evolve over time, and it should be flexible enough to include interesting "one-off" topics. We suggest the following to begin:**
    - **A short market overview by the CIO or an asset class head, with follow on discussion from the other asset class heads as to what they are seeing and what, if anything, those market developments mean for their asset classes.**
    - **A sharing of noteworthy developments in each asset class, if any.**
    - **Reporting on any industry trends or developments which would be interesting. Such industry trends could range from the asset allocation decisions (and rationales) for other pension plans to what structural or regulatory changes in the markets mean for NYC's investment program.**
- **A quarterly "lunch and learn" featuring speakers from the industry. To make sure these happen, the CIO should appoint a specific staff member to coordinate them.**
    - **Continuation of the quarterly "deep dive" discussion between the CIO and each specific asset class staff.**

R-1A.12: **Compliance, Risk Management, and each asset class ought to understand the policies and processes of one or two public pension fund peers considered "best in class" as they create compliance and due diligence checklists. While a number of due diligence documents are included in the appendices for BAM to use as templates, no one else's total approach is perfect for BAM. The documents are provided to allow BAM to pick and choose portions of each that it believes applicable and to allow BAM to understand the range of approaches. While the peers' processes should not be adapted wholesale given BAM's specific needs, they should inform the new policies now being put into place. In the future, each asset class head should create an informal network of best practice peers which he/she can contact regarding market, manager, and leading practice information so as to stay informed over time as markets and market practices change. BAM can also use its New York City location to its advantage, by inviting respected peers to come to BAM for information exchange sessions as those funds come to New York to visit their managers or for other reasons.**

R-1A.13: **Institute a formal "on-boarding" process for all new hires. That process should include adequate time with every division in BAM (both inside and outside ISD) so that every ISD**

staff understands the philosophies, processes, roles and constraints of all of BAM, at least at the level necessary for him/her to appreciate how their functions operate within the overall investment program. In addition, each asset class within ISD should create a formal onboarding package.

While the exact contents should be tailored to the asset class, we would suggest the asset classes seriously consider including, at a minimum, the written asset class operational overview, the latest annual strategic plan, a copy of the latest due diligence and monitoring memoranda and supporting documents, a copy of the latest quarterly performance report, and an organizational chart for BAM as a whole, with annotations about the role of the people in that asset class.

R-1A.14: Every asset class must "own" all three aspects of due diligence: investment due diligence, operational due diligence, and portfolio fit. While investment due diligence is generally at prevailing or leading practice levels, operational due diligence and investment fit often lag industry practice. Therefore:

- **All asset classes should have a written operational due diligence policy. It should include an indicative check list of operational concerns specific to that asset class. That written ODD policy should be reviewed by Compliance.**
- **Asset class heads must state explicitly, in writing, if ODD will be performed by them, by an identified consultant, or shared. That statement should include the rationale for such a decision and should be reviewed and approved annually by the CIO.**
- **Asset class heads should understand that delegation to a consultant does not resolve the asset class head of responsibility for operational due diligence. He/she must understand what the consultant did and affirmatively aver that the ODD was sufficient.**

R-1A.15: The CIO should consider, in conjunction with the potential creation of a true investment operations group, whether to use some of the investment operations staff to supplement either ISD or ODD. Such a hybrid model is being used by some investors because some investment staff do not have an operational due diligence mindset, as it relates to minimization of risk and routine processes, rather than to getting paid for risk and seizing opportunities. Also, it allows for increased focus specifically on issues of interest to that investor. As a side benefit, having the investment operations staff accompany ISD staff on due diligences would improve communication and understanding between the two divisions.

R-1A.16: Consistent with R-A1.9, which calls for each asset class to propose a unit budget, each asset class should determine immediately what tools (databases, quantitative tools and others) it needs to fulfill its sourcing, due diligence and monitoring needs and propose a budget for obtaining them. Each asset class should, annually, affirm to the CIO that it has

the necessary tools or, if it does not, it should identify those tools along with the business case for them.

R-1A.17: Assuming the asset classes receive the quantitative tools they need (R-A1.16), those tools will need to be populated. Data entry is often overlooked, but important. Given the thin staffing of ISD, we recommend that BAM start an internship program with local colleges. IT, finance and other appropriate students could, on a part time basis, and either for credit or as part of a paid internship, do the data entry, freeing more senior BAM staff for more substantive analysis. Such an internship program may also result in a pool of potential entry-level talent for BAM.

R-1A.18: All due diligence efforts should be documented in a simple, electronic log format, in as contemporaneous a manner as possible. The entries in those logs need not be voluminous; rather they should be a sentence or two. More extensive analyses and documents can be incorporated by reference. Off-the-shelf customer relationship management systems or research management systems can accommodate that task. A description of the research management systems is included in the appendices.

R-1A.19: The CIO should ask the General Counsel for a written advice memorandum on the issue of whether pre-decisional, intra-Comptroller's Office due diligence memoranda are subject to Freedom of Information Law disclosure.

R-1A.20: The CIO should mandate on-site monitoring for all existing managers. While annual on-site monitoring is leading practice, FAS understands both the public scrutiny associated with travel and the resource drain such a requirement would create for ISD. Therefore, we propose:

- **An annual in-person meeting with each existing manager. Managers whose primary office is located domestically should be visited on-site a minimum of every two years. Managers whose primary offices are located internationally be visited a minimum of every three years.**
- **Visits should be grouped geographically so as to maximize efficiency.**
- **Meetings for LPAC and other such meetings should count towards the on-site monitoring requirements, assuming that ISD staff has the opportunity to perform such monitoring as it would do normally.**
- **Exceptions to the in-person and on-site requirements should be kept in an aging schedule, and reported monthly by each asset class to the CIO.**

R-1A.21: Real estate ought to consider whether it should assign one consultant to review potential investments, rather than having both consultants conduct due diligence on each potential partnership.

R-1A.22: BAM should provide ISD with the tools to analyze manager performance and risk through attribution analysis. See R-A1.8, above.

R-1A.23: Once ISD has the required quantitative tools, the CIO, in conjunction with the individual asset class heads, should develop a standard performance measurement, performance attribution and risk attribution procedure, including specific analyses and "due by" dates. Some examples of such analyses are included in the appendices.

R-1A.24: The CIO should assign responsibility for implementing rebalancing to a specific group in BAM.

R-1A.25: Given BAM's success in using transition managers, consideration should be given to using them for routine rebalancing. A first step should be to use the transition evaluation managers to evaluate a few current rebalances to understand the effectiveness of the current staff-directed process.

R-1A.26: The CIO should fine-tune BAM's policy of using the rebalancing ranges for tactical tilts. BAM should adopt a policy, and share it with the Systems, which states that an intentional tilt should be disclosed to each affected Board the month after it is implemented. Tilts should be used sparingly, and reserved for unique market periods. Tilts should not be designed to last more than a year. Longer-term asset allocation changes should be presented to the Boards for approval. That approval should be explicit as to whether it is a temporary tilt, in which case the conditions for ending it should be specified, or if it is a permanent change in benchmark or allocation.

R-1A.27: Regarding the current asset allocation study:

- **ISD ought to work with the Systems' general investment consultants to hold educational sessions on the differences between asset liability studies and asset allocation studies and the practical import of those differences.**
- **ISD ought to understand the capital market assumptions which are the inputs into each general investment consultants' models and develop its own analysis as to the reasonableness of those assumptions.**
- **ISD ought to understand each system's general investment consultant's plans and asset allocation modeling methodology, including any constraints.**

R-1A.28: ISD should reduce the number of private equity funds as planned.

R-1A.29: ISD should examine the number of managers in all asset classes to determine if there are other opportunities for simplification and focus through reducing the number of managers.

R-1A.30: ISD should determine if the strategic partnership structure can be more widely used, either in asset classes other than OFI, or across asset classes.

- **Should ISD desire to explore strategic partnerships further, it should widely canvas its peer investors to understand what investment and governance attributes have**

contributed to the success or failure of their strategic partnership efforts beyond the specific recommendations already included in this report

R-1A.31: ISD should explore whether it wants to initiate a co-investment program for infrastructure. If it does, we recommend:

- **The asset class head prepares a memorandum for the CIO detailing not just the process and limitations on co-investments (such memoranda exist for some asset classes), but also the needed resources and approval time frames.**
- **That BAM approach a System or Systems to ask for permission for either a demonstration program with expedited approvals, or for discretionary authority for co-investments with previously approved GPs up to a reasonable amount, so as to meet the short time frames generally required.**

R-1A.32: ISD should consider whether to convert group trusts to separate accounts if and when the tax and regulatory issues are resolved.

SPECIFIC AREAS OF SCOPE

A. Monitoring, Reviewing and Performance Analysis

B. Quality and Depth of Team

C. Quality of BAM'S Investment Activities

Leading Practice Expectations

Considering the scale and complexity of BAM's investment program and demanding governance system, we would expect to see an Investment Strategy Division characterized by:

- Adequate resources, including staffing (headcount and expertise) and non-personnel resources (IT applications, budget).
- Robust policies and procedures to minimize operational risk and facilitate systematization of decision-making.
- Staffing that is sufficient in both numbers and skills to implement the investment program in an effective manner.
- Access to tools and other resources necessary to achieve the tasks involved in implementing the investment program.

Conclusions and Related Findings

C-1A.1: The investment program has become highly complex over the past fifteen years.

The investment program includes both traditional public market asset classes and "alternative" private market asset classes. It also includes a variety of investment styles (e.g. active management, indexation), investment structures (e.g. separate accounts, group trusts, partnerships, funds of funds), and geographies. In addition, each of the five New York City Pension Systems has its own investment program, with unique variations, which must be managed to its specific investment policy and structure.

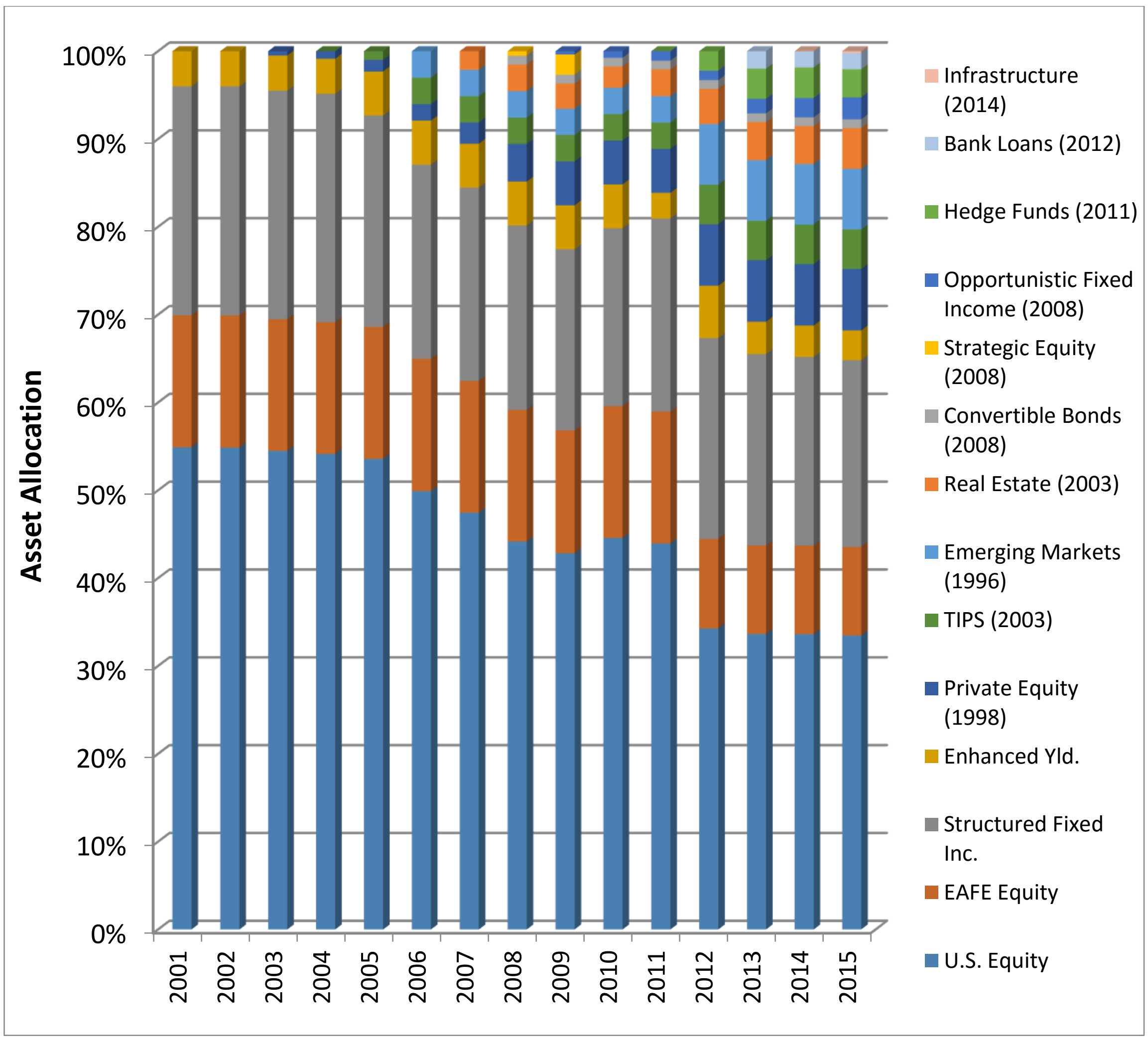
One way to look at BAM is that it is doing the work of five different investment staffs. For example, the State of California has two major state-wide public employee systems: The California State Teachers Retirement System (CalSTRS) and the California Public Employees Retirement System (CalPERS). Like the New York City systems, each has its own Board of Trustees.

Unlike the New York City structure, however, each also has its own investment staff, appointed by, and directly accountable to, the Boards. Funds don't have to be as large as the twin California funds to have that structure; Ohio has five state-wide public employee pension funds, each with its own trustee board and accountable investment staff.

Another way to look at BAM, in general, and ISD, in particular, is as an outsourced chief investment officer (OCIO) for the Systems. The comparison is not perfect, however. An OCIO is hired by, and therefore directly accountable, to the institutional investor which hires it. Also, most OCIOs serve smaller, less sophisticated clients, who have less ambitious and less diversified investment programs. Moreover, most OCIOs have investment discretion.

BAM does not, and, as a result, the ISD must bring almost all manager hiring/firing and material changes in the investment program to each System's Board of Trustees for approval. Therefore, most OCIOs have both a much simpler investment program and governance structure as compared to BAM.

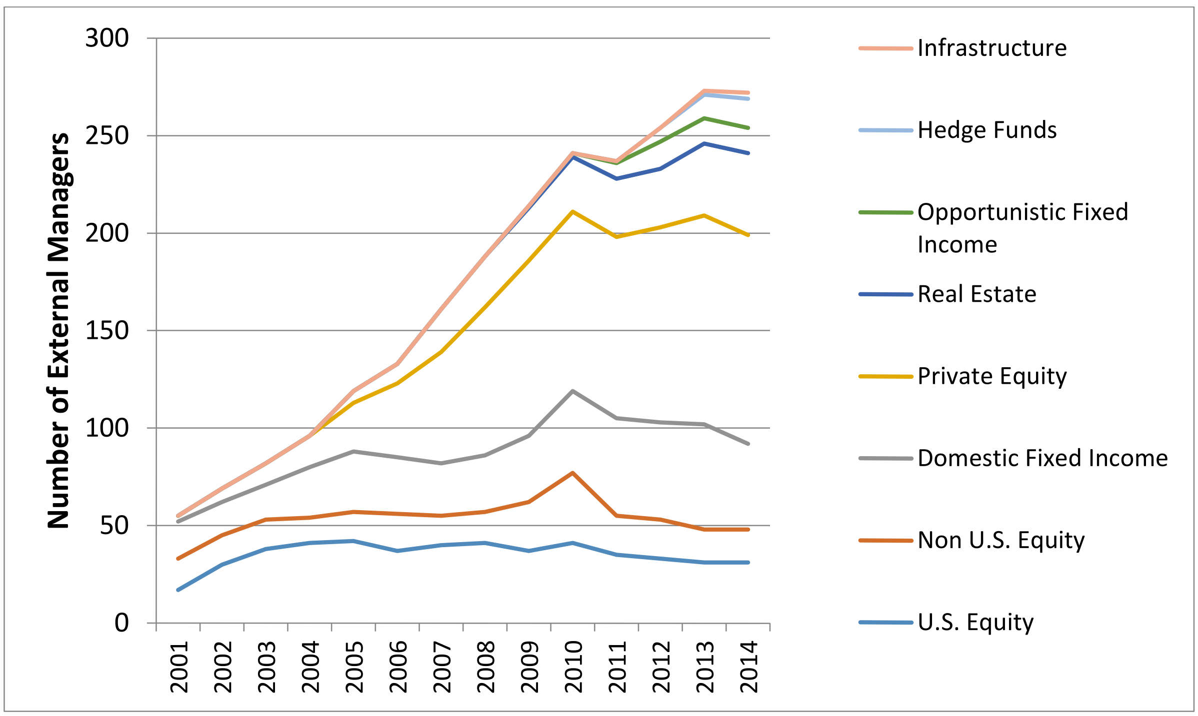
The complexity of asset classes has also grown exponentially in recent years. For example, as indicated in this chart, NYCERS' investment program has grown from four asset classes (or sub asset classes with defined mandates and oversight) in 2002 to 14 today. This is a 250% increase in complexity, as measured by asset class, in less than fifteen years.



As shown on the chart above, as recently as 2002 the only significant asset classes were of only U.S. and international (EAFE) public equities and structured and enhanced yield fixed income securities. Major asset class additions were introduced in more recent years, including:

- Private equity, although added in 1998, was not significant until 2003
- Real estate in 2003
- Opportunistic fixed income in 2008
- Hedge funds in 2011
- Bank loans in 2013
- Infrastructure in 2014

Not only did these changes increase the diversity of the portfolio, but they also required new management capabilities and international coverage. Partially as a result of that rapid diversification, the number of external managers significantly increased, as shown in the table below.



During the period 2001-2015, while the value of assets managed doubled, the number of external managers increased five-fold.

C- 1A.2: Operational risk is very high and an operational failure is likely.

We found an under-resourced and highly idiosyncratic ISD. Resources are inadequate to the point of being a potential fiduciary risk in some areas. Use of investment management tools such as risk measurement systems, which are prevailing practice, are virtually non-existent. Policies and procedures are uneven and often unevenly documented.

Remarkably, staff has overcome these conditions through a combination of individual effort and extensive use of consultants (both the Systems' general consultants and specialty asset class consultants). It is a tribute to those heroic staff efforts that the investment results have been, overall, acceptable.

Nonetheless, the current system lags current prevailing practice norms as it is dependent upon key individuals and a large number of "work-arounds." Operational risk is very high. Staff morale is poor. Given the complexity of the investment program and the demands on ISD, it is a matter of time until a material failure occurs.

A deeper examination of the investment results supports this concern. While the overall return for the five years ended December 31, 2014 was a commendable 9.9% and slightly outperformed NYC's peer group, all that outperformance was due to the funds' asset allocation (the percentage in stocks, bonds, etc.). The implementation decisions (the choice of managers, amount of active management, etc.) actually detracted 0.6%, a worse result than its peers, which had a median gain of 0.2% from implementation decisions.

Given the size of the NYC investment program, this 0.6% shortfall represents an opportunity cost of $0.9 billion in annual returns. While it is highly speculative to suggest a direct one-to-one relationship between a more robust ISD and a zero implementation shortfall, even halving it would result in an incremental $450 million annually for NYC's pension beneficiaries.

Moreover, there does seem to be some internal evidence suggesting that there is a correlation, however imperfect, between the adequacy of resources and implementation success. The best implementation decisions occurred in the public equity and public fixed income asset classes which are the best resourced asset classes within ISD.

By contrast, the least resourced asset classes (real estate and private equity) actually cost the funds money through implementation. As an example, the private equity program currently includes approximately 115 managers and 200 partnerships. Yet staffing has been uneven, dropping to just two people at one point, which is an unsustainable span of control.

Not surprisingly, private equity underperformed its benchmark by 5.7% on average for the five years ending 2014, including underperformance in four of those five years.[5] Unless the robustness of the ISD is improved – including staffing levels, tools, policies and procedures – the results in private equity could prove to be a cautionary tale for all of the investment program.

[5] All statistics from "Investment Cost Effectiveness Analysis," 2014 CEM Benchmarking draft final report.

C-1A.3: There is a lack of adequate staff and resourcing.

The Investment Strategy Division (ISD) is under-resourced both in terms of personnel and other tools. There have been many vacancies and high turnover resulting in key person risk. The high vacancy and turnover rates are associated with historically low compensation, ineffective recruitment processes, lack of training and development and lack of career paths for investment professionals.

Leadership in all asset classes is regarded by informed industry observers as expert and hard working.

ISD has leveraged the various consultants working for the Systems. In some areas, the consultants perform functions which are otherwise not done by ISD, such as operational due diligence in many asset classes. In other cases, the consultants' efforts are additive to those of ISD. In still others, the consultants serve primarily as an independent review of ISD's actions and the investment program overall, providing an independent opinion to the trustees of the Systems.

Collectively, the efforts of ISD and the consultants create an adequate investment program that functions at prevailing practice levels. (While this section includes some discussion of consulting services employed by ISD, particularly in the "Manager selection, due diligence and monitoring" section, for a broader discussion of BAM's use of consultants, please see section 2F.)

ISD employed 23 asset class investment professionals as of the completion of the FAS review. In addition, there were ten vacancies. It is noteworthy the vacancy rate is over a quarter of all authorized front office investment personnel. It included such key positions as the Head of Fixed Income and a number of investment officers in real estate, real assets, and hedge funds.

Moreover, this is after a recent spate of hires and promotions which filled such key positions as the Director of Risk and the Head of Private Equity. Vacancies, and a great deal of turnover, have significantly increased the stress on the remaining staff.

As an indication of just how thinly staffed ISD is, its peers average 0.6 full time equivalent investment staff personnel per billion dollars of assets under management, while ISD is at about 0.2 FTEs, or a third to a half the staffing ratio.[6] Such comparisons are not perfect but typically are indicative.

On the one hand, a compelling argument can be made that the governance structure of BAM, which requires it to provide services to five Boards of Trustees and attend 55 Board meetings a year should call for a higher than normal staffing ratio, not one at less than half that of its peers. On the other hand, many of the peers manage some assets internally, particularly the public asset classes. Considering the variables, it seems likely that ISD would be understaffed, even if it were at full headcount.

Delving deeper into the staffing ratios on an asset class by asset class basis suggests that the understaffing is concentrated most heavily in the private asset classes. The two major public asset

[6] Internal FAS benchmarking of large public pension plans.

classes, fixed income and equities (including non-US equity and the emerging manager equity program) are relatively adequately, though not robustly, staffed.

There are six staff in fixed income (including the opportunistic fixed income program) and six in public equity at the initiation of this review. By contrast, the headcount for hedge funds, real estate and private equity are two, three and four respectively. (ISD also has two people assigned to infrastructure as part of the real assets allocation.) At one point in the recent past, the private equity staff was down to two professionals, despite being responsible for a portfolio of nearly 200 individual partnerships.

It is not possible for two individuals to monitor nearly 200 partnerships from 115 managers in a manner so as to properly fulfill fiduciary responsibilities. (BAM has an initiative to rationalize the private equity program and concentrate its investments with a smaller number of high conviction managers. Please see "Investment Structures", below.)

Thin staffing and high turnover contribute to key person risk; that is, the risk that a significant program will be interrupted, at least temporarily, by the departure of a key person. Indeed, we have been told of that happening at BAM several times.

For example, consideration of several private equity funds was delayed due to change in the private equity staff. In one case, the delay was a matter of years and NYC finally was able to invest just 22 days before the final close after what was a multi-year diligence process. As FAS only interviewed managers employed by BAM, we do not know whether any market opportunities were missed, but the possibility exists.

A number of factors contribute to the high vacancy rate. Perhaps most importantly, until this summer, the staff was significantly underpaid. An independent survey, commissioned by the Comptroller, showed that investment staff compensation was at the fourth quartile compared to its public pension fund peers.

The Systems recently responded to that report, and approved increasing ISD compensation to public pension fund median levels. The hope is that the pay raises should make ISD positions more attractive, allowing BAM to fill the vacancies as well as to encourage existing staff to stay.

However, issues other than compensation also contribute to the vacancy rate: hires are done through the normal Comptroller and City recruiting processes, which are not optimized for asset management professionals. The result is that vacancies stay open longer than they would with a concentrated recruiting effort.

A number of ISD staff note that there is little formalized staff development, and City rules prevent BAM from such common practices as reimbursing staff for taking professional development courses on their own. (A common complaint from the investment professionals is that they have to pay for their own Chartered Financial Analyst review courses.)

As compared to one peer group of large public pension funds, BAM is the only one that has no training guidelines as indicated in the chart below (yellow shading indicates BAM response). The City did provide a training program through Fitch from 2012-2014, and a number of BAM staff did avail themselves of the courses offered. But that was a "one-off" situation and there are no plans for ongoing, permanent training.

How frequently does the investment staff receive training in each asset class?	Number of Systems (N=15)				
	Quarterly	Annually	Biennially (every 2 years)	Other	Never
Public Equity	5	4	0	3	0
Fixed Income	4	5	0	3	0
Private Equity	4	4	1	3	0
Real Estate	4	5	0	3	0
Other Alternatives	2	4	1	2	0

Source: 2012 FAS Benchmarking Study

Nor are there robust career paths to encourage long-term employment. Those factors may shorten staff longevity; they certainly do not provide encouragement for growth in skills and expertise. Finally, there is no formal internal strategic plan and no formal succession planning.

Recommendations

R-1A.1: **BAM and the Comptroller's Office generally should accelerate their efforts to fill vacancies though a coordinated recruitment campaign that advertises the new compensation levels and uses social media targeted to the specific job functions now vacant. Use of recruitment firms specializing in asset management should be considered. The vacancies are so severe that the recruitment effort deserves weekly tracking by a special internal task force of the CIO and the Deputy Comptroller for Administration or their key staff.**

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R-1A.6: **Asset class heads now produce an annual strategic plan for the Boards, but such plans are focused on investments, not on the conditions necessary to invest well. In conjunction with the annual strategic plans, asset class heads should create an internal strategic plan which should include asset class education, hiring, training, succession planning and other internal functions. Such plans should be approved by the CIO formally and shared across BAM.**

R-1A.7: **As part of that strategic plan, asset class heads should identify any analytical tools and/or databases needed. See also R-1A.9, below (unit budgeting).**

Conclusions and Related Findings

C-1A.4: **There is no quantitative risk management program, which limits BAM's ability to structure its investment portfolios and gain needed insight into portfolio risk.**

Even the best professional staff will not be effective without the necessary tools. Technology in general is examined in section 2J and risk management in section 1E. However, one specific item should be noted here as it is central to ISD's ability to craft an investment management program: there is no effective quantitative risk management.

Risk management has, to date, been focused on operational areas, rather than providing tools to ISD. While this may be understandable, it creates a material weakness in current practice. Risk management does subscribe to Investor Analytics (IA) but IA is only marginally used by fixed income, and not at all by equities, despite the fact that ISD is well-positioned to use IA. All public securities are held by NYC's custodial bank, so IA can create risk reports based on position level data, a much more robust method than using manager returns.

Also, IA is best known in the pension world for providing a holistic view of fund risk (often called "risk aggregation"). In addition to the position-based analysis available for custodied public securities, non-public assets can be proxied, or managerial returns can be used for returns-based analysis. However, no-one at ISD uses IA, or any other quantitative risk tool, to measure or manage total fund risk.

FAS understands that the Risk Management Division is currently evaluating other risk measurement tools which it believes may be more appropriate. We express no opinion as to which tool (or whether multiple tools) should be employed. However, it is a lagging practice to not have any quantitative tools available.

The effective lack of quantitative tools to monitor and manage risk has a limiting effect on the techniques BAM can employ in structuring the investment portfolios. Leading practice techniques, such as directly targeting active share (in addition to using tracking error measures or style indices) are just not feasible without a risk management tool.

The lack of tools extends to specific asset class databases and analytical programs. Two different class heads noted that they had asked for access to well-known analytical packages within their respective investment universes. Those requests were turned down without serious consideration by previous administrations.

ISD staff attempts to compensate for this lack by accessing tools made available by the various consultants, but that is clearly a poor stop gap for having access to your own tools, configured as BAM would like and populated with BAM specific managers and information.

Recommendations

R-1A.8: Risk management, in conjunction with the asset class heads, ought to continue its evaluation of FactSet as well Investor Analytics and other potential risk management engines to determine if one can be used effectively by BAM. If Investor Analytics is chosen, a training program for IA should commence immediately. If another risk system is chosen, risk management should, in conjunction with the asset management heads, begin the RFP process for a quantitative risk tool immediately. A list of commonly used risk management systems is included as part of Appendix A-2J.8.3.1 Applications and Vendors.

Conclusions and Related Findings

C- 1A.5: The ISD culture is self-limiting.

Other resources are also necessary. FAS normally would include budgetary needs in this section. However, in our examination, we found a self-limiting culture such that ISD rarely asks for resources. So, while there is clearly a lack of what budget can buy, such as necessary travel and data sources, the problem appears to be as much cultural as budgetary.

We would expect to find a “can do” culture, focused on the level of performance and prominence that a $165 billion pension fund complex located in the financial capital of the world could achieve. We would expect it to be marked by continuous improvement, mechanisms for information sharing, and both formal and informal benchmarking against its peers.

We find, on the one hand, ISD is proud and insular. Staff often told FAS that, because of the governance structure of the City's funds, BAM is unique and has no comparators. In this version of ISD's culture, the individuals are expert and heroic, overcoming a challenging governance structure and lack of resources to deliver solid investment performance.

On the other hand, staff morale is poor due to the challenges they face daily, and the staff has become self-limiting. In this aspect of ISD's culture, they complain about perceived problems, such as shortcomings from the custodial bank and travel restrictions, without understanding that they have the power to challenge them and change them.

Feeling under extreme pressure at all times, ISD staff primarily focuses solely on the day-to-day work; information is not shared generally between asset classes and constraints are not challenged. Those two aspects of ISD form a vicious cycle: heroic efforts overcome shortcomings, which then don't change, leading to the need for more heroic efforts. All the while, the underlying problems continue to fester, making the day-to-day work harder than it needs to be.

Travel is the best exemplar of the cultural issues facing ISD. FAS understands that travel is often a flash point for public pension funds and investment staffs such as BAM. A Google search for "public pension fund travel" yields 25.9 million citations.[7] Many are not flattering, portraying such travel as lavish or as unnecessary perquisites. Travel by public employees is, and always will be, controversial. Nonetheless, prevailing practice is that investment staff travel for due diligence, for manager monitoring, for service on Limited Partnership Advisory Committee (LPAC) meetings, and for other reasons, such as occasional best practice learning from other public pension funds.

Rather than fight for prevailing practice, ISD seems to have decided that the potential criticism of travel is not worth the substantive benefits. While there are exceptions, the culture of ISD overall simultaneously resents a perceived travel ban (that doesn't exist) and also refuses to confront it.

This results in real risks to the funds. For example, opportunistic fixed income (OFI) recently invested in a fund where servicing of real estate payments was key to its success. This servicing is done in Florida. OFI never asked to go to Florida to look at the servicing. This reticence to ask for travel is largely a result of two forces.

First, previous administrations did turn down requested travel in a blanket fashion. Second, some staffers say they are so busy they just can't travel, even though it may be required to do their job.

The irony is that there is no travel ban. The current CIO has, on multiple occasions, told ISD staff they need to travel for legitimate reasons (and in a responsible manner, per NYC rules). Despite those multiple reassurances, travel is widely regarded as off limits by ISD staff.

[7] Google search performed August 31, 2015.

Many in ISD understand that its travel reticence is lagging practice and damaging to its professional efforts. OFI acknowledges that not traveling for operational diligence increases underwriting risk.

On the other hand, private equity says it would never invest in a new fund without going on site due to the increased underwriting risk. (Private equity notes it sometimes substitutes “pseudo” on-site visits via a video conference call. In FAS’ opinion this is a second best solution for initial due diligence, though it can be useful in monitoring existing managers.) Fixed income notes that site visits would be “helpful” but are “not possible”.

There are exceptions to the travel reticence, of course. Private equity travels for Limited Partner Advisory Committee (LPAC) meetings and for many due diligences. It has benefited from a creative solution of negotiating a provision into NYC’s limited partnership agreements to allow the partnerships to pay for LPAC members to attend LPAC meetings, which deals with much of the resource question and some, but not all, of the optics of public employees traveling.

Corporate governance (which is not included in ISD) also travels more extensively than other parts of BAM, though it still feels constrained by the optics of a public servant traveling. It therefore arranged with other public pension funds to introduce a number of the proxy resolutions it sponsored last year, so as to minimize the number of trips it takes.

Those two examples reflect the tension that will always exist between the need to travel to do the job and the optics that exist in a public pension fund environment. This tension is probably healthy. By contrast, complete surrender to not traveling so as to avoid all criticism – even at the expense of not adequately performing due diligence on new managers, monitoring existing managers, availing oneself of learning from leading peers or otherwise improving the investment program – is not.

Such self-limiting and destructive cultural traits also occur in ISD’s relationship with the custodian. FAS continuously heard complaints about the ability to query and receive information. A full examination of the custodial bank relationship is included in section 2C, as are specific recommendations relating to the custodian. However, the nature of the complaints suggests that the perceived sense of powerlessness by ISD combined with being overwhelmed by the day-to-day demands of the job, is appropriately mentioned here.

BAM is a large and public client, and can leverage its importance to demand services from the bank. Indeed, the bank has embedded a service consultant in BAM. To be fair to the bank, it has provided training which might ameliorate some of the complaints, and a number of investment staff, from fixed income to real estate, admit that they are so busy day to day that they have not had enough time to really learn the relevant custodian bank modules and capabilities.

One private asset class investment officer noted his/her whole day was spent “doing deals,” which meant there was no time available to learn the system. Still, the lack of belief that ISD staff could demand quick action from the bank was systemic.

The insularity of ISD is evident across two dimensions. First is the lack of routine comparisons against external peers. The compensation study and the commissioning of this study may be evidence that is changing. However, those are large, expensive initiatives using external resources. Much benefit can be created through informal methods that enable learning from leading practice organizations. Again and again, we asked asset class heads and other investment officers who they regarded as leading peers in their specific areas.

Inevitably, they knew, by reputation, of such funds as Texas Teachers, Ontario Teachers, Florida State Board of Administration, Missouri State Employees, CalPERS, or others, depending on the asset class. Some even shared market information with their counterparts at those funds, such as funds coming to market.

But, just as inevitably, they had never asked those funds to compare BAM processes to those acknowledged to be leading practice. Even faced with the pending requests from Compliance and the CIO for due diligence systematization (see manager selection, due diligence and monitoring/investment performance by asset class, below), BAM did not take advantage of those relationships with peers to help create those documents.[8]

One long-time BAM employee recollected that such information sharing used to happen more often, but, once people thought they knew what others were doing, it stopped. The problem with that approach, of course, is that it assumes the state of knowledge is static. In today's world, with today's markets and today's instantaneous information sharing technology, this is an unwarranted assumption.

Perhaps more troubling, however, is the lack of information sharing, whether formal or informal, within BAM. This cuts across divisions; for example, when the Opportunistic Fixed Income program was started, no one thought to work with Investment Control to explain the specific nature of bank loans and other new instruments. It also occurs within ISD; we were told of a situation when the hedge fund group was asked about how and when to deal with capital calls. There are no such calls in hedge fund investing.

By contrast, high performing public pension plans boast many information sharing structures. They serve to spread best practice, create transparency across organizational units, cross-train (to some degree) investment staff, publicize employment opportunities (thereby helping to create career paths), share market information, and inform both other investment staff and support staff as to what is happening both within the organizations and the world of markets and investing generally.

While FAS applauds the CIO for his recently initiated senior staff investment meetings, we note that they are largely limited to a due diligence and managerial progress meeting, designed to facilitate the

[8] A number of compliance reference materials are included in the appendices to this report and they can certainly serve as a starting point for a leading practice review. However, leading practice changes over time and creating an informal network of leading practice peer public pension funds, and informally benchmarking practice against them, should be an ongoing effort.

calendar of due diligence and approval requirements. It is a necessary communication tool given the governance structure of the funds, but is not adequate to share information across ISD or BAM.

The quarterly "deep dive" meetings initiated by the CIO with each specific asset class are also welcome, but seem to be sporadic. There is no real investment committee meeting where market information, leading practices, and general discussion of big issues are routinely discussed. Nor is there any routine method to access outside expertise – despite the fact that BAM's location (literally six tenths of a mile from Wall Street), its governmental mission, and its immense size make it superbly situated to access such expertise on a pro bono basis.

Similarly, FAS agrees that the general counsel's office annual fiduciary training and planned regulatory training is a positive development. But it is designed to create a baseline of compliance and regulatory knowledge, not to share investment best practices.

This lack of information sharing creates less informed and therefore less skillful investment professionals. It encourages information silos, which increases operational risk and discourages continuous improvement. It is a missed opportunity for staff development and morale building which could assist in filling vacancies. It also hinders cooperation between ISD and control functions such as Compliance and Risk Management.

Finally, we note there is no formal "on-boarding" process for BAM generally (as distinct from the Comptroller's Office and City-wide process). This is a missed opportunity to inculcate a positive culture. Merriam-Webster provides a number of definitions of culture, including "a way of thinking, behaving, or working that exists in a place or organization." Changing culture is notoriously difficult. FAS believes that asking people to change their "thinking" is exceptionally difficult. Changing "behaving" and "working" is easier. Creating structural changes that result in changed behavior can be achieved relatively quickly. If those changes are applied consistently and create better results, the thinking will come.

Recommendations

R-1A.9: To empower ISD staff, each unit's strategic plan (see R-A1.6) should include a budget request. That request should include both headcount and Other than Personal Services (OTPS) budget, which would include the cost of unit-specific analytical tools, databases, subscriptions, travel, and other tools necessary. Devolving budgetary authority should improve accountability and eliminate the overwhelming feeling of being dis-empowered. The CIO should work with the unit budgets as well as the Deputy Comptroller for Administration to create the overall BAM budget.

R-1A.10: The CIO should create a written, multi-faceted travel policy.

- **It should be coordinated with the due diligence and monitoring policies (see R-A1.20 below). Failure to travel to meet the diligence and monitoring requirements, not the request to travel, should be considered the exception needing CIO approval.**
- **It should conform to NYC travel policies.**
- **Compliance with the travel policy (as should compliance generally) should be considered in each senior staff member's performance review.**

R-1A.11: In addition to the weekly senior staff meetings that serve as due diligence and managerial progress meetings, the CIO should create the following information sharing mechanisms:

- **A monthly investment meeting. While the content and format of the meeting will evolve over time, and it should be flexible enough to include interesting "one-off" topics. We suggest the following to begin:**
  - **A short market overview by the CIO or an asset class head, with follow on discussion from the other asset class heads as to what they are seeing and what, if anything, those market developments mean for their asset classes.**
  - **A sharing of noteworthy developments in each asset class, if any.**
  - **Reporting on any industry trends or developments which would be interesting. Such industry trends could range from the asset allocation decisions (and rationales) for other pension plans to what structural or regulatory changes in the markets mean for NYC's investment program.**
- **A quarterly "lunch and learn" featuring speakers from the industry. To make sure these happen, the CIO should appoint a specific staff member to coordinate them.**
  - **Continuation of the quarterly "deep dive" discussion between the CIO and each specific asset class staff.**

R-1A.12: Compliance, Risk Management, and each asset class ought to understand the policies and processes of one or two public pension fund peers considered "best in class" as they create compliance and due diligence checklists. While a number of due diligence documents are included in the appendices for BAM to use as templates, no one else's total approach is perfect for BAM. The documents are provided to allow BAM to pick and choose portions of each that it believes applicable and to allow BAM to understand the range of approaches. While the peers' processes should not be adapted wholesale given BAM's specific needs, they should inform the new policies now being put into place. In the future, each asset class head should create an informal network of best practice peers which he/she can contact regarding market, manager, and leading practice information so as to stay informed over time as markets and market practices change. BAM can also use its New York City location to its advantage, by inviting respected peers to come to BAM

for information exchange sessions as those funds come to New York to visit their managers or for other reasons.

R-1A.13: Institute a formal "on-boarding" process for all new hires. That process should include adequate time with every division in BAM (both inside and outside ISD) so that every ISD staff understands the philosophies, processes, roles and constraints of all of BAM, at least at the level necessary for him/her to appreciate how their functions operate within the overall investment program. In addition, each asset class within ISD should create a formal onboarding package.

While the exact contents should be tailored to the asset class, we would suggest the asset classes seriously consider including, at a minimum, the written asset class operational overview, the latest annual strategic plan, a copy of the latest due diligence and monitoring memoranda and supporting documents, a copy of the latest quarterly performance report, and an organizational chart for BAM as a whole, with annotations about the role of the people in that asset class.

D. Manager Selection and Monitoring

E. Evaluation of BAM's Procedures Used to Measure Managers' Performance

F. Investment Processes by Asset Class

Leading Practice Expectations

We would expect to find a documented set of manager sourcing, selection, due diligence and monitoring guidelines. Such guidelines would usually include various indicative checklists for both investment and operational due diligence. We would also expect to find well-organized files of due diligence and monitoring memoranda and we would expect to see those processes and procedures implemented by experienced asset class experts. Finally, we would expect to see routine performance analyses of existing managers complete with comparisons against benchmarks as a prevailing practice, and performance attribution compared to market environment as a leading practice.

Conclusions and Related Findings

Manager sourcing, selection, due diligence and monitoring (including performance measurement) varies by asset class, and therefore, an asset class by asset class analysis follows. However, there are some observations which seem applicable for all of ISD.

The various consultants' efforts are integrated into ISD's efforts. The combined efforts are robust, usually at prevailing practice, and occasionally at leading practice levels, though perhaps not as efficient as they could be, given the multiplicity of actors (five general investment consultants, two real estate consultants, two private equity consultants, a hedge fund consultant, ISD staff, etc.). We doubt that anyone would create a program that looks like this if given a blank piece of paper, but it works adequately.

However, ISD's efforts, looked at in isolation from those of the consultants, have room for improvement.

In general, due diligence can be divided into three parts. The first is investment due diligence (IDD). The goal of IDD is broad: to understand if a manager can do what it says it plans to do and if it's worth doing in the first place. While there are, literally, hundreds of potential issues to understand, in general, IDD seeks to understand an investment manager's philosophy, process, and skill sets, as well as the instruments and markets in which it will invest, risk management, past investment history (why it occurred, not just the performance numbers), etc.

Traditionally, operational due diligence (ODD) looks at non-investment risk, such as compliance, IT capability, business continuity, regulatory issues, valuation, etc. It used to be said that operational risk is the one risk for which investors never get paid. Increasingly, however, as institutional investors move into private markets and into niche strategies in public markets which do more than trade public securities, ODD has begun to overlap with IDD.

As noted above, a recent opportunistic fixed income investment was dependent upon servicing, generally considered an operational issue (as opposed to the underwriting standards, which would be IDD). In other contexts, we have seen stub mortgage strategies[9] dependent upon record keeping for thousands of sub-million dollar derivatives, direct lending and other operationally demanding strategies. While ODD remains a separate discipline, the need for front office investment professionals to understand an investment strategy's operational risks increases in such circumstances.

Finally, there is investment "fit", or portfolio construction. This aspect of due diligence seeks to determine whether a particular manager or fund is additive and appropriate for an investment program, even if IDD and ODD are clean and the manager impressive. Looking at those three categories, some broad conclusions can be made about ISD's due diligence efforts.

In general, with few exceptions, IDD is stronger than ODD, which is largely left to the consultants. And, as noted in "Resourcing", above, ISD just does not have the appropriate quantitative tools to do robust portfolio construction, so it relies on proxy measures such as benchmarks and on consultants' quantitative abilities for both it and for manager monitoring and performance measurement.

[9] The portfolio manager in this strategy buys "stub" pieces of mortgage backed securities (MBS) from aged pools that may only have a few million dollars or even a few hundred thousand dollars remaining. Modeling such remainders and tracking cash distributions can be operationally intense. That operational intensity sometimes motivates banks and other servicers to sell these stub mortgages at less than intrinsic value, creating an opportunity for this fund.

We are aware that BAM receives Investor Analytics, and that the risk management division is exploring FactSet. Either or both, as well as other risk management tools, could improve the quantitative tools and analyses available to BAM.

We have included examples of risk and return attribution reports in the appendices, but caution that no one else's reports are likely to be optimal for BAM's use. The design of risk and performance reports appropriate for BAM will depend on a variety of BAM-specific factors, including the asset class, the specific risk management system, what the asset class staffs are trying to measure with respect to each manager, and, perhaps most importantly at some point in the future, what risk measures are adopted (if any) by the Systems.

Nonetheless, some standard analyses would include: absolute performance, relative performance to benchmark(s), information ratio, Sharpe ratio, beta (public equities), cap to benchmark (public equities), style measures (e.g., p/b, p/e) to benchmark (public equities), duration risk, (a measure such as DV01) (fixed income), geographies, credit (fixed income), sectors, top holdings, top contributors to VaR, top contributors to marginal VaR. and various scenario analyses.

ISD's documentation of its due diligence is uneven. The summary memoranda prepared for the CIO and the system trustees are adequate and at prevailing practice levels, but contemporaneous documentation of due diligence meetings is lacking. This may be understandable given the overwhelming day-to-day crush of work facing ISD, but it is still a lagging practice. Contemporaneous documentation can be as simple as a single line describing a meeting, e-mail, telephone call or other communication in an off-the-shelf customer relationship management log.

Once a manager is hired, there is room for improvement in terms of monitoring, reviewing and performance analysis and the procedures used to do so. Indeed, they were the two lowest scoring categories in the self-assessment. A major reason is that, as noted above, BAM provides ISD with few tools to dig into performance, so investment officers are reduced to eyeballing performance against benchmarks, rather than analyzing performance and risk attribution against various dimensions (such as capitalization, sector, credit quality, geography, etc.)

What analysis is done is reliant on either self-reporting by managers and/or the consultants. One major problem of relying on benchmark-relative return with little analysis is that there is little ability to judge active management which produces non-correlated returns.

The following is an asset class by asset class review of ISD's investment processes.

Public Fixed Income

Managers for public fixed income (as for public equities) are now selected via the "new" expedited process. This process allows a manager to be hired, when recommended by two or more of the funds' general consultants, without a full, open RFP process. Therefore, a key dependency for quality hiring decisions is the scope identified by fixed income, which identifies the desired attributes of a manager. The consultants' lists will only be as good as the scope requirements allow.

On a practical basis, the use of the expedited process has cut months out of the search process and allowed ISD (fixed income in this case) to focus on a smaller subset of managers. Those are exceptionally positive results. On the other hand, the process codifies the funds' consultants into the purchasing process. That is a reasonable trade-off, and one that many public funds make, as they will often begin with a consultant's list of recommended managers. Given the unique governance structure of the five NYC funds, however, the process does raise a fiduciary issue.

The trustees of a particular fund may not be able to consider hiring the manager preferred by its consultant, if no other consultant also has that manager on its recommended list. As one fund's general investment consultant noted, the trustees at that fund are somewhat resentful that they must rely on consultants for other funds, when those consultants owe no fiduciary duty – and are not even bound by contract – to their fund. That concern is mitigated somewhat by the reality that no fund will hire a manager actively opposed by its consultant. Despite those concerns, the expedited process appears to have achieved its objectives and is working well.

Once a list of managers with at least two consultant recommendations is identified, ISD sends them a customized RFP which tends to be about 50% related to investments and 50% related to operations. (Another advantage of the expedited process is that the targeted managers know their odds of serious consideration are much higher than under the old system and so are likely to respond to the RFP.) Fixed income staff then follows up as necessary, scores the responses, and decides on multiple semi-finalists. Consideration of fees is integrated into those deliberations.

Meanwhile, consultants who are familiar with the managers update their knowledge and less familiar consultants do fairly significant follow-up diligence to the RFP. Semi-finalists are interviewed at BAM in a meeting open to all consultants (who usually attend) and trustees (who usually do not attend). As noted in "Culture", site visits are not normally performed by the fixed income staff, though it believes such visits would be helpful.

Therefore, ODD is largely based on the RFP process (including follow-up questions) and on the consultants' ODD efforts, which often do include on-site diligence. For example, one fixed income manager noted several follow up contacts by the various consultants during the process, including two site visits.

Fixed income staff then invites finalists to present to the various Boards of Trustees, who make the final selection.

The contracting and on-boarding process at BAM also plays a compliance and ODD role. One fixed income manager noted that BAM has specific reporting requirements, and that it had agreed during the contracting process to commit to a training process for FACTA compliance.

Monitoring of retained managers is typical for public funds, featuring quarterly reporting and periodic in-person meetings at BAM. There is no requirement for periodic on-site meetings (though some are held if a manager's offices happen to be in NYC). Quarterly reports typically include performance, firm updates, portfolio updates and any compliance issues. One manager notes that reporting for BAM is more complicated than for any other public fund. Not only does it report to ISD, but also to the various general investment consultants. Moreover, several of the Systems have unique compliance requirements (usually sector restrictions) which are not the same.

In addition to manager self-reporting, compliance is also monitored by the custodial bank's monitoring software; fixed income does not have direct access to the compliance module. Nevertheless, the combination of managerial self-reporting quarterly and compliance's real time monitoring through State Street Bank appears to be effective. In addition, the Office of the General Counsel reviews the annual compliance statements and does ad hoc reviews of public records relating to managers employed by the systems.

Performance is monitored against benchmarks (see Section 2A) through the use of State Street's performance reporting module. However, performance and risk attribution is limited due to the minimal use of quantitative tools. Perhaps that is the reason that "BAM's procedures to measure manager performance" was amongst the lowest scoring areas in the self-assessment survey.

Documentation of the due diligence efforts are kept via the RFP responses, personal notes of follow-up calls or e-mails and the interview, and, ultimately, via the summary recommendation memorandum which goes to the CIO and the Boards.

Opportunistic Fixed Income

The Opportunistic Fixed Income (OFI) program is run by ISD's fixed income staff. It primarily invests in four specific sectors of the fixed income markets: private lending, structured credit, commercial real estate lending, and stressed debt. Investments are made through two types of structures: funds, which are structured like typical private security funds, and strategic partnerships, which are created specifically by and for OFI. (For a discussion of the OFI strategic partnerships, see "Investment Structures", below.)

For fund investments, the process mirrors that of private equity, except that there is no specialty asset class consultant for OFI. Fixed income staff uses all the general consultants – and occasionally the specialty real estate consultant – to review potential funds and strategic partners. A recent fund hiring was typical of the OFI process. The specific fund was a "re-up"; that is, it was a fund started by a general partner (GP) which already managed partnerships in which one or more of the NYC funds was a limited partner. Therefore, fixed income staff and some (but not all) of the general consultants were familiar with the GP, but not the specific fund.

The fixed income staff reviewed the GP's standard due diligence questionnaire (DDQ) and then had a series of meetings, both telephonic and at BAM, with the GP. Among the areas covered were the market opportunities, deal sourcing, investment process, history of previous funds, and operations. The GP noted that the quality of the ISD fixed income staff was high and that their follow up questions were quality.

Meanwhile, four general consultants were conducting their own due diligences and two went on site for ODD. As this was a real estate debt related fund, one of BAM's real estate consultants also performed due diligence. Overall, the GP noted that the multiple touch points created an "incredibly comprehensive" due diligence process, with an order of magnitude more contact between the GP on one side and fixed income staff and the respective consultants on the other than the GP experienced for any other potential LP.

Once the fixed income staff and the consultants reach an agreement to invest, the potential partnership is presented to the individual pension Systems for final approval.

The multiple touch points do come at a cost: to date, OFI has been unable to be in any partnership's first close, as the process is time consuming. (Strategic partnerships do not have multiple closes, as the NYC funds are the only LPs.)

As with most recent partnership investments in all private asset classes, OFI negotiates a seat on LPACs, so, in addition to the information it receives quarterly, it has an opportunity to monitor funds (as well as exercise some governance rights) in depth through that mechanism. General partners confirmed that the fixed income staff attend LPAC meetings and participate appropriately.

FAS notes the recent retirement of the long-time head of fixed income. While it is too early to have a definitive opinion on the expertise of the remaining fixed income staff, we note that the consultants and general partners with whom we spoke were very positive about the staff. FAS's own impressions were also positive about their expertise and effort, although we did detect some hesitancy in creating an environment in which that expertise can best be used, consistent with the general cultural issues noted above.

Hedge Funds

The hedge fund staff has a somewhat unique sourcing strategy. Staff believes too many hedge funds are sold, instead of being thoughtfully bought. Therefore, staff focuses on finding superior investment managers and trying to get them to accept BAM as an investor, even if the fund publicly says it is closed to new investors. To achieve that, staff uses whatever levers it can, from using its specialty consultant, to emphasizing NYC's size and long-term investment horizon, to personal contacts.

As an example, one GP allowed NYC to invest in a closed fund thanks to a combination of the specialty consultant's relationship, the ISD hedge fund staff's persistence, and the GP's feelings about being headquartered in NYC. In another case, hedge fund staff reached out to a closed fund through its prime broker, resulting in NYC getting first call a few years later when the fund re-opened.

The identification of desired hedge funds is a combination of data gathering from capital introduction departments, the specialty hedge fund consultant, speaking with industry peers, and asking other hedge funds.

The focus on seeking out and then "buying" funds, rather than having them "sold" to NYC, is a major change from previous administrations, which primarily focused on asset gathering funds which sought them out, according an outside industry expert with knowledge of BAM's hedge fund efforts over the years.

Once a potential investment is identified, staff performs a quick reality check with the specialty consultant. Assuming no red flags are raised, the hedge fund staff proceeds to full due diligence. It asks the GP for its marketing presentation and DDQ, and uses a checklist to begin its IDD. That checklist covers investment strategy, team and structure, risk management, and miscellaneous other issues.

The staff also has a statement of investment preferences which lists such issues as alignments of incentives between the GP and LPs, focus on singular strategies, concentrate best idea funds rather than broadly diversified one, low net exposures, etc. Staff then develops a list of follow up questions and schedules an in-person meeting with the manager. Unlike other ISD departments, that meeting is usually, but not always, on-site. It also runs a returns correlation analysis.

Checklists are necessary but not sufficient conditions for good due diligence. Proper due diligence must be done by experienced people with an inquiring and somewhat skeptical mindset. This seems to be the case. The hedge fund staff is headed by a former fund researcher at two well-known private sector allocators.

Two industry experts agree with that assessment: one calls the staff "sophisticated"; the other, the GP of a global fund, said that as a result of the investment due diligence, he thinks BAM knows the fund better than any other LP. However, much of that expertise is resident in the asset class head; documentation of the process is uneven and has not been shared with much of BAM.

Assuming that the diligence is proceeding positively, hedge fund staff notifies the specialty consultant, which then sends separate IDD and ODD teams to diligence the fund. As part of those efforts, ODD is outsourced to the specialty consultant. FAS notes that is prevailing industry practice for hedge funds. Compared to ODD, IDD appears to be a truly parallel process between ISD and the specialty consultant. Assuming that both the IDD and ODD from the specialty consultant is positive, staff prepares a recommendation to fund for the CIO and the Systems, which have the final authority to fund.

In terms of monitoring, the hedge fund staff receives the normal manager reports, including monthly or quarterly letters. However, it also asks managers to modify their reports to fit its specific risk reporting requirements. So, for example, a global macro fund was asked to change how it maps certain equity and credit exposures, and to report by geography. In addition to various contacts throughout the year (e-mails, conference calls, one-off calls, etc.), there is a formal written annual review.

The limited number of hedge fund investments facilitates monitoring, with the focus on risk exposures. However, as with most of ISD, quantitative tools to assess portfolio fit are lacking. While staff runs correlation analysis performance attribution, up/down capture and a number of other risk/return analyses, thus far hedge fund staff has been unable to purchase Pertrac (or competing products), an industry standard database which also has some quantitative abilities and would facilitate those analyses. Instead, it uses an Excel spreadsheet to track each manager. That spreadsheet is populated with the manager's self-reported data. In addition, the consultant gives ISD access to some quantitative tools.

Private Equity

The private equity program is in transition (see "Investment Structures", below). The current underwriting process appears to be, by multiple observers' accounts, an improvement from previous versions.

Sourcing begins with the pacing analysis. With a total of approximately $2.75 billion a year needing to be committed so as to stay on pace to meet the asset allocation, BAM is constantly in the market. To stay current on deal flow information and other opportunities, private equity staff holds bi-weekly calls with its specialty consultants. Staff also attends industry functions and speaks with other LPs to stay abreast the marketplace. It does not have access to various specialized private equity data base and information sources, except through the consultants.

Given that there can be 100 or more funds in the marketplace at any one time, staff focuses on investment fit to the annual plan (e.g. investment strategy, sector, geography) and what it calls "high conviction" strategies. Staff maintains a list of factors to help it assess high conviction strategies. This list is broken down into four main categories; investment sourcing, portfolio construction, implementation history, and business management.

Once a potential investment is identified, staff visits with the manager and begins underwriting the fund, including a review of the investment team, track record, trends, terms and governance. It also assigns a specialty consultant to do parallel due diligence. ISD staff's due diligence includes a request for standard disclosure documents, which includes more than 50 pieces of information. Additional information is often requested; one large GP remarked that staff had required 20 different analyses in addition to the disclosure documents.

In addition, staff receives all DDQ or RFI information from the assigned consultant. It also performs reference checks (as do the consultants, which may or may not overlap), and checks on fund valuations. Private equity staff also does some ODD. For example, one large manager who recently received funding noted that the private equity staff did reasonable ODD itself, including reviewing all valuation documents in a previous fund. Nonetheless, even ISD private equity staff itself admits its ODD could be deeper; as a result, it relies on its own efforts combined with those of the assigned consultant.

Despite the creation of the disclosure checklist, private equity does not maintain a full due diligence checklist, either for IDD or ODD, though it agrees the creation of such a file would be a better practice.

Should staff wish to proceed, a meeting between the CIO and the GP is arranged. Staff then makes its investment case to the newly established due diligence/investment meeting. Also, in private equity, no investment may proceed without approval from legal and compliance as to the adequacy of the disclosure documents. Investments (with the exception of a small emerging manager program for which the ISD staff has discretion, in a major exception to the various systems' normal policies) are then brought before each of the system's boards for approval.

Industry experts familiar with both previous and current private equity staff believe the current staff, though under-resourced, is professional and methodical and that the current process is a logical one. One said the current private equity team was "night and day" compared to the past. A GP noted that it was less reliant on the consultant for a recent investment than one made a number of years ago.

Monitoring begins with the routine quarterly reports sent by managers and with the annual in-person meeting most partnerships host for LPs. Staff also receives monthly flash reports and quarterly performance and market reports from the consultants. Also, as with OFI, private equity requires that BAM be given a seat on an LPAC as a contract condition. Therefore, its monitoring of the partnerships is enhanced through LPAC meetings or calls.

However, as discussed in the resources section, above, there are approximately 200 funds across about 115 managers. Staff admits it would be impossible to monitor all the funds adequately. This is confirmed by existing GPs, who note that exiting staff sometimes turn down opportunities for meetings due to time pressure.

As a result, staff relies on the specialty consultants to cover all funds. Staff itself focuses on the roughly half of the GPs it believes are likely candidates for "re-ups". In addition, any consent requests (certain actions by the GP which are not ordinary course of business, require consent of LPs) are sent directly to the ISD staff as well as reviewed by the asset class consultant. In effect, then, staff has "triaged" its monitoring of existing relationships.

Public Equity

The hiring process for public equities is very similar to that for public fixed income and uses the expedited hiring process. Rather than restate the process, please see "Public Fixed Income," above.

There are, of course, some differences. Public equity initially scores the proposed managers without regard to fees. The fee schedules of the initially selected managers are then analyzed.

There are also some similarities. There is rarely any travel to potential managers outside of New York City and little emphasis on ODD, which the public equity staff regards as only a minimal concern because the assets are held in custody by the City's bank (as are the public fixed income assets). FAS disagrees with this conclusion. While valuation for public equities is less of an issue than it is for private asset classes, there are still enough operational risks to make ODD necessary.

For example, owning the assets outright does not mitigate regulatory or compliance risk. Nor does it suggest knowledge of how trades are implemented at the manager, the compensation arrangements that affect analyst and portfolio manager time frame, how trade allocations are done or a host of other issues which have proven problematic at various firms in the past.

The thinness of the quantitative analysis is another similarity. The public equity staff generally relies on the eVestment database for performance analysis, though the familiar comments about the lack of robust quantitative tools to analyze portfolio fit continue to apply. Rather, fit is based only on "style boxes" (i.e. small cap value or EAFE growth, passive or active, etc.).

Public equity was unaware that Risk Management subscribes to Investor Analytics. "There is not, and has not been, a lot of back and forth with Risk Management," one staffer noted. Other staff members also expressed frustration at the lack of quantitative risk management tools at BAM. As a result of the lack of in-house quant tools, staff will often ask the consultants to analyze the proposed managers using various other tools, such as Barra or FactSet.

While the amount of information in the RFP and diligence process is material (one recently selected manager called it very thorough and one of the best processes it had been through), internally there is minimal documentation of the due diligence process until the summary memorandum. Public equity staff say they were told by previous administrations not to document because such documentation was subject to discovery under the City's Freedom of Information Law (FOIL).

Monitoring begins with monthly performance reviews. Public equity staff feels the migration to State Street was a positive; the staff feels it can "dig in" to performance more easily now that it has access to my.statestreet.com. However, performance and risk attribution is even more limited than in public fixed income, as public equity has no access to any BAM-supplied quantitative analysis tools. Again, we note that "procedures to measure manager performance" was amongst the lowest scoring areas in the self-assessment survey.

Managers are also required to provide quarterly reports which cover both performance and compliance issues, and staff also holds quarterly calls with the funds' general consultants to review specific managers. (The consultants have their own monitoring regimens.) Staff is supposed to do a formal, in-person review of each manager annually, but some have fallen behind schedule.

As might be expected, given the fact that the staff does not travel for due diligence, they also do not travel for manager monitoring. As one long-time manager notes, that is most unusual. This manager, which boasts many public fund clients, notes that the public equity staff is one of only two clients which does not do an on-site review with it at least once every two years.

Real Estate

The real estate process is somewhat similar to private equity. Rather than restate the basic process, we will focus on the material similarities and differences. As with private equity, the real estate staff stays abreast of the market through a combination of regular "pipeline" calls with its specialty consultants, speaking to existing GPs and generally being involved in the real estate LP community.

Once a potential investment is identified, real estate begins an underwriting process, focusing on issues similar to those of private equity in terms of market opportunity and investment team experience and competence. Valuations of the investments in previous funds are analyzed. However, one major difference is that whereas private equity assigns a specialty consultant to each potential partnership, real estate has both of its specialty consultants underwrite each potential investment.

This results in three diligences (the two consultants and staff) and four presentations to each board (the three diligence reports plus the manager). The original intent, according to staff, was to utilize the consultants in a complementary manner, but that has not been the practice.

As with private equity, long-time observers of the real estate staff acknowledge both the quality of the asset class head and the fact that ISD is now doing more of its own due diligence in parallel with the real estate consultants, rather than merely relying on the consultants to do the work. In one recent case, a GP recollected being on the phone almost daily with either the staff or a consultant over an intense four-month due diligence process. They asked overlapping questions, but it was clear that ISD staff was doing more than channeling the consultants.

The GP noted that staff submitted two different 30-40 page questionnaires at different points in the process. "They asked for pretty much everything." That GP put the real estate staff's due diligence in the top 5% of what it had seen. However, ODD is still largely outsourced to the consultants. Positively, they seem to have done it well, with both consultants visiting the GP and examining issues such as IT, accounting, business continuity, etc.

Unfortunately, one negative similarity with private equity is the lack of robust documentation of those due diligence efforts. For example, on one recent occasion, the team spent hours reviewing valuations of properties in a predecessor fund. That was never put in writing until it was briefly mentioned in the summary memorandum. The team states that other tasks have been prioritized above documentation in an attempt to meet tight time frames while being under-staffed.

Infrastructure

Infrastructure is a relatively new asset class. As a result, it has been able to craft its program without legacy issues and after examining structural issues in the investment processes in other asset classes. While that discussion is more appropriate for the "Investment Structures" analysis, below, we note that the decisions made about structure – such as concentrating assets with fewer managers – affects the investment processes. We think the overall result is positive in terms of ability to manage the process.

The ISD infrastructure staff includes experience in direct infrastructure underwriting. That also affects how due diligence is performed.

Sourcing is multi-faceted. Staff creates a pipeline report and also has a bi-weekly call with its consultant (it recently hired an infrastructure consultant) to stay atop the market. It also responds to direct outreach by general partners, attends industry functions, speaks with other LPs, and uses its industry contacts. Interestingly, it benchmarks its pipeline construction efforts: staff tries to meet at least 50 potential investment sponsors a year. It views these meetings both as potential initial steps to investments and as another way to gain market intelligence.

The due diligence process is similar to that of private equity, in that a number of disclosure documents, including the limited partnership agreement and private placement memorandum, as well as a DDQ, are requested. Simultaneously, staff begins meeting with the GP. In one recent case, the GP met with staff four times, including meeting with the CIO. Those informational meetings and inquiries resulted in more inquiry and analysis. Staff asked for underwriting memoranda from a previous fund so as to judge the level of valuation conservatism and the consistency of the intellectual framework of this particular GP with respect to infrastructure monetization.

While those memoranda were shared with BAM, the GP noted that "you have to know to ask for them", as they are not volunteered. Staff tried to understand how the GP would react to stress situations and to understand worst case situations as well as base case scenarios. Other items examined included fee structures, fee reporting, and, because of some special situations anticipated in the fund, the GP's head of environmental/social/governance policy was asked to explain a number of particular issues. That GP, who has experience with scores of infrastructure investors, classified ISD infrastructure staff as "at the top of the list with regard to LPs". Staff noted that it would like to visit fund assets as part of the diligence process, but has not done so because of the perceived travel issues.

Monitoring is primarily achieved through managerial quarterly reports and annual meetings. Staff agrees with the managers in advance as to the form of the reports. As with other private asset classes, infrastructure insists on being named to each fund's LPAC, and so achieves an extra level of transparency and monitoring, as well as some governance rights. Unfortunately, documentation is also similar to the other private asset classes. There is a summary memorandum for proposed investments, but little contemporaneous documentation of all due diligence efforts. There is no one document which lists everything the infrastructure staff reviewed or the analyses performed.

Recommendations

R-1A.14: **Every asset class must "own" all three aspects of due diligence: investment due diligence, operational due diligence, and portfolio fit. While investment due diligence is generally at prevailing or leading practice levels, operational due diligence and investment fit often lag industry practice. Therefore:**

- **All asset classes should have a written operational due diligence policy. It should include an indicative check list of operational concerns specific to that asset class. That written ODD policy should be reviewed by compliance.**
- **Asset class heads must state explicitly, in writing, if ODD will be performed by them, by an identified consultant, or shared. That statement should include the rationale for such a decision and should be reviewed and approved annually by the CIO.**
- **Asset class heads should understand that delegation to a consultant does not resolve the asset class head of responsibility for operational due diligence. He/she must understand what the consultant did and affirmatively aver that the ODD was sufficient.**

R-1A.15: **The CIO should consider, in conjunction with the potential creation of a true investment operations group, whether to use some of the investment operations staff to supplement either ISD or ODD. Such a hybrid model is being used by some investors because some investment staff do not have an operational due diligence mindset, as it relates to minimization of risk and routine processes, rather than to getting paid for risk and seizing opportunities. Also, it allows for increased focus specifically on issues of interest to that investor. As a side benefit, having the investment operations staff accompany ISD staff on due diligences would improve communication and understanding between the two divisions.**

R-1A.16: **Consistent with R-A1.9, which calls for each asset class to propose a unit budget, each asset class should determine immediately what tools (databases, quantitative tools and others) it needs to fulfill its sourcing, due diligence and monitoring needs and propose a budget for obtaining them. Each asset class should, annually, affirm to the CIO that it has the necessary tools or, if it does not, it should identify those tools along with the business case for them.**

R-1A.17: **Assuming the asset classes receive the quantitative tools they need (R-A1.16), those tools will need to be populated. Data entry is often overlooked, but important. Given the thin staffing of ISD, we recommend that BAM start an internship program with local colleges. IT, finance and other appropriate students could, on a part time basis, and either for credit or as part of a paid internship, do the data entry, freeing more senior BAM staff for more substantive analysis. Such an internship program may also result in a pool of potential entry-level talent for BAM.**

R-1A.18: **All due diligence efforts should be documented in a simple, electronic log format, in as contemporaneous a manner as possible. The entries in those logs need not be voluminous; rather they should be a sentence or two. More extensive analyses and documents can be incorporated by reference. Off-the-shelf customer relationship management systems or research management systems can accommodate that task. A description of the research management systems is included in the appendices**

R-1A.19: **The CIO should ask the General Counsel for a written advice memorandum on the issue of whether pre-decisional, intra-Comptroller's Office due diligence memoranda are subject to Freedom of Information Law disclosure.**

R-1A.20: **The CIO should mandate on-site monitoring for all existing managers. While annual on-site monitoring is leading practice, FAS understands both the public scrutiny associated with travel and the resource drain such a requirement would create for ISD. Therefore, we propose:**

- **An annual in-person meeting with each existing manager. Managers whose primary office is located domestically should be visited on-site a minimum of every two years. Managers whose primary offices are located internationally be visited a minimum of every three years.**
- **Visits should be grouped geographically so as to maximize efficiency.**
- **Meetings for LPAC and other such meetings should count towards the on-site monitoring requirements, assuming that ISD staff has the opportunity to perform such monitoring as it would do normally.**
- **Exceptions to the in-person and on-site requirements should be kept in an aging schedule, and reported monthly by each asset class to the CIO.**

R-1A.21: **Real estate ought to consider whether it should assign one consultant to review potential investments, rather than having both consultants conduct due diligence on each potential partnership.**

R-1A.22: **BAM should provide ISD with the tools to analyze manager performance and risk through attribution analysis. See R-A1.8, above.**

R-1A.23: **Once ISD has the required quantitative tools, the CIO, in conjunction with the individual asset class heads, should develop a standard performance measurement, performance attribution and risk attribution procedure, including specific analyses and "due by" dates. Some examples of such analyses are included in the appendices.**

G. Asset Allocation and Rebalancing

Leading Practice Expectations

Responsibility for asset allocation rests directly with the Boards of the various Systems. ISD has a number of important responsibilities with regard to asset allocation, including advising the Trustees and working with the City's actuary and the Systems' various general consultants in the process which sets the asset allocation, implementing the investment program in conformity with the approved asset allocation, and rebalancing investments to stay within the asset allocation framework.

Therefore, we would expect to find a systemic rebalancing program, monitoring and reporting to the trustees to insure that investments remain within approved allocation ranges and investment professionals with an understanding of the various risks, rewards and correlations of the potential asset classes as well as an understanding of the relationship between assets and liabilities.

Conclusions and Related Findings

Overall, BAM, and ISD specifically, succeeds in monitoring the asset allocation and in keeping allocations within pre-approved bounds. Therefore, we would judge these functions to be at prevailing practice levels. However, we find that the rebalancing program has, on occasion, been used to "tilt" the portfolio – and in particular to affect the duration of the fixed income investment program – in a manner which may be understandable on an investment level, but may not be optimal for governance purposes.

Moreover, looking at the process for the asset allocation study which is currently underway, there may be a lack of insight with regard to asset/liability issues which could result in the trustees making the asset allocation decision with less analysis that would be optimal. FAS notes that, as with many issues identified in this report, part of the reason may be structural and beyond the ability of BAM to affect unilaterally. The following analysis and recommendations are therefore focused on those issues which BAM can reasonably be expected to affect.

Each system has approved an asset allocation which specifies a strategic target allocation for each asset class. Recognizing that market movements can push different asset classes above or below target allocations, the Systems have also adopted target ranges, or bounds around those point estimate allocations. The ranges vary, and are loosely related to the size of the individual fund's allocations and the volatilities of the specific asset class. It is the responsibility of the CIO to monitor the asset allocation to make sure allocations remain in range. The Systems' investment consultants also monitor allocations.

For example, at NYCERS, both BAM and Callan present pie charts and numerical tables of actual allocation, strategic allocation, and interim target allocations (given the liquidity and opportunistic nature of some asset classes, it may take some period of time for an allocation to be achieved). The BAM chart also indicates the rebalancing ranges so that the Trustees can understand whether or not allocations are within approved ranges. As of April 30, 2015, all allocations were all within approved ranges.

FAS notes that keeping allocations within range is the most important aspect of ISD's responsibilities with regard to asset allocation which it can accomplish unilaterally. However, there is room for improvement in two areas: rebalancing, and the process for the current on-going asset allocation study.

In theory, rebalancing is used to achieve a steady state strategic asset allocation. In practice, that is an impossible goal. Markets move continuously and trading and other transaction costs make continuous rebalancing to a spot allocation target prohibitively expensive. That is why most funds, including the five NYC Systems, adopt rebalancing ranges.

The ranges allow BAM to ignore small movements in relative allocations, thereby appropriately considering both the need for consistent strategic asset allocation and the cost of trading, which would be prohibitive if there were spot allocations without ranges around them. The ranges, however, also allow the rebalancing regimen to morph into a "tilt" program, in which certain allocations, or sub-allocations, are chosen to be overweight or underweight on a tactical basis.

Indeed, that seems to have happened at BAM, previously with regard to an overweight position in US equity and currently with regards to the level of cash. We note that the Systems have a zero cash strategic target and that the Systems' fixed income program has a longer duration than does the standard industry benchmark.

BAM has the opinion that it is not adequately compensated for having a longer duration in its fixed income portfolio given the current low interest rate environment and given the risk a longer duration portfolio faces from a proposed Federal Reserve interest rate hike. It has therefore held enough cash[10] to effectively shorten the duration of the Systems' core fixed income portfolio approximately to that of the industry-standard Barclay's aggregate bond index. (The longer the duration, the more negative the price effect will be from rising interest rates, assuming that the increased rates affect all parts of the yield curve equally.) It is our understanding that the use of cash to reduce overall duration has been discussed with the Systems.

FAS is not a registered investment advisor and expresses no opinion on whether or not BAM should be reducing duration. However, as a governance matter, the ability of a CIO to tilt the portfolio at will is problematic. Though we note that in the current situation the CIO has kept the Boards informed, there is no requirement that a future CIO do so.

To be clear, the systems' investment policy statements give rebalancing authority to BAM, there is no indication that BAM has tilted allocations beyond the rebalancing ranges, and BAM's use of cash for duration management has been discussed at some of the Systems' investment committee meetings. But there is no formal authorization for the tilts.

[10] BAM defines cash as high quality fixed income securities having a duration of less than four years.

In terms of implementation, the process for rebalancing at BAM appears to have evolved by historic accident. While the CIO is responsible for deciding to rebalance, the implementation of the rebalancing has been assigned to the fixed income unit until very recently. Fixed income monitored the relative asset weights at least weekly and notified the CIO of emerging issues. Fixed income then worked with the other asset heads to arrange for the rebalancing.

The recently retired, long-time head of fixed income noted there was no reason for that responsibility except that he had a long tenure and knew how to get things done at BAM. With his retirement, the responsibility for rebalancing has moved to public equity, where there is another long-serving asset class head.[11] In other words, the responsibility for the implementation of the rebalancing decision appears to track tenure and convenience.

Rebalancing is not a small decision. While rebalancing may seem minor in terms of percentages, a 1% rebalance across the funds means moving more than $1.5 billion and could involve a number of managers across a number of asset classes. That is more money moving than in some managerial transitions.

However, while BAM uses transition managers to accomplish managerial hirings, firings and reallocations, all rebalancing trades to date have been performed by managers after instruction from internal staff. To date, those rebalancing trades have not been subject to the same scrutiny that the transition evaluators bring to the transitions achieved through the outside transition managers. It may be that the transition managers can also be effective and efficient in rebalancing. A logical first step would be to use the evaluators to understand how efficient the current process has been.

Turning to the asset allocation process itself, the Systems have begun an asset allocation study, concurrent with this review. As with a number of issues mentioned in this report, the unique governance structure of the City's funds complicates ISD's and BAM's relationships and responsibilities with regard to the study.

Consider, for example, how much of the asset allocation process is outside the direct control of BAM, beginning with the fact that this will be an asset allocation study, rather than an asset liability study. In NYC's case, liabilities are determined by the Office of the Actuary, an independent City office, and the linkage between liabilities and assets is conveyed by the actuarial interest rate. As a result, the study will be an asset allocation study designed to explore different methods to reach that rate, rather than a full asset liability study which would also explore the co-movements of assets and liabilities.

This is very different from the type of asset liability study typically seen in other jurisdictions. The distinction between an asset allocation study and a full-blown asset liability study has implications for the investment program. For example, as noted above, BAM has sought to decrease the duration of the

[11] While one could speculate that rebalancing should be the responsibility of a public asset class head due to liquidity, there is no need for that linkage, as a) the rebalancing implementation must cut across multiple asset classes and b) the systems have established proxy liquid asset class allocations for uninvested alternative asset classes.

fixed income program in the face of a possible interest rate hike. When you only look at the asset side of the ledger this makes perfect sense.

However, the purpose of the funds is to offset pension and collateral liabilities for the Systems' beneficiaries. Those liabilities also have durations. In many cases, liabilities are more duration sensitive than assets. Therefore, it may make sense to have a longer duration portfolio, even in the case of rising interest rates, when liabilities are considered. Again, FAS is not an investment advisor, and the example is used to be illustrative, not definitive, and may or may not apply to the NYC pension funds.

However, in the absence of a full asset liability study, neither the general investment consultants for the Systems, nor the Trustees, will benefit from such analysis. FAS also notes that the Systems' investment consultants and a number of BAM staff have expressed the desire to better integrate liability analysis into the NYC process.

Even in an asset allocation only study, there are a number of key decisions to be made. The starting point of any such study is a set of capital market assumptions, including expected return and expected volatility by asset class, as well a matrix of expected correlations amongst the asset classes.

Other key decisions include which asset classes to include; whether the exposure to any asset classes should be constrained; and whether to model large, inclusive asset classes (such as "equity") or sub-asset classes (such as US/Developed market/emerging market equity, or even US large cap value/large cap growth/mid cap value/ mid cap growth/small cap value/small cap growth/micro cap, etc.). Those decisions ultimately rest with each board and, in practice, are influenced by each board's general investment consultant.

Admirably, the CIO has convened the various general consultants to try to find some common ground on these big picture issues. FAS expects some of them to be controversial. For example, the past performance of the private equity program has a number of trustees wondering whether the rate of return assumptions for that asset class should be reduced, which would affect its relative attractiveness in any optimization or other asset allocation model.

Given the lack of direct control over the asset allocation process, we applaud the CIO's efforts to help craft the overall structure of the conversation. We encourage him to, working with the general investment consultants, make the capital market assumptions (and how they were constructed) explicit. They should not be unexamined assumptions which are then used as inputs into the asset allocation models. Trade-offs between the risk and return of different allocation choices should be illustrated through the use of robust modeling (e.g. Monte Carlo simulations, shortfall analyses, etc.).

Recommendations

R-1A.24: The CIO should assign responsibility for implementing rebalancing to a specific group in BAM.

R-1A.25: Given BAM's success in using transition managers, consideration should be given to using them for routine rebalancing. A first step should be to use the transition evaluation managers to evaluate a few current rebalances to understand the effectiveness of the current staff-directed process.

R-1A.26: The CIO should fine-tune BAM's policy of using the rebalancing ranges for tactical tilts. BAM should adopt a policy, and share it with the Systems, which states that an intentional tilt should be disclosed to each affected Board the month after it is implemented. Tilts should be used sparingly, and reserved for unique market periods. Tilts should not be designed to last more than a year. Longer-term asset allocation changes should be presented to the Boards for approval. That approval should be explicit as to whether it is a temporary tile, in which case the conditions for ending it should be specified, or if it is a permanent change in benchmark or allocation.

R-1A.27: Regarding the current asset allocation study:

- **ISD ought to work with the Systems' general investment consultants to hold educational sessions on the differences between asset liability studies and asset allocation studies and the practical import of those differences.**
- **ISD ought to understand the capital market assumptions which are the inputs into each general investment consultants' models and develop its own analysis as to the reasonableness of those assumptions.**
- **ISD ought to understand each system's general investment consultant plans asset allocation modeling methodology, including any constraints.**

H. Market Investment Structures (not specified in the RFP)

Leading Practice Expectations

As noted above, the investment programs overseen by ISD are complex. Therefore, the investment structures employed are likely to be complex. Given that, we would expect to see a "Goldilocks" set of investment structures: complex enough to do the job and no more complex than needed. We would also expect to see reasonable spans of control (number of relationships to be managed/monitored), strong governance and contractual rights, and rational reasons for choosing specific structures.

Conclusions and Related Findings

BAM uses a variety of investment structures ranging from separate accounts to commingled funds to limited partnerships to strategic partnerships. They are spread across 14 asset classes and more than 270 investment managers. There are a number of opportunities to consider new or different structures or to simplify, so as to improve spans of control and/or governance.

As discussed above, ISD is under-resourced. One way to deal with the lack of adequate resources is through simplifying the structure of the investment program. As an extreme example, if all investments were indexed, fewer resources would be needed.

Limited Partnerships

While total indexation is an extreme solution, it does suggest that some simplification could be helpful. For example, private equity, as previously noted, has some 200 funds spread across 115 managers. Even if ISD were properly resourced to manage and monitor such a program, it is doubtful as to whether that is the optimal structure. Outsize returns in private equity are notoriously concentrated in the top quartile and top half of the managers.

Owning nearly 200 funds increases the risk of median or index-like performance. Unlike in most public equity classes, that is not an adequate result, given the wider dispersion of returns and the high fee levels. As one consultant familiar with private equity noted, it always counsels its clients to select fewer funds so as to avoid median funds, which do not provide adequate payoff for the risks taken.

There are also operational and fiduciary risks to having so many funds. Even if a fund is in “run-off” (no new investments being made within the fund) and if there is no potential for investing in a follow-on fund from the same General Partner, BAM still has the fiduciary obligation of monitoring the fund, cash distributions, fees, compliance, attending LPAC meetings, etc.

By contrast, the relatively new infrastructure program has deliberately concentrated its investments in a few top managers. In fact, staff implied that the overly diverse private equity program provided a type of reverse road map as to what not to do. By concentrating on fewer managers, infrastructure staff believes BAM gains influence, simplifies monitoring, and even frees up staff resources to consider co-investment opportunities. (See discussion of co-investments, below.)

FAS is aware that the current plan is to reduce the number of private equity GP relationships by about half. That has a number of potential advantages. First, by increasing the focus to “high conviction” funds, the hope is that ISD will be able to improve its analysis of potential investments so as to disproportionately participate in top quartile funds.

Second, it will facilitate ISD’s stated goal of serving on the LPAC of every partnership in which it has a significant investment, thereby improving ISD’s monitoring of existing funds and the ability of ISD to exercise LPAC governance rights if necessary. However, it is important to note that despite those plans, the number of private equity partnerships actually increased recently, growing to 183 as of June, 2015, up from 171 a year earlier. The exact number of managers which is optimal is related to the resources available to diligence, hire and oversee those managers. We also note that some reductions, whether in private equity or other asset classes, may require changes in the relevant portions of the Systems' investment policy statements, which specify limits on managerial exposure.

Strategic Partnerships

One new structure being used by BAM is the strategic partnership structure. Under the Opportunistic Fixed Income (OFI) version of strategic partnerships, the investments are all fixed income (though different sub-asset classes), and the main features of these "evergreen" partnerships are committed capital which can be drawn down (or returned) as market opportunities present. While the initial establishment of the partnerships was authorized by the Systems' boards, the managers have discretion to make investments within the partnerships without board approval. The boards can, however, terminate the partnerships at any time.

One advantage of the partnerships is that they offer lower fees than would otherwise be available. FAS notes that while lower fees are always welcome, they also create alignment issues, particularly with regard to "side-by-side" trading. Managers must, by regulation, have a fair allocation system for investment opportunities. The most common allocation method is some type of allocation based on size of the accounts.

However, side by side trading can become problematic when a manager has a different fee structure for different accounts. This may create an incentive for a manager to allocate the trades with the most potential to higher fee accounts. It has been a focus area for regulators examining advisors who advise both hedge funds (which generally have carried interest) and mutual funds (which usually do not). This is not to suggest there is an issue with the OFI strategic partnerships; indeed, the contracts with the partners specifically mention allocation, but to highlight the potential if the use of strategic partnerships is to broaden beyond OFI.

While the OFI experience with strategic partnerships has been positive to date, no other asset classes make widespread use of such a program. FAS notes that strategic partnerships are used by various other plans to create bespoke investment vehicles with high conviction managers. They often feature multi-asset class mandates, large allocations, and heavily negotiated governance and fee structures. They offer a number of advantages, such as the ability to respond to market conditions quickly, access to top managers, improved transparency, better fee structures, and ancillary benefits such as intellectual property transfers and market intelligence.

Such partnerships are not a panacea; we have reviewed partnerships with poor governance structures and underperformance, as well as successful ones. In general, successful strategic partnerships are heavily negotiated before any investments are made. It is critical that both the manager and the investor having the same specific view of the rules. Best practices for strategic partnerships include:

- Very explicit delegation to the manager. Boards must carefully circumscribe the parameters of the investment delegation and make sure the boundaries are bright lines. Managers should have the ability to invest as they see fit within those bright light boundaries without further approvals. Investment rules should be explicit.
- Economics should be explicit, transparent and understood. The investor should be guaranteed the best commercial terms the manager provides.
- Reinvestment rules (does realized cash return to the investor or stay in the partnership?) should be explicit, transparent and understood.
- Transparency into all financial and operational aspects combined with effective monitoring. Everything, from fees (and internal fees, if in an asset class where they exist) to the specific investments, should be transparent, so that the investor can monitor the activities within the strategic partnership.
- Boards must be able to handle potential headline risk.
- Governance should be spelled out, and an “LPAC of one” created.
- Veto rights should be limited but explicit.
- Due diligences of deals considered by the partnership should be shared.
- Time horizons should be explicit.
- There needs to be a “no-fault” escape clause allowing the investor to sell the assets and end the partnership.

Co-Investments

Another structure used by leading practice funds is co-investment. Typically, co-investments occur when a General Partner has the opportunity to invest in a particular asset at a size greater than the partnership can accommodate. The GP may then alert all or some LPs, who can then underwrite the deal and invest alongside the main partnership. There are advantages to co-investing for LPs: co-investments have been sourced by a trusted GP, and co-investments have no manager or carry fees. However, making a co-investment has significant risks.

First, it increases an LP’s exposure to any deal (as it has an investment in that deal both in the partnership and directly) and there is no fiduciary standing between the LP and the deal itself, increasing liability (in some cases).

Additionally, there are implementation issues with co-investments. Effectively, an LP must underwrite a direct investment deal. And there is often a short time frame to do so; two months or so is common. Therefore, to responsibly run a co-investment program, an LP must have underwriting expertise, staff resources and a governance structure which allows robust due diligence and approval in a short time.

The real estate and infrastructure asset groups have often received co-investment rights in their partnership investments, as has private equity, and in 2012 real estate developed a co-investment protocol, though the co-investment program has been very limited to date. It may be possible for infrastructure to make some co-investments given the structure of its investment program and the fact that current asset class head is a former infrastructure banker. However, it has constrained resources (though the appointment of an asset class consultant may enable it to use some of the consultant's resources in co-investment situations), and the governance/approval process would be a deterrent to timeliness, though perhaps not an absolute one.

Direct Investments

Going beyond co-investments, a few funds have dedicated asset class staffs (usually real estate or private equity, and, in Canada, often infrastructure) which make direct investments. "Directs" are similar to co-investments, except they are sourced directly by the fund. Therefore, funds which run direct investment programs often have tens or even scores of investment professionals in asset classes such as real estate or private equity. To run a successful direct investing program is beyond the capacity of ISD at this point.

Group Trusts

In contrast to OFI's strategic partnerships, another structure, the group trust, has recently become controversial within BAM because of the operational complexity it creates. The Group Trusts are commingled vehicles that hold publicly-traded non-U.S. equity assets for the five City funds. This structure holds certain regulatory advantages but also create operational issues.

FAS understands that, at the moment, the Group Trusts are the only existing tax exempt entities recognized by various non-U.S. taxing jurisdictions. The five Systems are working towards obtaining their own tax determination letters from the Internal Revenue Service, but have not yet received them.

Once they do, use of the Group Trust to satisfy tax exemption requirements for non-U.S. jurisdictions will no longer be necessary and we understand that additional tax savings may also be possible. At that time, the use of the group trust could be reconsidered. In the meantime, the custodial bank is creating a set of reports relating to the individual funds' holdings in the Group Trusts.

Recommendations

R-1A.28: ISD should reduce the number of private equity funds as planned.

R-1A.29: ISD should examine the number of managers in all asset classes to determine if there are other opportunities for simplification and focus through reducing the number of managers.

R-1A.30: ISD should determine if the strategic partnership structure can be more widely used, either in asset classes other than OFI, or across asset classes.

- **Should ISD desire to explore strategic partnerships further, it should widely canvas its peer investors to understand what investment and governance attributes have contributed to the success or failure of their strategic partnership efforts beyond the specific recommendations included in this report.**

R-1A.31: ISD should explore whether it wants to initiate a co-investment program for infrastructure. If it does, we recommend:

- **The asset class head prepares a memorandum for the CIO detailing not just the process and limitations on co-investments (such memoranda exist for some asset classes), but also the needed resources and approval time frames.**
- **That BAM approach a System or Systems to ask for permission for either a demonstration program with expedited approvals, or for discretionary authority for co-investments with previously approved GPs up to a reasonable amount, so as to meet the short time frames generally required.**

R-1A.32: ISD should consider whether to convert group trusts to separate accounts if and when the tax and regulatory issues are resolved.

I. Transition Management

Please see section 2G.

J. Contract Negotiations and Interaction with General Counsel's Office

Please see Section 1I.

K. Board of Trustees Interaction

Please see section 2I.

1B. Investment Control Division

Description Provided by BAM

"The Investment Control (IC) Division maintains and confirms all transactions and records, manages account changes and reviews all fee payments. The Investment Control Division's staff monitors the securities safekeeping, transaction processing and records of the investment activity of the Systems and Related Funds. The Division verifies the purchases and sales of securities and the transfer of cash and securities. The Division is responsible for reviewing all reported transactions and conducting monthly reconciliations of all internal and external transactions and transition reconciliations. The Division is also responsible for reviewing and updating all account structures along with updating all internal current work papers to include new custodian bank account numbers."

Scope of Review

A. Management reporting
    a. Annual plan
    b. Monthly updates
    c. Reconciliations (bank accounts, asset balances, etc.)
    d. Corporate action analysis
    e. Advisor fees analysis
    f. Record-keeping
B. Fixed Income – daily, weekly, monthly
C. Equity Procedures and Reports – daily, weekly, monthly
D. International Procedures and Reports – daily, weekly, monthly
E. Alternatives Procedures and Reports – daily, weekly, monthly
F. Securities Lending Procedures and Reports – daily, weekly, monthly
G. Post-reconciliation inventory holding audit with investment guidelines – *e.g.*, IC ADR review

Sources of Information

- BAM Self-Assessment Survey conducted by FAS
- System Self-Assessment Survey conducted by FAS
- Document Reviews
  - Primary staff re oversight managers etc.
  - CEM benchmarking 2012 / CEM Report 12.31.13
  - Expense Accrual Public Managers
  - Quarterly Reviews
    - Board of Education Q1 2015 Board Report Quarterly_PRINT FINAL
    - Consolidated Trustee Report 3rd Qtr 2013 Final
    - Employees' Q1 2015 Board Report Quarterly_ PRINT FINAL
    - Fire Q1 2015 Board Report Quarterly_PRINT FINAL
    - NYC Consolidated 4Q14 Board Report Quarterly_ PRINT FINAL
    - NYC Consolidated 4Q2013 Quarterly (FINAL)
    - NYC Consolidated Q1 2014 FINAL_2 Quarterly
    - NYC Consolidated Q2 2014 Board Report Quarterly_PRINT FINAL
    - NYC Consolidated Q3 2014 Board Report Quarterly_PRINT FINAL
    - Police Q1 2015 Board Report Quarterly_PRINT FINAL
    - Teachers' Q1 2015 Board Report Quarterly_PRINT FINAL
  - Draft Procedures
  - Reconciliation Policies Procedures
    - 1_9_15_MONTHLY MARKET VALUE AUDIT
    - 2_13_07Procedures for the State Street Netting Report
    - 04_05_12 Q2 Pair-Off EDIT PROCEDURES
    - 8_13_14_PARIS Flow Chart SSB 081314
    - 8_11_14_MONTHLY ACCOUNTING CYCLE OVERVIEW
    - 9_15_09_SECURITY TRANSFERS_Q2 vs BONY
    - 10_25_10 Procedures for Limited Investment Partnerships
    - 2_4_13_Investment Control Process
  - Investment Guidelines - ADR Monitoring
  - 6_30_15_Corporate Action List and Worksheet Procedures revised for SSB
  - 10_1_07 new CORPORATE ACTIONS procedures
  - 1_9_15_Current Advisor Fee Process Details’
- Interviews
  - Director of Investment Control
  - Assistant Comptroller for Asset Management (multiple)
  - Chief Risk Officer (multiple)
  - Deputy Comptroller for Accountancy (Bureau of Accountancy)
  - Chief Investment Officer
- FAS leading practices knowledgebase
- Professional opinion of team

Summary

The key issues facing the Internal Control (IC) division (heavy workload demands on staff, high turnover, low morale, ineffective tools, etc.) are recognized by BAM management who have initiated efforts to address some of the root causes. Most of the excess workload is the result of thousands of reconciliation breaks between State Street Bank's (SSB) systems and the general ledger system. While a project is underway to eliminate the general ledger system (and therefore eliminate virtually all of the reconciliation breaks), IC must work to resolve these breaks while they exist.

Leading Practice Expectations

Leading-practice organizations have moved almost entirely to a straight-through-processing model where virtually all reconciliations between systems have been automated. Operations personnel at high-performing organizations work on an exception-only basis with their work items identified and managed by their systems and tools. Staff time is mostly spent on value-added research and resolution of these exceptions. Some characteristics of leading organizations include:

- Automated systems and workflow tools to help with the large volume of activity. Most systems today have some degree of embedded workflow to move organizations to exception-based straight through processing. Investment accounting and reconciliation systems are especially good in this area.
- Clearly defined policies and procedures and an up to date operating manual. Prevailing practice is for firms to maintain up-to-date policy and procedures manuals in a central location that is easily accessed by all.
- Delineation between functional groups with no redundant activities.
- An investment operations group capable of supporting risk-intelligent investment decision-making. Daily reconciliation and validation of transactions and positions results in timely and accurate risk and exposure data generation, leading to better-informed decision making.
- State of the art training, staff development, career paths and succession planning.
- Clear accountability for overall effectiveness and efficiency. Internal managers as well as external service providers are measured and held accountable for their domains.
- A culture of continuous improvement, innovation and forward thinking.
- A well-established and well-functioning relationship with the custodian and other external service providers.
- Documented service level agreements for the timing and accuracy of cyclical reporting and data generation.

Although the examination of the future of Investment Control was not specifically asked for in this assessment, several important questions emerged as part of our review: what does BAM need from this group vs. what it is getting? A fundamental question that should be asked is: where do the Investment Control activities fit into a more clearly organized middle- and back-office structure?

We make recommendations to address these questions below.

Summary of Conclusions

People/Organization

C-1B.1: **Investment Control is understaffed for their current workloads.**

C-1B.2: **There is a lack of training (both procedural and industry) for new and existing staff.**

C-1B.3: **Key person risk exists.**

Process

C-1B.4: **All business activities performed by the Investment Control group are manually intensive. The existing processes and lack of system interfaces result in an extreme amount of transposition of data; the group maintains over 900 spreadsheets. Reconciliation of investment manager positions and advisor fees takes up most of their time resulting in a huge backlog – they cannot catch up, much less stay current.**

C-1B.5: **There is a lack of consistent communication between Investment Control and other BAM areas.**

C-1B.6: **Redundant processes are being performed (e.g., ADR check).**

C-1B.7: **Investment Control is too busy with day-to-day issues to plan strategically.**

C-1B.8: **Documentation is lacking and out of date. There is a major reliance on institutional knowledge.**

C-1B.9: **Investment Control did not have much involvement in planning for the move to State Street from BNY Mellon due to day-to-day workloads.**

C-1B.10: **Certain processes are not being performed to due lack of capacity.**

C-1B.11: **BAM can better leverage more of SSB's capabilities as well as push them to provide better support.**

Systems

C-1B.12: **Manually intensive processes need automation.**

C-1B.13: State Street has capabilities that could likely help but are not being used.

Other

C-1B.14: Reporting to all parties is consistently late, yet there are no service level standards for timely delivery.

C-1B.15: When BAM implements straight-through State Street general ledger processing, there will be an opportunity to convert Investment Control to an investment operations staff but staff skills will need to change.

Summary of Recommendations

R-1B.1: Eliminate redundant reconciliations by decommissioning the general ledger system as quickly as possible.

R-1B.2: Once the general ledger system is decommissioned, reevaluate all processes and procedures to move to a more automated, straight-through-processing environment.

R-1B.3: Reorganize BAM divisions into a more standard middle- and back-office configuration.

R-1B.4: Develop a succession plan to prepare for experienced staff departures.

SPECIFIC AREAS OF SCOPE

The findings and conclusions discovered in analyzing the Investment Control areas are pervasive and apply to each of the specific areas of scope outlined in the RFP (and referenced above). To avoid repetition, we have organized our findings into People/Organization, Process, System, and Other. These findings apply to each of the areas of scope except where specifically referenced.

A. Management reporting

B. Fixed Income – daily, weekly, monthly

C. Equity Procedures and Reports – daily, weekly, monthly

D. International Procedures and Reports – daily, weekly, monthly

E. Alternatives Procedures and Reports – daily, weekly, monthly

F. Securities Lending Procedures and Reports – daily, weekly, monthly

G. Post-reconciliation inventory holding audit with investment guidelines – e.g., IC ADR review

People/Organization

C-1B.1: Investment Control is understaffed for their current workloads.

Several reasons exist for this condition including open positions that go unfilled, staff that is not adequately trained, and new work streams that they are ill equipped to handle.

The current organization chart shows six open positions within Investment Control: four vacancies and two new positions. Additionally, temps occupy three of the filled positions. It is difficult to fill these vacancies (see C-1B.3 below) and as a result, IC is chronically understaffed. Due to the pending elimination of the general ledger system and resulting reorganization, management is not actively trying to fill the two new positions.

The work that IC does is becoming more complex as BAM moves into new and complex investment strategies such as Opportunistic Fixed Income and Equity, International securities, Limited Partnerships (Private Equity and Real Estate), and other Alternative investments.

C-1B.2: There is a lack of training (both procedural and industry) for new and existing staff.

Adequate training is an issue for this group. The only people who have the knowledge to train new staff (either permanent or temporary) are those same people who do not have enough time in the day to complete the tasks on their plate. As a result, new hires get only cursory training and have to learn on the job.

There is no documented or structured onboarding process and no formal training exists for new hires. The Director meets with new hires on their first day of work to lay a foundation. They are given a list of procedures, but the list is out of date.

When a new person comes on board, existing staff do not devote the appropriate amount of time to train them because they are too busy with their daily activities. If they were to spend time to train new hires, they would fall further behind in their own work. To compound matters, there are no published training materials or detailed process documentation to provide new staff.

The use of verbal and mentor type training means staff can only be trained to the extent existing staff is willing to spend the time to impart knowledge. In addition to the lack of time to train new staff, there is an element of job protection by the incumbent workers.

There is a need for formal training materials and for a process (and mandate) to keep them current. There is “some” number of BNY procedures that still remain which are somewhat extensible to SSB processes but no one has taken the time to optimize the workflows or update the documentation. Product-specific training is also needed, especially when BAM gets involved in new asset classes/investment products (e.g. Bank Loans).

There does not seem to be much learning from or knowledge exchange with other public fund managers or industry forums. They have not tapped into Industry groups, partly because they feel they are too different from other organizations but mostly because they don’t have the time to spend away from the office.

C-1B.3: Key person risk exists.

Much of the knowledge of what needs to be done, why it needs to be done, and how to do it reside in the minds of the Director and her unit heads. These three, plus several other Investment Control staff are currently eligible for a full or partial pension and may be nearing retirement. There is no succession plan in place to replace these individuals or the knowledge they have.

Process

C-1B.4: All business activities performed by the Investment Control group are manually intensive. The existing processes and lack of system interfaces result in an extreme amount of transposition of data; the group maintains over 900 spreadsheets. Reconciliation of investment manager positions and advisor fees takes up most of their time resulting in a huge backlog – they cannot catch up, much less stay current.

Spreadsheets are the primary tool for reconciliation and status reporting with over 900 in use by IC. While the spreadsheets are sometimes loaded from systems, most often they require manual entry of data. This is both a time-consuming and error-prone process.

On average reconciliations between the general ledger system and State Street Bank (SSB) run about two months behind. Monthly accounting closes are three to six months behind. Several factors contribute to this, including:

1) There is a custom mapping process for transactions import, but not all transactions are accurately mapped from SSB.
    a. This is one reason why there are 4,000-5,000 breaks per month (can take from 10 min to 2 weeks to resolve and correct each one).
2) SSB Provides 25 to 50 reports in support, but they are not linked, making it difficult to work from opening balance numbers to close/reconcile the accounts.
3) The process that the general ledger system follows for processing transactions (intraday ordering) is different than the process that SSB follows (Purchase->Paydowns->Sells). This affects cost basis and profit and loss determination, complicating reconciliation and the research of breaks.
4) Advisor files do not load seamlessly; errors are common. There is no standard format for the files that are received from advisors and some refuse to use SWIFT.

C-1B.5: There is a lack of consistent communication between Investment Control and other BAM areas.

Whether a result of having to devote all of their time and resourced to completing the work at hand or through conscious decisions, Investment Control (IC) has become inward-focused and isolated from the other BAM divisions. IC is out of the loop of communication that takes place as a normal course of business. They are not involved in strategic discussions and typically don’t find out about decisions until after they are made and directly affect their activities.

As an example, Investment Control was not involved in the discussions leading up to the enactment of Opportunistic Fixed Income. They weren't aware of the investment strategy until they had to support manager reconciliations and verify manager fees.

Investment Control does not proactively reach out to other divisions such as Investment Strategy. As an operational area, they should view themselves as "owners" of operational data and reports, and the other divisions as their clients that consume it. They need to take an active role in understanding what data is important to the rest of the organization and why.

Investment Control is not considered a key stakeholder in the effort to decommission the general ledger accounting system, even though they are responsible for reconciling all of its data. They were not aware that the decision had been made to proceed with the decommissioning effort until some time after the project was underway. They still do not have Steering Committee representation on the project.

C-1B.6: Redundant processes being performed (e.g., ADR check).

At the end of each month, IC is supposed to do a post-audit to be sure there are no ADR holdings or holdings do not exceed concentration limits. (These can happen in transition from time to time, but should be brief.) This review is also being done in Compliance.

Managers still send faxes at end of day to IC that are reviewed to be sure they are not invested in ADRs.

C-1B.7: Investment Control is too busy with day-to-day issues to plan strategically.

The reconciliation process is manually intensive and ill supported by technology and documented processes. This results in IC having to focus on just getting through them. As a result, other processes are not performed and there is little to no opportunity to examine better ways of doing things. If someone does think of a more efficient way to do things, there is no mechanism to air their idea.

C-1B.8: Documentation is lacking and out of date. There is a major reliance on institutional knowledge.

There are no current, detailed users' guides for Investment Control staff. Process documentation that does exist is fairly high-level and contains no mention of specific application pages to use (my.statestreet.com), screen shots, or data field and value descriptions. Much of the existing documentation still references old (BNY) systems and processes.

C-1B.9: Investment Control did not have much involvement in planning for the move to State Street from BNY Mellon due to day-to-day workloads.

As a major consumer and processor of custodian data, one would expect Investment Control to be heavily involved in the conversion from BNY Mellon to State Street Bank. As it turned out, the team had a difficult time doing the transition and completing their daily workload (business as usual).

Alternative Investments and Limited Partnerships provide a case in point. The starting point for accounting for Alternative/Limited Partnerships was not clean when accounted for on the BONY platform (e.g. capitalizing expenses that were inside commitment). Moving to SSB did not provide an opportunity to clean up the information and records (data was just moved over). Balances for these partnerships are still not reconciled. Processes are further impacted by heavy manual steps required, as well as numerous discrepancies across managers, in terms of how costs are booked and how capital account balances are determined.

As a result, the SSB Conversion fell short in some areas. Specifically, the conversion did not:

- Address some of the legacy data problems inherent in BAM, including full reconciliation of positions
- Lead to a newly set of documented processes to support SSB functionality
- Result in clear training documentation for team members

C-1B.10: Certain processes are not being performed to due lack of capacity.

No one is performing a daily reconciliation and review of securities lending. The Assistant Comptroller for Asset Management reviews it monthly (while the report is provided daily, he only looks at it monthly). Investment Control used to pull together the earnings numbers independent of Citibank and had an understanding on a detail level what's happening (through daily reconciliation). They put together a monthly report to reconcile State Street postings to Citibank. They used to do this with BNY but are not doing this now.

Nobody currently looks at FX activity and costs against benchmarks to confirm best execution. The person who oversaw this program left and has not been replaced.

There is no one who currently has the view into the daily sweeps. They get monthly reports that showed the daily movements and earnings. IC used to reconcile the daily movements but didn't turn up anything fruitful so they stopped doing it. IC staff does look at the posting of STIF income to the manager accounts making sure the account balance reconciles across managers.

C-1B.11: BAM can better leverage more of SSB's capabilities as well as push them to provide better support.

In general, BAM is not satisfied with the level of support they get from State Street Bank (SSB) but does not seem to force the issue regarding the lack of training and process optimization that SSB could help with. BAM needs to recognize they are a large client of SSBs and they do have leverage.

The Director of IC can call senior SSB staff but, in general, does not escalate issues to senior SSB staff with demands/complaints. She leaves that up to the Chief Operating Officer.

The Director also acknowledged that her group lacks communication skills and often will not reach out to SSB to get answers.

Systems

C-1B.12: Manually intensive processes need automation.

The current process of loading State Street transaction, cash, and holding files into the general ledger system and then reconciling the general ledger system to State Street is not working. The data translation between the two systems is flawed, creating the bulk of the manual work (reviewing and researching the breaks). When the current project moving the G/L from the general ledger system to State Street is complete and Short Term Trading moves to Bloomberg, this issue will go away as the general ledger system will no longer be used.

C-1B.13: State Street has capabilities that could likely help but are not being used.

There are tools and processes that SSB has in its arsenal that could help BAM, but BAM does not seem to utilize, including:

- Managers are responsible for reconciling their transactions, positions, and valuations with State Street. State Street performs a positive reconciliation for accounting and performance and should be able to provide visibility into the results of these reconciliations to ease BAM's oversight effort.
- SSB has data, tools, and systems that can provide support for Private Equity oversight. They are well worth the cost in terms of time saved and better data access.
- Compliance confirmed that they are receiving compliance outages daily from SSB, but IC still gets faxes on holdings that are no longer needed.

Other Findings and Conclusions

C-1B.14: Reporting to all parties is consistently late, yet there are no service level standards for timely delivery.

State Street has a contractual obligation to close the monthly books by the 12^{th} business day of the following month yet there are no internal service levels to drive prompt reconciliation and publishing for these numbers.

C-1B.15: When BAM implements straight-through State Street general ledger processing, there will be an opportunity to convert Investment Control to an investment operations staff but staff skills will need to change.

By eliminating the reconciliation between the general ledger system and SSB, IC staff can be redeployed to higher value activities. IC can focus on researching and resolving real reconciliation breaks between the managers and SSB and move toward a division that exists to oversee the activities of the custodian and provide critical operational data to Investment Strategy, Accounting, Cash Management, Compliance, and the other divisions that need this data.

Recommendations

Rather than address each issue individually, the issues with Investment Control Division should be viewed holistically in light of a reorganized Middle- and Back-office structure utilizing systems to their maximum capabilities and moving toward a straight through processing environment.

R-1B.1: Eliminate redundant reconciliations by decommissioning the general ledger system as quickly as possible.

The current accounting system is used for two primary purposes, as a general ledger to produce trial balance reports and as a transaction processing and investment accounting system for Short Term Trading. Two projects are currently underway to address these areas: moving to State Street's general ledger and moving to the Bloomberg AIM system as Short Term Trading's transaction processing system and investment book of record (IBOR). Note that the move to State Street's G/L also includes Private assets completely moving to the SS subsidiary ledger.

When the general ledger system is decommissioned, the single largest work activity will be eliminated from Investment Control's workflow. This will allow management to reassign staff to perform more valued-added tasks such as providing oversight of State Street to Manager reconciliations, researching and resolving real reconciliation breaks, providing meaningful operational and investment-related data to other BAM divisions, and other tasks identified when moving to a straight-through processing environment.

R-1B.2: Once the general ledger system is decommissioned, reevaluate all processes and procedures to move to a more automated, straight-through-processing environment.

Once the functions performed on the general ledger system are moved to State Street and Bloomberg AIM, BAM needs to perform a business process reengineering (BPR) exercise to optimize the efficiency of all areas. The roles and responsibilities of many staff members will likely change significantly, moving from rote-processing roles to value-added decision-making roles. See Appendix A-1B.2 for a project description and sample outcomes of a BPR exercise.

BAM should expect several outcomes from the BPR exercise. First, the current tasks performed by Investment Control will be cataloged and defined, as will their interactions with all other BAM and Comptroller divisions. The nature, outcomes, and priorities of these tasks will be identified and used to determine their need going forward as well as their optimal placement in the organization (see the recommendation below).

Second, when redesigning individual workflows, detailed documentation will be created that can be used as a Users' Guide going forward. All steps in the workflow, along with screen shots, field definitions, and help text are documented.

Finally, as staff will be trained in the new procedures, a comprehensive training program will be developed that can be used going forward as new staff is brought on board. This provides the two-fold benefit of ensuring a complete and consistent training program for everybody as well as reducing the amount of time existing staff must spend teaching the new person.

R-1B.3: Reorganize BAM divisions into a more standard middle- and back-office configuration.

Once the BPR effort is complete and work streams have been identified that are both internal to Investment Control and that cross organizational boundaries, BAM can create an organizational structure that accommodates workflow dependencies, ensures appropriate governance, establishes proper span of control, and maximizes efficiency and communication across the organization.

Figure 1B.1 below identifies the business functions that are normally found in the middle and back offices of asset management organizations. It also indicates the systems or entities responsible for executing these functions. (Note this is a sample depiction and is not intended to identify BAM responsibilities. It is intended to show the logical groupings of business functions that reflect a leading practice organization.)

Figure 1B.1 – Sample Current State Operating Model

BAM should undertake this reorganization with several goals in mind:

- Foster better communication between divisions
- Clearly identify data owners and functional responsibilities
- Eliminate redundancy to maximize efficiency
- Define, document, and monitor internal service levels for each work stream (e.g. reconciled accounting numbers are available by the 4th business day of the month)
- Establish appropriate spans of control to eliminate critical cross-organizational dependencies
- Create a structure that imparts controls by its very nature (e.g. Compliance is segregated from Investments).

R-1B.4: Develop a succession plan to prepare for experienced staff departures.

The three most experienced and knowledgeable staff members are eligible for retirement and while none have expressed an impending desire to do so, there is no plan in place to replace them. Whether these retirements take place in one year or five, without a proactive plan to replace these individuals BAM will be left with a significant gap in knowledge.

As part of the reorganization recommended above, leadership positions are identified and filled. Across all divisions (not just Investment Control) a succession plan should be put in place for all critical roles and replacement candidates identified. Succession planning should look at three areas for these candidates:

1. *Within the existing division.* Do any staff members exhibit leadership qualities and the motivation to move into a lead position? Personnel who have shown a proclivity for problem solving and understanding the big picture are natural candidates as are those who have demonstrated they work well with the team and can lead people. Staff within the division has gained specific knowledge of the problems and opportunities faced by that group and should provide the best natural pool for selection.
2. *From other divisions within BAM.* If there are not enough qualified candidates within Investment Control, identify qualified candidates from other divisions within BAM who can be groomed for a leadership role. Transfer them to the division with the express purpose of eventually assuming a lead position. In addition to on the job training for specific functional skills, management training may also be offered.
3. *From outside of BAM.* If there are not enough qualified candidates within BAM to adequately plan for turnover, put a hiring plan in place that specifically looks for experienced people to eventually assume these leadership positions. Look both for people with management experience (to fill higher-level positions) as well as those who have had some leadership responsibilities without necessarily having managed a team to groom for middle-management positions. These candidates may come from other Bureaus in the Comptroller’s Office or from outside.

1C. Cash Management Division

Description Provided by BAM

"The Cash Management Division manages the day-to-day cash flows of the Systems and Related Funds. Calculations are made by the Division to determine the amount of funds needed to cover controlled disbursements, private equity investments, targeted investments, fixed income investments, equity investments, real estate investments, hedge fund investments, opportunistic investments, etc.

The Cash Management Division notifies the Short-Term Trading Division of the excess funds to invest overnight or longer. The Division performs all necessary wire transfers, prepares reports of cash flow analysis, and sends daily transmittal reports to the Comptroller's Bureau of Accountancy (BOA). The Division also processes advisor fees for payment to BAM's various vendors, including investment managers, consultants, and custodian banks."

The Cash Management Division was recently reorganized and now reports into the BOA.

Scope of Review

Our review of the Cash Management Group focused on the effectiveness and efficiency of the processes performed by staff, internal controls, and the timeliness and accuracy of the reports/data created for use in other areas. We reviewed each of the following business functions:

A. Cash forecasting
B. Authorization of wire transfers – pensions
C. Authorization of wire transfers – other
D. Investment guidelines and procedures
E. Financial data reporting
F. Demand deposit services
G. Cash reconciliation and monitoring
H. Capital calls
I. FX processing
J. Division's interaction with other Comptroller bureaus

Sources of Information

- BAM Self-Assessment Survey conducted by FAS
- System Self-Assessment Survey conducted by FAS
- Document Reviews
    - Cash Management Overview DFS
    - Cash Management Division Procedures

  - DR Cash Management Contact List
  - NYCERS Cash Calendar Year 2015 – List of External Entities
  - BOECASH_2015CHASE_JY
  - Cash Forecasting Report
  - FIRECASH_2015CHASE_JY
  - Policies & Procedures Cash Forecasting
  - Cash Management Daily Worksheets_042115
  - Lines of Info to Cash Forecast
  - Wire Transfer Authorization
  - State Street Funds Transfer Signature Form
  - 2012 JP Morgan Demand Deposit Contract – dated 12 09 11
  - 2012 – BNY Mellon Demand Deposit 2nd Extension
  - Private Equity – Operational Procedure Update DRAFT v.6
  - RE – Operational Procedure DRAFT April 7 2015
  - 07-10-15 Cap Call New York City Employees' Retirement System
  - Divco IV CC 2015.03.11
  - Copy of Global FX Trading Accounts_Russell
  - FX Orders_EQT VI _ Capital Call_070715
  - General Template_Russell
  - NYCRS Portfolio Reconciliation SLA DRAFT
  - eCFM Approval matrix draft
  - NYCERS Cash Managements Spreadsheet 9022015
- Interviews
  - Unit Chief of Cash Management (multiple)
  - Assistant Comptroller for Asset Management (multiple)
  - Chief Risk Officer (multiple)
  - Deputy Comptroller for Accountancy (Bureau of Accountancy)
  - Representatives from Russell
  - Chief Investment Officer
  - Director, Trading Division
- FAS leading practices knowledgebase
- Professional opinion of team

Summary

Leading Practice Expectations

The Cash Management function in a leading practice organization is tightly integrated into the operational framework and is typically a main interface point between the front- and back-offices. The cash mandates and future cash needs are specified by the various portfolio managers and carried out by the assigned operations staff. Cash projections are produced from the Investment Book of Record (IBOR) and augmented by desired strategic moves (such as reallocation between asset classes, management transition, collateral needs, equitization and cash overlay strategies, etc.).

The operational area responsible for cash movement combines these strategic moves with the day-to-day cash needs and expenses to determine the needed cash transfers and disbursements. These cash transfers and wires are then entered into a cash management (or treasury) system for approval and downstream execution.

In an organization of this nature, one would expect to find:

- Automated systems and workflow tools to manage the large volume of cash flows
- Automated cash forecasting and reporting
- Robust systems of internal control and authorizations
- Clearly defined policies and procedures and an up to date operating manual
- Mandate for managing cash balances close to zero

Please see Appendix A-1C - CutterResearch Supporting Cash Management 2009 for a report on the industry perspectives on how asset managers support the cash management function.

Overall Assessment

As one would expect in an organization of BAM's size and complexity, we found a well-performing team that was cross-trained and able to ensure that critical cash movements were done on time and without error. Nonetheless, there are system and procedural issues that are in various stages of being addressed.

Much of the activity of the Cash Management group is managed through Excel spreadsheets, requiring manual re-entry of data from other systems or reports. Much of the institutional knowledge of future cash activity is in the heads of staff, contributing to key-person risk.

In spite of the manual processes involved, the Cash Management group does a good job of managing the cash balances in the Systems' DDA accounts by moving excess amounts to the Short-Term Trading group for additional return. A statistical analysis of the BOECASH and FIRECASH accounts over the period from 12/1/14 – 7/10/15 shows the following results:

Statistics 12/1/14 - 7/10/15	BOECASH	FIRECASH
Average Daily Closing Balance	201,664	173,923
Median Daily Closing Balance	23,337	12,743
Minimum Closing Balance	3,662	(993,054)
Maximum Closing Balance	3,529,829	4,988,111
Maximum Intraday Balance	130,471,307	341,938,555

The major concerns associated with Cash Management are:

- Staff is being stretched thin with the growing complexity of investments and increasing volume. In combination with the new approval authority requiring a Bureau of Accounting manager to provide final approvals, this is leading to some late payments.
- Cash forecasting, monitoring, and reporting is a very manual process with inherent risks associated with re-keying data and visual comparisons of different systems/reports.
- [redacted]
- A detailed procedure document (Users' Guide) does not exist.
- The Cash Management group, in conjunction with the Short-Term Trading group, are good at processing the day-to-day cash movement and investment activities but there is no overarching cash *management* taking place. There is no portfolio manager setting the strategy, establishing guidelines, monitoring market conditions, looking to minimize cash drag on the portfolios, etc.
- With the move to BOA, future issues may arise in cash forecasting and control as the group becomes further distanced from BAM and their work priorities shift.

Summary of Conclusions

C-1C.1: **While the forecast itself meets the need of the organization, the cash forecasting process is manual and has a fairly high degree of operational risk.**

C-1C.2: [redacted]

C-1C.3: **Authorization of wire transfers is consistent with prevailing practice at peers.**

C-1C.4: **Cash transfer and approval procedures are only lightly documented and training materials don't exist.**

C-1C.5: **While the compilation of data to support financial reporting is manual, few issues have arisen in the past. The degree of manual processing makes this a lagging process.**

C-1C.6: **Demand deposit services provided by JP Morgan Chase and BAM staff access to these services through the secure web portal and direct communication with bank support staff is consistent with prevailing practices.**

C-1C.7: **Cash reconciliation at BAM is a manual process that, by its nature, is error-prone. This is a lagging practice.**

C-1C.8: **The capital call approval and payment process is leading practice.**

C-1C.9: **The use of Russell as FX execution agent represents a leading practice.**

C-1C.10: **The Division's interaction with other Comptroller bureaus is consistent with prevailing practice.**

C-1C.11: **Enterprise-wide cash management with defined strategies, goals, active management of all cash positions, and involvement from each of the asset classes is not an active practice.**

C-1C.12: **With the move to BOA, future issues may arise in cash forecasting and control as the group becomes further distanced from BAM and their work priorities shift.**

Summary of Recommendations

R-1C.1: **Utilize State Street's cash forecasting capabilities for investment activities.**

R-1C.2: **Continue with the planned rollout of State Street's eCFM and implement as soon as possible.** [redacted]

R-1C.3: **Create a user's guide with up-to-date detailed documentation for all policies and procedures carried out by Cash Management.**

R-1C.4: **After the G/L is moved to State Street, take advantage of the inherent data export capabilities to augment the financial reporting process.**

R-1C.5: **Automated reconciliation of cash transactions and balances should be part of the automated recon process as recommended in 1B.**

R-1C.6: **Consider creating an asset class head for cash.**

R-1C.7: **Develop a service level agreement between BAM and the Cash Management group within BOA to ensure current and future needs are met.**

SPECIFIC AREAS OF SCOPE

A. Cash Forecasting

Leading Practice Expectations

Large and complex organizations have by and large automated the cash forecasting function. All transaction settlements, corporate actions, maturities, expenses (such as payroll and accounts payable), and bank deposits and withdrawals are fed automatically from their respective systems. Future changes in net investment needs are input manually to round out the forecast. Forecast reports are run and distributed daily, and in some cases intraday.

Conclusions and Related Findings

C-1C.1: While the forecast itself meets the need of the organization, the cash forecasting process is manual and has a fairly high degree of operational risk.

Cash forecasting is a manual process where expected receipts and disbursements are entered into a spreadsheet to forecast the future cash balances within each of the Systems' bank accounts. Every month the head of Fixed Income gives them the amount needed to cover investments. The Systems provide benefit payment amounts.

The Asset Class heads provide approved costs for consultant payments (except equity which Investment Controls approves). Future projections are entered for trades, corporate actions, expenses (payroll), upcoming investments, and advisor fees. Replenishment funds come from employee contributions and budget appropriations as well as the State Street STIF fund. This activity is manually entered into the cash forecast spreadsheet with the inherent risk of data entry errors.

The process works because the team has years of experience. Concern has been raised with key-person risk as the timing and expected amounts of many of the future disbursements are "in the heads of staff" and not tracked systematically.

Recommendations

R-1C.1: Utilize State Street's cash forecasting capabilities for investment activities.

All transaction settlements, maturities, and upcoming corporate actions are resident in the system and can be extracted to automate this portion of the cash forecast. If and when other systems (such as a Treasury system) are implemented, take advantage of the cash data available therein and automate more of the total forecast.

A Treasury System could streamline and increase the effectiveness of cash forecasting in a number of ways. First, it can better manage and track non-investment cash. Interfaces can be built to the Systems' bank accounts to electronically capture all incoming cash flows (as well as verify outgoing cash disbursements). It also records and tracks expected outgoing cash flows, recognizing that these future cash flows must be created either manually, fed from another system (e.g. accounts payable), or generated from an algorithm (e.g. to calculate expected liabilities).

By systematizing the cash forecasting process, a more accurate and auditable forecast would be available. This would contribute to reducing cash drag in the portfolio due to the greater accuracy of the non-investment cash balances. The investment team could more aggressively manage a higher percentage of the cash on hand.

By its nature, a Treasury system is able to create a data feed from all activity and feed it to a G/L system to eliminate manual reentry of this data. Journal entries are created from the Treasury system, fed to and automatically posted in the G/L thus creating a straight-through-processing workflow for non-investment cash flows.

B. Authorization of Wire Transfers – Pensions

Leading Practice Expectations

Leading practice is to automate the workflow of wire transfers. Once the wire instruction is entered into the system, it is automatically routed to the appropriate approver(s) for review and approval. Once approved, the instruction is routed to the appropriate banking entity (for external transfers) or to the appropriate system(s) (for internal transfers). Alerts and problem escalation exists for wires that are not approved in a timely manner. Full audit records exist for all transaction entry, modification and approval steps.

Conclusions and Related Findings

[redacted] [redacted]

[redacted]

Recommendations

R-1C.2: Continue with the planned rollout of State Street's eCFM and implement as soon as possible. [redacted]

C. Authorization of Wire Transfers – Other

Leading Practice Expectations

See B. Authorization of wire transfers – pensions (above)

Conclusions and Related Findings

C- 1C.3: Authorization of wire transfers is consistent with prevailing practice at peers.

Cash transfers from the various DDA accounts are executed through the JP Morgan Chase secure web portal. Once entered, a second approver is required to finalize the transaction. This is in accordance with prevailing practices at peer firms.

D. Investment Guidelines and Procedures

Leading Practice Expectations

Complete, comprehensive, and up-to-date documentation of all procedures is the norm at leading organizations. Users' Guides and training materials typically detail every step and include screen shots, definitions of fields and values, workflow diagrams, required authorization, timing and urgency indications, chain of command, and problem resolution protocols.

Prevailing practice is to maintain hard copy documentation and update it on a regularly scheduled basis. Leading practice is to have an on-line knowledgebase that is accessible by everyone and updated continually by those responsible for each defined process.

Conclusions and Related Findings

C-1C.4: Cash transfer and approval procedures are only lightly documented and training materials don't exist.

Procedural documentation for the cash management team exists only at a high level and does not include screen shots, definitions of fields and values, workflow diagrams, required authorization, timing and urgency indications, chain of command, or problem resolution protocols.

Investment Policy guidelines for Short Term Trading exist and are documented for The New York City Treasury and Related Health Accounts, The New York City Pension Funds, Retirement Systems, and Variable Supplements Funds.

Recommendations

R-1C.3: Create a user's guide with up-to-date detailed documentation for all policies and procedures carried out by Cash Management.

Other public funds have hired outside documentation experts to ensure a quality product while minimizing the impact on staff workloads to create them. High quality documentation can help with regulatory and internal audit as well as help with the onboarding and training process for new employees.

E. Financial Data Reporting

Leading Practice Expectations

Leading and prevailing practices dictate that all financial data flows automatically from the investment accounting systems to the corporate general ledger system(s). This eliminates errors introduced in manual rekeying of data, speeds up the time data reaches the G/L system, and ensures consistent numbers across systems. (Note that this requires that financial reports be produced from a G/L system and not a series of spreadsheets as is done today.)

Conclusions and Related Findings

C-1C.5: While the compilation of data to support financial reporting is manual, few issues have arisen in the past. The degree of manual processing makes this a lagging process.

Financial reporting data comes from the general ledger system, State Street, JP Morgan Chase reports, and internal spreadsheets and is manually compiled and sent to the Financial Reporting Division. Some manual consolidation is typically found in all firms but the amount of data that is rekeyed and the number of spreadsheets maintained within Cash Management indicates a lagging practice.

Once the general ledger is moved to State Street in its entirety (eliminating the general ledger system), the production of financial reporting data should become more streamlined and automated (although it has been noted that the Bureau of Accountancy does not have a financial reporting system that can accept an automated feed).

Recommendations

R-1C.4: After the G/L is moved to State Street, take advantage of the inherent data export capabilities to augment the financial reporting process.

BAM should take advantage of State Street's data export capabilities once BAM's G/L processing is moved there in its entirety. Even though the numbers are still input into a spreadsheet, the automated data export process will eliminate rekeying and the corresponding risk of error.

F. Demand Deposit Services

Leading Practice Expectations

The use of a secure banking portal to conduct DDA activity is the prevailing practice. In addition to using a secure portal, leading firms have built automated interfaces to receive transactions from the bank for reconciliation as well as to automatically send wire/payment instructions and receive deposit information.

Conclusions and Related Findings

C-1C.6: Demand deposit services provided by JP Morgan Chase and BAM staff access to these services through the secure web portal and direct communication with bank support staff is consistent with prevailing practices.

G. Cash Reconciliation and Monitoring

Leading Practice Expectations

Cash positions and transactions are reconciled on a daily basis at leading asset managers. Reconciliation occurs between the custodian, external managers, the investment accounting system (for internally managed assets), and the bank as appropriate. Reconciliations are automated, with manual intervention only to resolve recon breaks. Leading firms strive to correct all breaks on a daily basis, prior to the end of the business day.

Conclusions and Related Findings

C-1C.7: Cash reconciliation at BAM is a manual process that, by its nature, is error-prone. This is a lagging practice.

Transaction and balance reports are printed from JP Morgan Chase, the general ledger system, and State Street and compared to ensure all transactions have been entered correctly and as needed into each system and properly executed. Prevailing practice in an organization of BAM's size and complexity is an automated reconciliation of transaction and balance files produced by each system and compared systematically.

Recommendations

R-1C.6: Consider creating an asset class head for cash.

Further, implementation of a cash management/Treasury system will allow the Cash Management team to automate both the reconciliation of cash items and the workflow steps to ensure cash transactions are executed properly and timely.

H. Capital Calls

Leading Practice Expectations

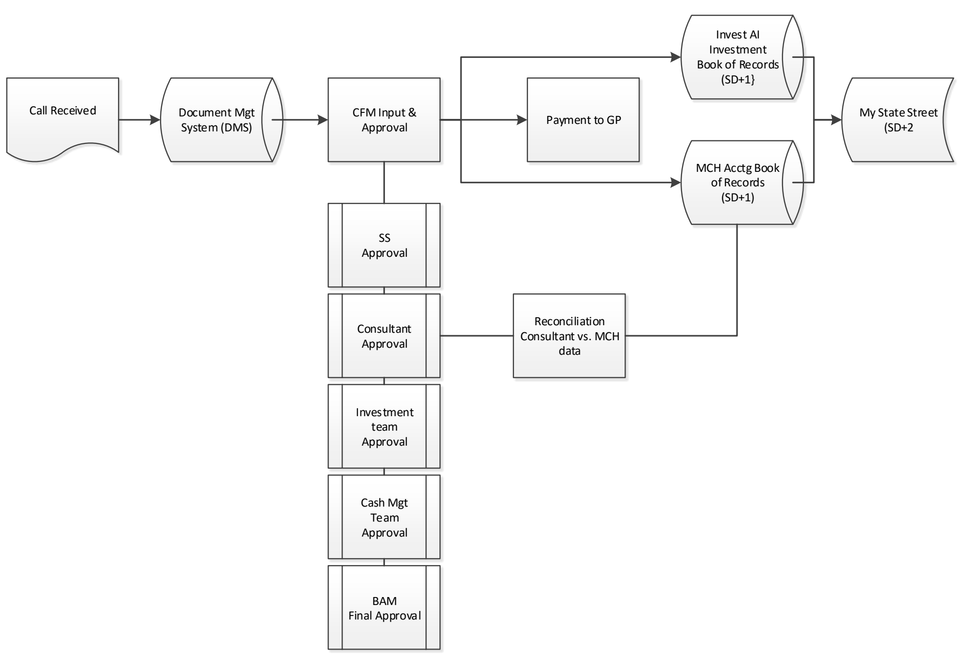
Leading firms have automated the approval and payment of capital calls and distributions. When a call/distribution notice is received from the GP, it is validated against the contract and side letters. When it passes this validation, it is routed for automated approval to the appropriate people. Once final approval is received, the payment notice is automatically generated to pay on the due date.

BAM utilizes its custodian's system and staff for the receipt and entry of the call/distribution notice as well as for automated approval routing. BAM further utilizes its Consultants for independent verification of the call parameters.

Conclusions and Related Findings

C-1C.8: The capital call approval and payment process is leading practice.

The capital call approval and payment process for Private Equity and Real Estate limited partnerships is automated using State Street's systems and requires approval from State Street, the Consultants, BAM Investment staff, BAM Cash Management, and BAM Executive Approval (distributions from the GP only require approval from State Street and the Consultants). The following workflow is in place for both PE and RE and is consistent with a leading practice:



State Street is responsible for ensuring that investment and accounting book of records are aligned and reconcile to General Partner's data. The Consultants are responsible for reconciling to State Street's Accounting book of records and reconciling to General Partner's Data.

I. FX Processing

Leading Practice Expectations

Please reference Section 2D FX for a complete description of leading practice expectations.

Conclusions and Related Findings

C-1C.9: The use of Russell as FX execution agent represents a leading practice.

While still relatively new to BAM, Russell appears to be executing trades at a low cost to NYC, living up to the expectation of using an agent for FX trading. Several questions remain regarding the timing of netting currencies (i.e. State Street's trades with BAM versus BAM's asset managers) and the hiring of an external analytics party, respectively. A planned asset allocation study will be used to craft FX policies and procedures. Adequate reporting is received from the consultant by BAM. Please see Section 2D for a detailed description of BAM's FX policies and procedures.

J. Division's Interaction with Other Comptroller Bureaus

Leading Practice Expectations

When the cash management function is created as a center of excellence serving several constituents, the process of requesting and reporting on wire requests is automated. Whether through a full-blown Treasury system or an internal portal, cash disbursement requests are entered and approved by the requesting entity. All information needed to execute the transaction (such as payee name, address, bank account, special instructions, etc.) are entered at the source and electronically approved as required by that entity.

Once approved externally, it is routed to the cash management area where it is approved internally for disbursement and executed. An execution report is produced and returned to the requesting entity immediately upon execution. Automated workflow ensures that all transactions are approved and executed within a timely manner; else they are escalated for action.

Conclusions and Related Findings

C-1C.10: The Division's interaction with other Comptroller bureaus is consistent with prevailing practice.

Cash instructions from other areas of the Comptroller's Office are received and processed manually using the same tool set as described above in Authorization of Wire Transfers – Other. The cash management group processes payments for other Bureaus in the Comptroller's Office. No issues were uncovered from either the Cash Management team's or other Bureau's perspectives.

Strategic Cash Management

Leading Practice Expectations

Leading asset management firms take an active and aggressive stance in managing their cash. Among other things, their goals are to minimize cash drag on the portfolios, make sure cash is utilized in an optimum fashion, minimize risk and exposure of their cash, and ensure cash is invested in the proper instruments given current market conditions. Often a portfolio manager who is responsible for managing and investing the firm's cash does this.

Conclusions and Related Findings

C-1C.11: Enterprise-wide cash management with defined strategies, goals, active management of all cash positions, and involvement from each of the asset classes is not an active practice.

The Cash Management group, in conjunction with the Short-term Trading group, is good at processing the day-to-day cash movement and investment activities but there is no overarching cash *management* taking place. There is no portfolio manager setting the strategy, establishing guidelines, monitoring market conditions, looking to minimize cash drag on the portfolios, etc.

Recommendations

R-1C.6: Consider creating an asset class head for cash.

BAM should perform an analysis of its cash returns to determine if there is an opportunity to increase the returns it is currently receiving through a more active cash management strategy. If anticipated returns substantially outweigh the cost of staffing a cash asset class, BAM should consider doing so.

Service Levels between Cash Management and BAM

Leading Practice Expectations

Leading firms have defined, documented, and agreed to service levels for all critical dependencies between separate divisions within the organization.

Conclusions and Related Findings

C-1C.12: With the move to BOA, future issues may arise in cash forecasting and control as the group becomes further distanced from BAM and their work priorities shift.

Cash Management no longer reports structurally to management within BAM. As time passes, BAM must ensure that its priorities remain top-of-mind for those responsible for carrying out the critical function of cash movements into, out of, and between the Systems' accounts.

Recommendations

R-1C.7: Develop a service level agreement between BAM and the Cash Management group within BOA to ensure current and future needs are met.

Consistent with establishing service levels between BAM's internal divisions, service level agreements should be drafted with other Comptroller Bureaus as a matter of course for all critical dependencies.

1D. Short-Term Trading Division

Description Provided by BAM

"The Short-Term Trading Division actively manages the City's short-term investments, including those of the City Treasury, the Systems', and other City agencies. The Short-Term Trading Division's staff operates the trading desk, executes the trades, and inputs the trade data into the general ledger system, a short-term investment reporting system/mainframe application that tracks holdings of securities. Each month a holdings report, a list of securities that the City owns, is generated from the general ledger system which is reconciled with the holdings report from State Street Bank and Trust Company, N.A., the Systems' short-term investment assets custodian bank."

Scope of Review

A. Execution of daily trades for short-term funds
B. Reporting – external (accounting, Department of Finance, etc.), internal (bureau chief)
C. Recording and analysis

Due to our more comprehensive review of the Short-Term (ST) Trading function, the specific items identified in the original scope (A-C above) were integrated into the discussion of several conclusions and recommendations detailed below. In summary, we conclude that each item above is done well. As noted elsewhere in our review, this ST team lives in a real time environment with well-defined rules and a risk averse culture. Accordingly, as long term, experienced staff they perform their tasks at a high level.

Our review identified several issues not in scope (but closely related to the tasks and duties in scope) that may generate a rethink of the status quo and how it may need to migrate to a framework offering more efficiency, opportunities and protection of the funds' assets.

Conclusions 1-4 speak to the Execution of trades. Conclusion 5 focuses on reporting and analysis.

Conclusion 6 is an out of scope assessment. Recommendations 3 and 5 are more directly linked to Scope items A-C.

Sources of Information

- BAM Self-Assessment Survey conducted by FAS
- System Self-Assessment Survey conducted by FAS
- Document Reviews
    1. ST Treasury short guidelines
    2. ST Pension guidelines rev 12-14
    3. Purchase 4-13
    4. Paper report
    5. Maturity tomorrow & week
    6. Trading work flow
    7. Positions held
    8. Fberstr overview and monthly
- Interviews
    1. Short term trading staff
- FAS leading practices knowledgebase
- Professional opinion of team

Summary

The Short-Term Trading team is a small team of four veteran employees who operate within the framework of BAM yet have responsibilities for both pension and other City monies totaling approximately $30 billion (ranging from $16-27 billion throughout the year). The pension and variable fund assets primarily represent cash (both operational and tactical) of the five pension funds which currently total approximately $6 billion. Occasionally, they invest money "temporarily parked" from a portfolio transition. Variable funds are less than $20 million. This amount does not include pension fund cash (approx. $2.0- 4.0 billion) held by the external investment managers that is typically invested in STIF funds at the custodian.

Our review primarily focused on the team's operations as they relate to the pension and variable fund assets; however, many of the processes and procedures are similar to those employed to manage the much larger City investments. This operational model has been in place for over 30 years and has worked successfully to accommodate the needs of each department's cash for which it has responsibility.

While it is not uncommon for larger public pension fund groups (primarily state funds) to manage short term assets along with pension assets, there is no one common model due to legal or special purpose needs. While Short-Term Trading's primary goal of protecting principal (i.e., "Don't lose") has been successful, the group will face new challenges as the overall fund's complexity and processes shift over time. Modest refinements to governance and related processes could add more clarity to their role, enhance expected outcomes, simplify reporting and provide opportunities to be more than a trading function.

Summary of Conclusions

C-1D.1: Short-term trading is staffed by a veteran team that is satisfied performing a specialty role. However, succession plans are needed.

C-1D.2: The investment guidelines are well defined and current as of December 31, 2014.

C-1D.3: Resources in terms of both systems and tools are adequate and appropriate.

C-1D.4: ST Trading uses a network of high quality providers (dealers and brokers) along with qualified regional firms where they are available.

C-1D.5: The ST team performs daily, weekly and monthly reporting and controls reviews. It utilizes the general ledger system, State Street and Bloomberg. Real time operations and accountability encourage strong control processes.

C-1D.6: A business continuity plan is in place, tested periodically and is currently under revision.

C-1D.7: The ST Trading guidelines may limit the pension funds investment opportunity sets under special conditions: Business Continuity, tactical strategies and minimizing cash drag.

C-1D.8: ST Trading operates primarily as a Trading Desk.

Summary of Recommendations

R-1D.1: Develop succession plans for the Short-term Trading Team.

R-1D.2: Refine guideline documents to incorporate policy and investment objectives.

R-1D.3: Assist in the preparation of separate "standardized" documents to define tactical investment activities.

R-1D.4: ST Trading should visit other large fund short term teams (public and private) to identify opportunities for self-improvement.

R-1D.5: Share the Short term trading policy, objectives and guidelines with authorized suppliers.

R-1D.6: Incorporate improvements into the revised BC plan design process.

R-1D.7: ST Trading should explore portfolio structure options that could offer more efficiencies and ability to exploit their investment skills.

R-1D.8: BAM should aggressively seek to minimize "cash drag" on returns other than as a tactical strategy.

R-1D.9: BAM should explore the merits of combining the Fixed Income and ST Trading teams.

SPECIFIC AREAS OF SCOPE

Leading Practice Expectations

There are many models used to oversee the management of short-term cash among the leading pension funds. They can be broken into two major categories – internal and external. While no one model is "best in class", all highly rated models would include the following components:

- Policies and guidelines targeted to safety of principal, liquidity (to accommodate payments, calls, etc.), and return (yield) would generally be secondary.
- Experienced staff (i.e., specialists, training)
- Effective controls (i.e., oversight, reports, monitoring)
- Appropriate resources (i.e., systems, tools)
- Culture of integrity (ethics, conflicts of interests)
- Network of high quality providers (i.e., dealers, brokers)
- Aligned with or part of Fixed Income team or strategy
- Business continuity plan
- Knowledge sharing

The scope of the RFP targeted assessing the execution of trades, reporting and analysis. Our review also involved a more comprehensive look at various policy documents, staff culture and opportunities to refine governance and investment processes.

A. Execution of daily trades for short-term funds

Conclusions and Related Findings

C-1D.1: Short-term trading is staffed by a veteran team that is satisfied performing a specialty role. However, succession plans are needed.

The Short-Term Trading (ST) team is a very experienced set of four traders who have been in their jobs for many years (2 for 25 years, 1 over 10 years, 1 over 8 years). They appear to be a very satisfied group within the BAM structure (Note: one person is managerial, three are civil servants). Although some might describe the work as repetitive, they have created a positive group culture which aligns well with their personal needs and goals.

They are comfortable with each other's work ethic and provide back-up for each other as required. Their job descriptions accurately reflect their job activities and responsibilities. They all subscribe to the same philosophical investment theme of safety of principal, in their words, "don't lose". This belief is deeply engrained in each staff member. Along with their high level of personal integrity, low staff turnover and good controls, they have consistently achieved their goals of safety of principal and a reasonable return over many years.

However, some challenges lie ahead that will require a re-examination of their role and future staffing needs. Currently, three of the staff are eligible for retirement. There is no succession plan. Given the skills and personality traits needed to perform the job, internal replacement may be difficult. Hence, external staffing may be needed to fill the vacancies. There is a need to create an effective transition plan.

In this regard, it may be appropriate to review alternative models for the management of pension cash (or other cash assets) to provide back-up and expand the investment opportunity sets beyond the current internal guidelines. For example, BAM might consider utilizing one of its existing external managers or custodian to create added support for the internal team thereby providing both back up and investment skills /options not available in the current structure. Note, the current guidelines do not permit investment in external STIF or money market funds which may offer risk / return / liquidity options on occasion that better fit the funds' needs. Cost and other control issues would, of course, need to be appropriately reviewed.

This is not to say that the current model is wrong, only that there may be opportunities to consolidate and invest cash assets in new and different ways to achieve the fund's risk and return goals and provide "staffing insurance" for unexpected events.

R-1D.1: Develop succession plans for the Short-term Trading Team.

Conclusions and Related Findings

C-1D.2: The investment guidelines are well defined and current as of December 31, 2014.

The team has investment guidelines linked to either the pension funds or City cash. In general, policy guidelines are more restricted for the NYC Treasury and related accounts. Note: each City account provides supplemental directions via other documents to clarify diversification and maturity constraints. This process should be reviewed to assure that it follows a well-documented governance structure. For example, a standardized format with regard to policy, guidelines re diversification, liquidity, yield, delegations, maturities, etc.

The guidelines for the NYC Pension Funds, Retirement Systems and Variable Supplements Funds are somewhat broader and offer more opportunity for diversity and maturity choices. The pension cash is typically split into two categories: Core Cash, representing day to day operational cash (approx. $1-1.5 billion) and Long Term Cash (representing tactical bets from time to time - currently approx. $ 4 Billion).

The team is given appropriate freedom to act within the context of the stated guidelines. Thus, the team is able to effectively invest both the Core Cash and Long Term Cash as needed to meet most fund goals associated with its stated role. Over time, the team has had some voice in defining appropriate guidelines. Many are defined by law.

The ST Trading guidelines primarily define acceptable securities, concentrations and maturity where appropriate. As such, they are quite clear, are well documented and current. However, as written they tend to imply policy rather than explicitly define it. There is no stated short-term policy statement per se and no clearly defined goals.

For example, while safety of principal may be the primary goal or investment objective (for Core Cash), it is not specifically identified in the formal policy guidelines. Likewise, liquidity is implied rather than stated as an objective. Hence, any short term policy and its goals are informally defined by the traders based on history and their personal standards which fortunately are extremely risk averse. Risk, return and value added type goals do not appear to be clearly stated or defined. We provide several sample policy documents in the Appendix section labeled A-1D.1, A-1D.2, A-1D.3 and A-1D.4.

With respect to Longer Term or tactical Cash investments, the investment process seems too informal. Communication is via email supplemented by periodic conversations. While simple and efficient, these activities should employ a more well-defined governance process considering the assets involved and the Monday morning quarterbacking event risk. This would include, but is not be limited to documents providing a description of the desired strategy, its goals, duration, reporting / controls and proper authorizations, a format similar to the recommended policy document. This should be prepared jointly by the asset group requesting the specialty strategy and the Short Term Trading staff.

Furthermore, Short Term Trading staff should be made a part of the process to gain their expertise rather than function primarily as an implementer.

R-1D.2: Refine guideline documents to incorporate policy and investment objectives.

R-1D.3: Assist in the preparation of separate "standardized" documents to define tactical investment activities.

Conclusions and Related Findings

C-1D.3: Resources in terms of both systems and tools are adequate and appropriate.

The ST team primarily relies on its Bloomberg systems for market information and monitoring selected investment guidelines. Each team member has a Bloomberg terminal on their desk. They also utilize their dealers and brokers for advice and counsel. Each team member has a computer at home (as part of the business continuity program). Additional comments are reflected in the business continuity section below.

They do, from time to time, discuss market conditions, etc. with other asset class staff mostly in the fixed income group. They rarely discuss or compare their activities with other pension fund organizations.

It may be useful for the ST team to compare returns, strategy, etc. with other funds to gain a "different point of view" and potentially trigger ideas for how Short Term Trading could improve their value to the fund (as well as the City). Examples include State of Florida and State of Oregon.

R-1D.4: ST Trading should visit other large fund short term teams (public and private) to identify opportunities for self-improvement.

Conclusions and Related Findings

C-1D.4: ST Trading uses a network of high quality providers (dealers and brokers) along with qualified regional firms where they are available.

In general, this appears to be very well done. The team takes pride in stating that it has trained its suppliers to provide only those opportunities consistent with their guidelines. They have created a set of "Criteria for Broker/Dealers" which describes in detail the standards needed to become an authorized dealer to the team. As noted, they generally use large, high quality dealers and occasionally seek to use regional firms when they have inventory meeting the funds' goals.

In this regard, there may be an opportunity to add additional control by sharing with each authorized dealer the investment guidelines document to add a level of clarity regarding what is allowable. This is comparable to the sharing of guidelines and policy with the hiring of an external manager. There does not appear to be any downside to sharing such information and it would put the supplier on clear notice what is acceptable rather than "training over time". Note: Several other large funds put their short term guidelines on line for everyone to read.

R-1D.5: Share the Short term trading policy, objectives and guidelines with authorized suppliers.

B. Reporting – external (accounting, Department of Finance, etc.), internal (bureau chief)

C. Recording and analysis

Conclusions and Related Findings

C-1D.5: The ST team performs daily, weekly and monthly reporting and controls reviews. It utilizes the general ledger system, State Street and Bloomberg. Real time operations and accountability encourage strong control processes.

In general, ST Trading's reporting and control activities are well done. There are several daily, weekly, monthly reports that are produced (e.g., Selected Maturities, Positions Held, Un-matured Investments, Commercial paper and Management report, etc.) along with trade information that is provided to various internal and external groups in a timely and useful fashion.

Data is entered into the general ledger system, sent to State Street for purchase and settlement via a ticket from Bloomberg. ST Trading approves all wires out from Central Treasury at State Street. The Head of ST Trading personally reviews each day's trades and holdings to confirm their compliance with guidelines.

There are no indications of any gaps in the reporting to any of the internal or external units. Should the general ledger system be phased out, there will have to be some modification to the group's reporting process. This may involve a shift to the Bloomberg AIM system which will require a change in processes. Since staff utilizes the Bloomberg system daily, the learning curve may be relatively short. It is not clear how this may affect the City monies. The Bloomberg AIM system can be tailored to send tickets, data to any selected custodian for appropriate security processing and reporting. It is not clear how this may impact the business continuity plans discussed below.

ST Trading functions in a very real time model and have clear lines of accountability, with a real focus on getting it right the first time. Controls are in place to catch any errors quickly. Sometimes trades are unwound which we understand happens very rarely.

C-1D.6: A business continuity plan is in place, tested periodically and is currently under revision.

The ST Trading team has developed a business continuity plan to meet their needs. While it has been tested and amended on occasion, Hurricane Sandy in 2012 did identify some areas that needed improvements (e.g., computers in staff's homes).

Given their activities are geared to a daily function involving billions of dollars, it is imperative that they have a well written, tested and well defined framework for maintaining their operational status not unlike that of any external money manager. We understand the current plan is being revised. In that regard, we offer some improvement considerations as part of the overall design process:

1. Testing should occur at least 2 days per year and include all members of the team at the designated sites.
2. Additional testing should occur at each person's residence to test alternative disaster type conditions.
3. Consider partnering with other large organizations (e.g., custodian, dealers, public funds) to share facilities.
4. If the Bloomberg system is critical to investment process and reporting, how will this and other resources/tools be incorporated into disaster recovery plan?
5. Would modifying guidelines to include other external commingled ST funds assist in meeting potential disaster recovery needs?
6. Would partnering with external manager offer fallback position?
7. Seek advice from other public funds, external managers regarding their disaster recovery programs.

R-1D.6: Incorporate improvements into the revised BC plan design process.

D. Short-term trading policies (not specified in the RFP)

Conclusions and Related Findings

C-1D.7: The ST Trading guidelines may limit the pension funds investment opportunity sets under special conditions: Business Continuity, tactical strategies and minimizing cash drag.

As noted earlier, ST Trading's responsibilities go well beyond just managing pension cash. BAM is primarily a pension fund management group. The historical logic for including management of City money inside BAM is not known. While this structure has worked well over many years and there are clearly pros and cons to changing any tested model, it may be appropriate for BAM to reaffirm the structure or consider other options that may provide the pension funds opportunities not currently available under the existing structure. As a reminder, pension Core Cash typically ranges from $1-1.5 billion, significantly less than the City monies of $15-30 Billion.

The internal guidelines for pension assets may be limited in scope for various non-standard events such as business continuity, tactical bets, minimization of cash drag or other cash type investing opportunities (e.g., Securities lending investments now managed by Citibank). The level of core or operating cash (i.e., money used to pay benefits, bills, etc.) defines the size of each funds diversity, liquidity and yield at any point in time, consequently each fund can only invest in individual securities up to the available assets on hand versus having the option to commingle with other assets to provide additional liquidity and diversification advantages.

Each systems' cash is now managed separately, i.e. each fund's cash is treated as its own pool or account. In this regard, ST Trading should consider other portfolio structures that may allow them to re-frame their safety and liquidity needs so as to provide new portfolio building opportunities. Some examples might include:

1. Creating a commingled account(s) with different maturities/liquidity, thereby providing the potential to build better risk / return options which can then be shared by all funds' equally via a unitization process – an internally managed STIF.
2. Use State Street's STIF (or any other external manager) for liquidity needs and supplement with individual securities for yield or other purposes. Could still employ a commingled model to accomplish the internal component.

As noted earlier, pension cash representing the external managers' residual cash resides at the custodian (in State Street Bank's STIF account), totaling $2-4 billion on a daily basis. While this is a common condition resulting from each manager's buy and sell activities, the consolidated effect on the overall portfolio is to produce a somewhat constant cash investment of $2-4 billion per day.

As a result, the fund is experiencing a cash return exposure (often referred to as cash drag) that may not be desired. We note that each fund's policy allocation has a zero cash target, i.e., measures performance based on having no cash investments (however, they do specify allowable ranges by manager and for internal). Thus any cash serves as a "drag" relative to the policy target.

For example, for every $1 billion of cash exposure, the potential drag effect (opportunity cost) is $50 million per year (the difference in return from cash versus investing in a 60/40 mix portfolio). In short, cash is a cost to the portfolio (ex any tactical bets). Consequently, efforts should be made to minimize any cash exposure to the policy level (again with exceptions for any tactical bet that may be employed from time to time).

Recognizing that normal investment operations will naturally generate cash conditions (bill payments, buys, sells, etc.), it remains important to seek to limit the cash balances required to effectively perform normal operations. Reassessing the target levels of operational cash needed for each system could lead to a reduction in the target level on any given day. As incentive, we would note that it is "costing the fund" $5 million a year for every $100 million in balances. This may help prioritize a debate on what is the absolute minimum required.

With respect to overall fund cash (which excludes tactical decisions), should the time come to employ more sophisticated leading practice strategies, it may then be useful to consider creating an operational structure which combines ST Trading and an external specialist for minimizing overall cash drag i.e., the return on cash versus the return on the overall policy portfolio.

Aside from seeking a change in rules (i.e., the basket clause) that would allow for the normal use of futures to protect the fund from this "cost drag" (one might even define as a risk), aggressively seeking to maintain the least amount of operational cash and utilizing a commingled fund model, there is little more ST Trading can do to squeeze returns from this asset class. The external managers should be strongly encouraged to minimize their cash levels (possibly via incentives) but that is not the responsibility of ST Trading. We acknowledge that under the current organization model, Cash Management and other investment staff would play a role in developing/operating various elements of these new programs.

Given these challenges affect all large funds, we would advise BAM to visit with other funds to identify various methodologies which could serve as templates for developing a program targeted to the specific needs of the NYC pension funds.

R-1D.7: ST Trading should explore portfolio structure options that could offer more efficiencies and ability to exploit their investment skills.

R-1D.8: BAM should aggressively seek to minimize "cash drag" on returns other than as a tactical strategy.

C-1D.8: ST Trading operates primarily as a Trading Desk

One of the continuing challenges facing the team is, "How can ST Trading better align with the needs and goals of BAM and the funds?" ST Trading now functions almost purely as a trading desk, yet has many skilled staff with knowledge and qualities which could be of significant value to other teams within BAM.

In addition, they tend to be specialists in fixed income type securities. Hence, one might ask, why are they not part of the fixed income team? Is it the fact that they play a dual role (pension and City money investing) or some other reason?

Given that the Fixed Income team oversees approximately $40-50 billion in externally run funds, with multiple strategies and risk/return goals, there may be value in exploring a closer linkage with the Fixed Income asset team, including becoming a part of that team. There are clearly many similarities in the type of assets, guidelines and policies, etc. They currently combine to oversee various tactical strategies from time to time and both review similar market data.

ST Trading in effect represents a specialty zone of the overall Fixed Income strategy. They are the internal money managers for one area of pension cash and the overall manager for the City funds. Accordingly, we would suggest BAM consider reviewing other large fund structures (again both public and private) to determine what benefits it may experience from a restructuring of ST Trading within the Fixed Income group. Combining teams that are actively involved in similar markets may unleash a new mindset that continually identifies more optimal investments and strategies for each fund's assets.

R-1D.9: BAM should explore the merits of combining the Fixed Income and ST Trading teams.

1E.1 Compliance Division

Description Provided by BAM

"The Compliance Division monitors investment activities in order to proactively evaluate compliance risks in the portfolios overseen by BAM. This Division is responsible for identifying and implementing systems to assess and document protocols, to monitor regulatory compliance (both within and outside of BAM), and to monitor compliance as it relates to the ethical conduct of external managers, parent companies, affiliates, joint venture partners, as well as the investment managers' delegates, on a range of issues relevant to the financial services industry. This Division also ensures that investments comply with State and Federal law, the Systems' investment guidelines and the asset allocation decisions made by the Systems' and Related Funds' Trustees."

The Chief Compliance Officer was appointed in April 2015 as one of the key positions included in the Comptroller's Six-Point Plan.

Scope of Review

The Scope of the Review required us to examine a number of specific areas as shown below. However, there are a number of broader policy issues which emerged during our review. These are discussed on the following pages followed by our assessment of the specific topics.

A. Implementation of ethics and compliance policy
B. Guideline mapping to Master Custodian system
C. Exception reporting – daily and monthly
D. Policy and guideline compliance monitoring
E. Manager compliance disclosures
F. Investment policy updates and distribution – Core Investment Statement (IPS) / Satellite IPS
G. Document Retention Procedures
H. Procedural Manual Creation and Update

Sources of Information

- BAM Self-Assessment Survey conducted by FAS
- System Self-Assessment Survey conducted by FAS
- Document Reviews
- Interviews
- FAS leading practices knowledgebase
- Industry standards and frameworks
- Professional opinion of team

Summary

FAS reviewed the Compliance Division to evaluate their structure, reporting lines, charters, job descriptions reporting and overall compliance processes and systems. The objective was to assess and provide recommendations to strengthen the Compliance function. Although the scope of our assessment did not encompass Internal Audit since the function does not report to BAM, we did conduct an interview with the Head of Internal Audit and reviewed pertinent documentation to understand the scope, timing and reporting processes.

As noted, a new Compliance Officer was hired in April, 2015. As a result, BAM's compliance program is currently in the process of being realigned to better reflect its compliance mandates, staffing and process needs.

OGC reports[12] that it has worked with BAM over the past decade to ensure that the Systems' current and prospective outside public and private markets managers provide BAM with full and accurate disclosure about the managers' compliance practices, policies, and history.[13] Notably, that work has gone well beyond creating and improving detailed disclosure forms, to include extensive engagement with managers about the content of their completed disclosure forms. It is the strong intent of BAM and OGC to avoid having the manager disclosure process become, or be perceived by managers as, a passive "file and forget" system.

OGC reports that effort began in 2005 and 2006 with the annual Ethics and Compliance Questionnaire and Certification for public markets managers. Those forms have been refined on several occasions to reflect new compliance issues, including on one occasion with the active assistance of outside counsel for the Variable Funds of the Teachers' Retirement System and BERS.

Moreover, BAM Compliance reviews all completed manager responses, both for completeness and for any ambiguous, anomalous or "red flag" responses. BAM then engages with the manager until it has obtained a satisfactory response and explanation in each instance. Besides ensuring complete and meaningful responses, BAM's doing so serves to emphasize to managers that BAM actually reads all of their responses, and will not simply accept those responses without question.

The effort continued in 2008 and 2009 with the creation of disclosure forms that prospective managers must complete before BAM will recommend to the Boards that the Systems enter into investment arrangements with them. The forms were created primarily to address concerns as to private markets managers, though some use of them, or of variants, is made with public markets managers as well. The initial forms were: the Advisory Notice for Meetings (informational only); NYC Retirement Systems Investment Policies Advisory Notice (only for Private Equity and Real Assets); Doing Business Data Form;

[12] Memo from Richard Simon to FAS re: Legal and Compliance Write-ups October, 14, 2015
[13] This compliance effort with managers is separate from the questions of managers' compliance with their investment guidelines, or of BAM staff's compliance with City and Comptroller ethics requirements.

Placement Agent Fee Disclosure Certificate; and Supplemental Diligence Questionnaire. Those forms seek information from managers as to compliance with important policies of BAM and the Systems, including those as to investment opt-outs, Placement Agents, gifts, and Pay-to-Play. The forms also expressly lay the basis for strong remedies if managers' representations are later found to be materially inaccurate. Specifically, in such a case, the Systems could stay in the fund as investors without ever having paid any management fees or incentive/carry.

BAM and OGC engage extensively with prospective managers to ensure that they receive complete responses, to investigate any responses that raise concerns, and to refuse any changes to the remedies. The representations and remedies in those documents are then incorporated into, and made legally binding by inclusion in, side letters (for commingled funds) and LPAs or LLC Agreements (for separate accounts).

Most recently, as part of the Comptroller's 2014 Six-Point Plan to improve compliance, BAM and OGC created the Private Markets Compliance Disclosure (initial) and Private Markets Compliance Questionnaire (annual). Those forms require disclosures as to managers' compliance policies and training with respect to FCPA, OFAC, AML, and Pay-to-Play; compliance with certain Investment Advisers Act requirements; and any federal or state government investigations, lawsuits, settlements or judgments.

Similar to the other manager disclosure forms, BAM and OGC do not simply accept and file managers' responses. Rather, each response is reviewed, and managers may be asked to provide further explanations, or even to consider substantive improvements, where current compliance policies appear to fall short of best practices. For example, if the manager states it has no FCPA policy, but its website shows it invests in countries known to be at risk for FCPA violations, BAM and OGC will ask the manager to consider adding FCPA policies and training to its compliance program. So far, two managers have agreed to do so. Similarly, if a manager states that because it is not subject to the SEC's Rule 206(4)-5 on Pay-to-Play, it has no compliance policy for Pay-to-Play, it will be asked to adopt such a policy. One manager recently agreed to do so.

Leading Practice Expectations

Our evaluation of the Compliance function is based on internationally accepted frameworks established by the Institute of Internal Auditors (IIA), the Committee of Sponsoring Organizations of the Treadway Commission (COSO) and the International Organization for Standardizations (ISO).

Correspondingly, the IIA issued in 2010, their Practice Guide for Assessing the Adequacy of Risk Management Using ISO 31000; while COSO issued frameworks on risk management and Basel Committee on Banking Supervision issued its framework on the compliance function. See the Appendices for a more detailed description of these frameworks.

Summary of Conclusions

C-1E1.1 The Ethics and Compliance policy needs to be fully implemented.

C-1E1.2 Compliance programs and policies need to documented.

C-1E1.3 BAM-specific compliance training is needed.

C-1E1.4 Guideline mapping to the State Street Master Custodian system needs to be completed.

C-1E1.5 Exception reporting needs to be developed.

C-1E1.6 Increased policy and guideline compliance monitoring is needed.

C-1E1.7 Robust policies and procedures are needed to ensure the Systems' Investment Policies are being implemented as approved.

C-1E1.8 BAM's record retention practices appear adequate but could be improved. This is not Compliance's responsibility but was part of the scope of the review of Compliance Division.

C-1E1.9 Procedural manuals either do not exist or have not been well maintained. This is not Compliance's responsibility but this was part of the scope of the review of Compliance Division.

Summary of Recommendations

R-1E1.1 **BAM should establish a compliance communication plan for information that should be communicated to the Bureau and how it should be provided.**

R-1E1.2 **BAM should establish an internal website to help communicate and educate BAM personnel in matters of compliance.**

R-1E1.3 **BAM should establish a compliance tracking database in order to ensure that all BAM personnel have taken all relevant compliance training courses as well as achieving the training objectives.**

R-1E1.4 **BAM should develop a Compliance Division charter that specifically describes their roles and responsibilities to both internal and external stakeholders. (See Appendix A-1E.1.4.6)**

R-1E1.5 **The Compliance Division should document their policies, procedures and job aids including business process workflows and narratives.**

R-1E1.6 **BAM should develop or obtain relevant training courses to ensure that all BAM employees are being provided with the most up-to-date understanding of regulatory compliance and ethics training.**

R-1E1.7 **BAM should assess the reporting capabilities of the State Street system to maximize the value associated with the reconciliation processes used for end of day and month trading activity.**

R-1E1.8 **BAM should develop an inventory of existing compliance exception reporting capabilities, spreadsheets and third-party reports to determine what gaps can be quickly identified and closed until more systemic processes and reporting can be rolled-out.**

R-1E1.9 **BAM should implement and update existing policies to include currently available compliance monitoring techniques as well as ensure that procedures for identifying, reconciling and communicating with other stakeholders such as Legal, Internal Audit, and Risk Management.**

R-1E1.10 **The Chief Compliance Officer, working with the Chief Risk Officer, should provide input into the Chief Risk Officer's report to the Board of Trustees on compliance related matters.**

R-1E1.11 **BAM should develop robust investment policy procedures to ensure the Systems' investment policies are being implemented and that there are adequate internal controls in place to monitor and detect out of compliance situations. (See Appendix A-1E.1.4.3)**

R-1E1.12 **BAM-specific record retention policies and procedures should be developed along with corresponding training programs for management and staff.**

R-1E1.13 The COO (not Compliance) should document their existing divisional processes using standardized templates and update these on at least an annual basis or more frequently depending on the rate of change to regulations or business process and system improvements. (See Appendix A-1B.2)

R-1E1.14 The COO (not Compliance) should implement a procedural database to store and allow web-based access to divisional managers and staff to access pertinent policies and procedural manuals. This database structure should also be governed through appropriate change control processes to ensure that only approved changes to procedures are performed.

SPECIFIC AREAS OF SCOPE

A. Implementation of Ethics and Compliance Policy

Leading Practice Expectations

We would expect to find documented ethics and compliance policies that have been customized to reflect BAM's unique role and responsibilities in entering into and managing the investments of the five systems. We would also expect to see that every employee is required to take this training and pass some form of learning objectives test.

Ensuring that people not only take the course but understand the key objectives is crucial to making sure everyone understands their role and responsibilities. Furthermore, we would expect to see a compliance monitoring process to verify and follow-up on individuals who either do not attend a required training course, or who fail the learning objective test (after 3 re-takes).

Conclusions and Related Findings

C-1E1.1: The Ethics and Compliance policy needs to be fully implemented.

A new Chief Compliance Officer was hired in April 2015 and has had limited time to implement important changes. Based on various interviews with BAM employees, there apparently has not historically been a compliance-oriented culture. However, there are currently no documented policies or procedures in place.

For example, in Investments, contracts are the governing documents. When due diligence is performed by the Investment Strategy Division (ISD), there is no standardized process across asset classes. Recommendations and suggestions made by both Compliance and Risk Management were not accepted by the ISD. There are apparently some individuals who do ask tough questions as part of the due diligence process, however, others seem to believe that the managers “can do no wrong” or the consultants have specialized training in performing those roles.

BAM relies primarily on the City's Conflict of Interest policies, forms and processes. If something questionable is identified, it would normally be referred to the City's Conflict of Interest Board (COIB).

However, there is currently no way to determine if all conflicts that are identified dealing with investment securities would be brought to the Compliance Officer's attention.

Recommendations:

R-1E1.1: BAM should establish a compliance communication plan for information that should be communicated to the Bureau and how it should be provided.

R-1E1.2: BAM should establish an internal website to help communicate and educate BAM personnel in matters of compliance.

This internal website could be used to provide links to both City and BAM specific compliance policies as well as communication procedures and required annual compliance forms and letters.

R-1E1.3: BAM should establish a compliance tracking database in order to ensure that all BAM personnel have taken all relevant compliance training courses as well as achieving the training objectives.

This database would be the foundation for exception reporting and following up procedures by divisional leaders on employees who are out of compliance.

Conclusions and Related Findings

C- 1E1.2: Compliance Programs and policies need to be documented.

Given the growing complexity of BAM's investment and operating environment, we expected to find Compliance Division Charter, Policies, Procedures and Compliance Assessments. In order for the function to achieve its goals and directives, their roles and responsibilities should be specifically identified. Clearly defined charters, policies, procedures and work aides, will facilitate holding other operational divisions accountable for their actions in managing operational and investment risk. FAS would also recommend that a periodic risk assessment be conducted of investment processes, policies and procedures. As BAM continues to rollout additional State Street functionality and processes, compliance risk becomes greater during periods of significant change.

Recommendations:

R-1E1.4: BAM should develop a Compliance Divisional charter that specifically describe their roles and responsibilities to both internal and external stakeholders. (See Appendix A-1E.1.4.6)

R-1E1.5: The Compliance Division should also document their policies, procedures and job aides including business process workflows and narratives.

This will assist in cross training of existing staff and also help new employees understand not only their own job, but how their work is connected to both upstream and downstream processes as well as BAM's system of internal controls.

Conclusions and Related Findings

C-1E1.3: BAM-specific compliance training is needed.

Leading Practice Expectations

Compliance training represents a cornerstone in helping to educate and build a culture of identifying, mitigating and complying with risk and compliance issues. We expected to see training programs associated with ethics, conflicts of interest and financial regulation. Instead, we found training was not very comprehensive or complete. However, ethics and Conflicts of Interest training courses have recently been instituted annually by the Comptroller's Office and recently conducted by trainers of the New York City Conflicts of Interest Board, while other programs have not yet been developed. Typical training programs would include:

- Ethics
- Conflicts of Interest
- Financial Regulations:
    - Foreign Asset Control Regulations
    - Anti-Money Laundering Protocols
    - Awareness of Foreign Corrupt Practices Act
    - Cybersecurity
- New and emerging regulatory changes:
    - Ukraine-related sanctions
    - "Bad actor" certifications
    - Municipal Adviser rule and related certification

In addition to the development of training programs, it is important to ensure that all employees take annually required training or refresher training. Logging in and taking a key skills test are typically employed in order to ensure that the employee has understood the key learning objectives of the course. Failure to either attend required training or failure to pass the course's key learning objectives test after a predetermined number of tests should be elevated to the employee's department manager for further development and training. Typically, the Compliance Division would obtain a report of individuals who have either failed to take a course or not passed the learning objectives tests.

Recommendations:

R-1E1.6: BAM should develop or obtain relevant training courses to ensure that all BAM employees are being provided with the most up-to-date understanding of regulatory compliance and ethics training.

B. Guideline Mapping to Master Custodian System

Leading Practice Expectations

We would expect to find standardized processes with documented mapping investment guidelines for each of the five systems to the State Street master custodian system to help ensure that an appropriate level of internal controls exist to:

- Adequately safeguard assets;
- Ensure the accuracy and reliability of accounting data;
- Provide timely information for management and clients;
- Maintain adequate levels of operating efficiency;
- Ensure compliance with laws, rules, regulations, and bureau policies; and
- Accommodate new investment products and services

This documentation should not only link key requirements associated with their individual investment policies, but should also establish compliance limits and metrics. Furthermore, it would be used as a basis for compliance exception reporting and monitoring on a daily and monthly basis. Exception reports would be systematically generated and distributed to both operational management as well as the Chief Compliance Officer for follow-up and independent assurance purposes.

Conclusions:

C-1E1.4: Guideline mapping to the State Street Master Custodian system needs to be completed.

It is our understanding that State Street has recently completed the mapping of its systems to investor guidelines, and although some compliance reporting is being performed, we understand that individual investment manager’s transaction reconciliations occur on a monthly basis, rather than on a daily basis, potentially allowing multi day trading activity to obscure trades that provide little or no economic value to the Systems.

Additional observations conclusions and recommendations can be found in section “2C Master Custodian Bank services provided to BAM.”

Recommendations:

R-1E1.7: BAM should assess the reporting capabilities of the State Street system to maximize the value associated with the reconciliation processes used for end of day and month trading activity.

C. Exception Reporting – Daily and Monthly

Leading Practice Expectations

We would expect to see a comprehensive series of exception reports that are designed to capture and document activity that departs from, or is inconsistent with, certain defined parameters (e.g. policies and procedures) established by the fund or its service providers. For example, instead of creating a periodic report detailing all persons who have complied with a fund's code of ethics, the fund's investment adviser may instead produce an exception report, such as a quarterly report that identifies all personnel who have not filed initial, quarterly, or annual holdings reports within the timeframes specified by the fund's policies and procedures.

Such reports may be useful in evaluating the effective implementation of the fund's code of ethics. If, for example, a system has a policy of requiring all new hires to sign an acknowledgment of the code of ethics within 30 days of employment, this too could be tracked for compliance. Exception reports could be generated quarterly that list all employees who did not provide the acknowledgment within the 30-day period. These reports could be used to determine whether the fund's policies and procedures in this area are adequate and being implemented effectively.

Notwithstanding these examples, the fact that an item is identified on an exception report does not mean that the item is necessarily a compliance violation (*e.g.*, exception reports that identify the number of "as of" trades at the fund's transfer agent within a certain time period). Based on the parameters, exception reports can be used as a tool to cull through a large amount of data to identify the data that may require further attention or review. In addition, exception reports, when reviewed over time, may be particularly useful in conducting trend analyses.

For example, to the extent exception reports indicate a change in the number or substance of exceptions being reported, this could indicate a possible change (improvement or weakening) in the processing controls governing the area where the exceptions are occurring.

Conclusions:

C-1E1.5: Exception reporting needs to be developed.

BAM staff state that exception reporting is minimal or non-existent. State Street's current reporting capabilities "sometimes generates reports containing hundreds of pages." This condition typically results in the loss of confidence in the reports or even a total disregard for the content.

Although a State Street project is currently underway to improve the reporting capabilities, there is no consistent process for identifying and addressing exceptions. The Compliance Division is aware of the situation and is working with the operational divisions to address these concerns.

Recommendations:

R-1E1.8: BAM should develop an inventory of existing exceptions reporting capabilities, spreadsheets and third-party reports it receives to determine what gaps can be quickly identified and filled until more systemic processes and reporting can be rolled-out.

D. Policy and Guideline Compliance Monitoring

Leading Practice Expectations

Our expectations for monitoring compliance with policies and procedures are derived from both ISO 31000 and the Basel Compliance frameworks. Both frameworks focus on the responsibilities of both the Board and management to ensure there is compliance with policies and guidelines and that sufficient monitoring controls exist to detect and respond to compliance exceptions. These controls and processes also needed to ensure there is an appropriate level of management involvement in responding to compliance issues as well as working with other key constituents such as Legal, Internal Audit, Risk and Compliance both internally to BAM as well as with other City divisions.

Conclusions and Related Findings

C-1E1.6: Increased policy and guideline compliance monitoring is needed.

There are no compliance monitoring policies relating to investor trading, nor are the necessary information technology tools currently available to provide for a sufficiently reliable means of identifying exceptions in investor guidelines or investment manager trading practices. Although no fraudulent activities were identified as part of our assessment, there are insufficient controls in place to ensure that individuals cannot circumvent compliance by forging relationships and exploiting them, as was mentioned by one employee who described a hypothetical scenario. Although the risk of collusion exists in any organization, this risk can be mitigated through a variety of overlapping controls and processes, including training on policies, implementation of reporting capabilities both within State Street as well as BAM related systems, and the use of the City's Fraud Hotline.

There is also little capability to monitor internal proxy voting to ensure consistent application of the policy. While this is a larger problem for external proxy voting, improved internal systems, and procedures could be improved. Having said that, it is our understanding that BAM staff are currently evaluating proxy voting systems to improve the process as well as reporting capabilities. Please also see Section 1F - Corporate Governance for more information on this topic.

Recommendations:

R-1E1.9: BAM should implement and update existing policies to include currently available compliance monitoring techniques as well as ensure there are procedures for identifying, reconciling and communicating with other stakeholders such as Legal, Internal Audit, and Risk Management.

E. Manager Compliance Disclosures

Leading Practice Expectations

Our expectations for monitoring manager compliance disclosures are derived from the Basel Compliance framework. The Basel framework focuses on the need to ensure that compliance with policies and guidelines is being performed and that sufficient monitoring controls exist to detect and respond to compliance exceptions. These controls and processes are needed to ensure that the appropriate level of management involvement in responding to compliance issues as well as working with other key constituents such as Legal, Internal Audit, Risk and Compliance both internally to BAM as well as with other City divisions.

Leading practice expectations would be that BAM's Chief Compliance Officer would have direct lines of communication with other City compliance functions and that CCO would receive routine compliance reports identifying any open conflicts or unresponsive investment managers who have not turned in their Certification Letters on time.

Conclusions and Related Findings

F. Investment Policy Updates and Distribution – Investment Policy Statements

Leading Practice Expectations

In order to ensure that each System's investment policies are being incorporated into BAM's investment process and executed accordingly, leading practice would expect robust change control policies and procedures. Change control policies and procedures are intended to ensure that there is an appropriate level of management oversight and internal controls to ensure completeness, timeliness and appropriates of transactions. Investment procedural manuals typically contain the following sections:

- Introduction
- Objectives
- Prudence and Ethical Standards
- Investment Decisions
- Delegation of Authority

- Duties and Responsibilities
- Reporting Requirements
- Operations
- Authorized Wires
- Securities Confirmations
- Security Selection Process
- Supporting Exhibits

Conclusions and Related Findings

C-1E1.7: Robust policies and procedures are needed to ensure that the Systems' Investment Policies are being implemented as approved.

As with much of BAM, bits and pieces of policies and procedures exist. For example, compliance is checked by the custodial bank, cash balance deviations from policy by Compliance, rebalancing ranges by Public Equity, etc. Also, in terms of "big picture" issues, such as allowable investments, the presence of multiple consultants and an outside custodian mitigate the risk. However, there is no single investment procedures manual. Absent such a manual, and the procedures to implement the manual, gaps can exist and inefficiencies are almost certain to exist.

Recommendations:

R-1E1.10: The Chief Compliance Officer, working with the Chief Risk Officer, should provide input into the Chief Risk Officer's report to the Board of Trustees on compliance-related matters.

R-1A1.11: BAM should develop robust investment policy procedures to ensure the Systems' investment policies are being implemented and that there are adequate internal controls in place to monitor and detect out of compliance situations. (See Appendix A-1E.1.4.3)

G. Document Retention Procedures

Leading Practice Expectations

Although Compliance is not responsible for developing or deploying document retention procedures, it was noted as part of the scope for the division. Leading practice would expect to find a well-defined document retention program to help achieve the following goals:

- Preserve the right information for the correct length of time
- Meet legal requirements faster and more cost effectively
- Control and manage records management storage and destruction fees

- Demonstrate proven practices of good faith through consistent implementation
- Archive vital information for business continuity and disaster recovery
- Provide information in a timely and efficient manner regardless of urgency of request
- Use technology to manage and improve program
- Integrate policies and procedures throughout organization
- Establish ownership and accountability of records management program
- Arrange for continuous training and communication throughout the organization
- Project an image of good faith, responsiveness and consistency
- Review, audit and improve program continuously

We would also expect to see corresponding document retention policies and procedures that are consistently applied throughout the Bureau.

Conclusions and Related Findings

C-1E1.8: BAM's record retention practices appear adequate but could be improved. This is not Compliance's responsibility but was part of the scope of the review of Compliance Division.

The City's Department of Records and Information Services (DORIS) maintains approximately 1 million cubic feet of active records for New York City agencies, as well as those of the non-federal courts and five District Attorneys.

After these records meet their legal retention period and become eligible for disposal, they are reviewed for historical value. All records of historical significance are then transferred to the New York City Municipal Archives for permanent storage. In addition to setting record retention policies, they are also responsible for ensuring compliance. Finally, DORIS provides records management training to City agencies' records management personnel in order to enhance their professional skills.

BAM maintains 70 record types within the Comptroller's master record listing. The Comptroller's Master Record Retention Schedule consists of record types for each division within BAM and denotes a short document description name, long description, the person who inventoried the document and when.

From the standpoint of electronic records, a consistent theme was that people were storing their files on the "network" or "shared drive." Another common statement made was that IT backs up these shared drives. Whenever they've had a problem, IT has been able to get their files back. Consequently, there is a significant dependency on IT for record retention and business continuity capabilities.

Although it is not the Compliance Division's role or responsibility to manage the day to day activities of record retention, leading practices hold that from a governance perspective, Compliance should be involved from an oversight and independent assurance role. Compliance should provide senior leadership and the Board of Trustees with independent assurance that the agency is actively remediating deficiencies and adhering to its implementation milestones.

Recommendations:

R-1E1.12: BAM-specific document retention policies and procedures should be improved along with corresponding training programs for management and staff.

These policies and procedures should encompass the following elements:

- Improve business continuity and disaster recovery procedures.
- Improve procedures for the creation, retention, destruction, access, and storage of electronic records.
- Outline records disposition policies and procedures as an established pattern of systematic document retention and destruction. This prohibits selective destruction of records.
- Establish an annual audit of the company’s records management program.
- Define the records management related roles and responsibilities within an organization including those for the department managers, company employees, tax, legal, IT, and internal audit departments.
- Provide records management program employee training on an ongoing basis and distribute the records management program policies and procedures to new employees.
- Establish and enforce employee accountability for the compliance of the records management program. This can be done by including it as an element in performance appraisals and instituting disciplinary actions for violations.
- Review policies concerning “vital” records that are essential for the continued operation of an organization in the event of a disaster or crisis.

H. Procedure Manual Creation and Update

Leading Practice Expectations

Although Compliance is not responsible for developing or deploying procedural manuals within the agency, it was noted as part of the scope of the review for this division. We would expect that there would be well documented and up to date policies and procedures. A well-written manual is a valuable resource to an organization. Well-defined policies and procedures help to better inform staff and can actually save time. Clear procedures help to cross train employees for continued professional development and the on-boarding of new staff. We also recognize this requires a considerable amount of planning, organization and time- unfortunately this is something that BAM does not have.

FAS believes that the oversight of the implementation of agency wide procedural manual development should be under the COO's direction.

Conclusions and Related Findings

C-1E1.9: Procedural manuals either do not exist or have not been well maintained. This is not Compliance's responsibility but this was part of the scope of the review of Compliance Division.

We found that procedural manuals either do not exist or have not been well maintained. This has resulted in staff developing idiosyncratic procedures to perform their roles. A number of common themes became evident during our review:

1. Divisional procedural manuals, if they exist, are fragmented and are not typically maintained.
2. There are no procedural documentation standards, nor a centralized storage location or website.
3. Certain vendors are required to provide procedural manuals as part of their service level agreement.

Recommendations:

R-1E1.13: The COO (not Compliance) should document their existing divisional processes using standardized templates and update these on at least an annual basis or more frequently depending on the rate of change to regulations or business process and system improvements. (See Appendix A-1B.2)

R-1E1.14: The COO (not Compliance) should implement a procedural database to store and allow web-based access to divisional managers and staff to access pertinent policies and procedural manuals. This database structure should also be governed through appropriate change control processes to ensure that only approved changes to procedures are performed.

1E.2 Risk Management Division

Description Provided by BAM

"The Risk Management Division (RMD) monitors investment activities in order to proactively evaluate investment risks in the portfolios overseen by BAM. This Division is also responsible for analyzing and reporting on portfolio investment risk using complex quantitative models (i.e., VaR, Stress Testing, and Scenario Analysis), evaluating the implications of investment decisions on total portfolio risk, and monitoring the impact of market developments on asset allocations and other investment policies. The Division also reviews and recommends innovative risk management technology and modifications to risk-related controls and internal operating procedures and systems."

The Chief Risk Officer (CRO) was appointed in January 2015 as one of the key positions included in the Comptroller's six-point plan.

Scope of Review

The Scope required a review of a number of specific areas as shown below:

A. Risk monitoring for the Systems
B. Coordination of quarterly risk reports
C. Business continuity and disaster recovery
D. Board of Trustee meetings reporting

There were also a number of broader risk management issues which emerged during our review. These are discussed on the following pages followed by our assessment of the specific topics shown above.

Sources of Information

- BAM Self-Assessment Survey conducted by FAS
- System Self-Assessment Survey conducted by FAS
- Document Reviews
    - July 29 NYCERS Board Risk Presentation (5 slides)
    - Various Investment Documentation Policies (not formally approved)
    - Record Retention File Summaries (dated May 5, 2005)
- Risk Management/FAS Interview
- Interviews, specifically of BAM staff, Other Comptroller's Office staff, Trustees and investment consultants

- FAS leading practices knowledgebase
- Industry standards and frameworks
- Professional opinion of team

Summary

As seen throughout this report, operational risk is high and the probability of a significant operational failure is also high. Many of our report's recommendations address various ways to mitigate operational risk. BAM needs to develop a comprehensive approach to reduce the potential for failure caused by unwanted variability due to people and organization factors (e.g., lack of adequate staff, lack of training, large spans of control), policy and process factors (e.g., lack of central policy repository, undocumented procedures), information for decision-making factors (e.g., manual transposition of data, archaic systems, lack of timely data, lack of risk transparency) and other factors (e.g., portfolio complexity).

The Chief Risk Officer and the RMD have a very important role to play in supporting these efforts and in providing quantitative and qualitative risk management tools, providing risk training, and developing the supporting infrastructure to enable BAM to better identify, assess, mitigate, and report on both portfolio and operational risk. The CRO should also begin to provide independent reassurance about risk priorities and the effectiveness of BAM's related risk management initiatives to BAM's executives, the Comptroller and the Systems.

A robust risk management process is a key enabler for enterprise-wide operational improvement. Since his appointment, the CRO has been working on a number of initiatives focused on assessing, mitigating, monitoring and reporting on operational risks as described below. With planned improvements, especially in Investment Control, there is now a need to shift priorities to focus on the highest areas of operational risk. These priorities should be coordinated through an Operational Risk Committee. See Appendices A.1.1.1 for a description of the composition and A.1.1.2 for an example charter for the recommended Operational Risk Committee. See also A-1.1.4 1 to A.1.1.4.3 for example CRO role and responsibilities descriptions.

Operational Risk Initiatives (past 8 months)

The CRO reports that RMD has:

1) Built an application that relies on an Access data base to calculate fees paid to public markets managers. The application then calculates the return after fees generated by each public market manager (using the application risk generates the net performance figures reported to the trustees).

2) Worked with BIST to develop a data warehouse (a MYSQL database) that is hosted on BIS's servers. The data warehouse is updated daily with details of every security held at State Street. The data warehouse also contains "plan accounting" data prepared by State Street.

3) Worked with BIST to utilize the State Street plan accounting data to create an application that associates every security held in the group trust with the system that is economically long the security.

4) Recently migrated the tables that contain details of BAM's contractual obligations with public market managers from the Access database to the data warehouse. The application that calculates public market investment management fees will soon point to the MYSQL database maintained by BIS. Risk is working with the custodian to upload fee accruals calculated by this application into State Street's G/L which will in turn feed State Street's performance reporting.

5) Precipitated the move to the State Street G/L from the general ledger system. Worked with the BOA to determine that all of the reconciliations performed between the general ledger system and State Street's records were redundant or unnecessary.

6) Developed tools that will allow the BOA to reconcile the general ledger system to State Street. Specifically, Risk has developed an application that generates a "look through" G/L and trial balance for the investment book of each system from the plan accounting data loaded into the data warehouse. The look through accounting application creates a G/L and trial balance for each system that includes details of investments made via the group trust.

7) Reviewed State Street's initial proposal for developing a "look through" accounting package that would have cost BAM $2 M per annum. State Street has recently tabled a more reasonable proposal ($195 k per annum) but advised BAM that it will take 3 months to develop the application. BAM will rely on State Street's "look through" accounting package once the State Street application is ready.

8) Precipitated the accelerated deployment of the eCFM module.

9) Worked with the CIO and the custodian to completely overhaul the quarterly board reporting package.

Over the next several months, the CRO has reported that he expects to:

1) Extend the application described under #1 above, that calculates fees due to public markets managers, to verify the management and performance fee payments made to private market managers.

2) Finalize the short term trading desk's move to Bloomberg's AIM trade blotter - which will eliminate BAM's need for the general ledger system. Moving to AIM will enable straight through processing of trade tickets from Bloomberg into State Street. Implementing AIM has been delayed by several months due to NYC's contract negotiation process but Risk hopes to have a contract in place with Bloomberg before year end.

3) Create a rebalancing application that will allow the CIO and other investment staff at BAM to analyze the need to rebalance the portfolio and examine the implication of adding assets to/subtracting assets from arbitrarily selected existing managers.

4) The Risk group has worked with the CIO to develop a spreadsheet that compares the IRR generated by an "alternative" investment (downloaded from My State Street) with the IRR of returns that would have been generated by investing in a benchmark index. Working with BIS, Risk will load index returns into the data warehouse and develop an application that automates this analysis – making it possible to compare any BAM alternative investment to any combination of benchmarks.

5) Commence a three-month trial of Fact Set and an integrated "factor model". Effective 10/5 FactSet will be receiving BAM's holdings (and MTM values) of all publicly traded securities via a daily SFTP. FactSet will immediately begin producing a suite of risk reports covering all public fixed income and equity securities held by the five NYC pension systems (including those held via the group trust).

6) Learn the capabilities of FactSet (a risk management engine). RMD has forwarded details of NYCERS equity holdings and returns to Wellington Asset Management. Wellington has loaded this data into a reporting framework implemented in FactSet that is employed to monitor a Wellington managed fund of funds. Later this month the CIO, risk and equity teams will meet with Wellington to discuss analysis of NYCERS equity investments generated by Wellington's reporting framework.

7) Commence a trial of a risk management platform developed by Opera Solutions that is utilized by a major Canadian pension fund (Ontario Teachers) and a US fund of funds (Lighthouse). Opera's application is typically employed to report on the risk of alternative investments (hedge funds) but it may be helpful as a tool to aggregate and report on risk across asset classes (an overall risk dashboard).

8) Procure a cash management/treasury system. RMD believes that many of the weaknesses of the cash management, short term trading, accounting and financial control groups can be addressed

by procuring a cash management/treasury system. RMD has been conducting due diligence on several cash management/treasury systems and regards procuring such a system as a high priority. RMD has pulled together several BAM specific "use cases" that are being employed in the due diligence process.

9) Conduct due diligence on possible replacements for the Investor Analytics risk system.

10) Fill two vacancies in the group. Risk has posted two job "listings" and expects to extend an offer soon. A second individual, that is likely to be a candidate for the second position, will be hired as a consultant to develop the rebalancing application.

11) Finalize an interest rate derivatives based framework for valuing the ETI portfolio of PPAR loans and "rate locks".

Leading Practice Expectations

In an organization such as BAM, leading practice would expect the adoption of a recognized risk management framework such as those of the Institute of Internal Auditors, the Committee of Sponsoring Organizations of the Treadway Commission (COSO) or the International Standards Organization (ISO). In 2010, the IIA issued their Practice Guide for Assessing the Adequacy of Risk Management Using ISO 31000; while COSO issued frameworks on risk management. Typically, such frameworks provide for:

1) Communication;
2) Setting the Context;
3) Risk Identification;
4) Risk Analysis;
5) Risk Evaluation;
6) Risk Treatment; and,
7) Monitoring and Review.

Please see the Appendices A-1E.2.1 and 2.2 for a more detailed description of these frameworks.

Risk Mitigation Priorities

There should be two main areas of risk focus: The first should be on investment risk and the use of quantitative tools and models (e.g., VaR, Stress Testing, Performance/Risk Attribution and Scenario Analysis) to evaluate the implications of investment decisions and to monitor the impact of market developments on asset allocations and other investment policies. These functions could be imbedded in Investment Strategy or reside in the Risk Management Division.

The second focus should be to provide independent reassurance to the BAM executive, the Comptroller and to the Boards of Trustees. Executives are responsible for providing reasonable (but not absolute) assurance to BAM Executives and the Systems that there are capable people, processes and systems in place to effectively manage the risks of the organization.

Independent reassurance is provided by those outside of operating management that the assurances of the executive can (or cannot) be relied upon. External Audit, Internal Audit, Compliance, Risk and third parties (such as investment or management consultants) are sources of independent reassurance. Typically, investment risk management is separate from independent reassurance. In this focus, the goal of RMD is not to manage risk but to help build capabilities and provide independent reassurance that appropriate policies and procedures are in place.

Summary of Conclusions

See also Sections 1A and 2B, 2A and 2B for further conclusions and recommendations regarding risk. We also make recommendations in Section 3: Organization and Leadership Strategy regarding changes in the risk organization.

C-1E2.1: Throughout BAM, operational risk is very high due to the potential for unwanted variability caused by people, process, systems, and external factors.

C-1E2.2: The Boards of Trustees are asking for reports on Investment, Operational, Compliance or Strategic risks as well risk remediation status updates.

C-1E2.3: An overall, comprehensive BAM risk program (assessment/monitoring/reporting) needs to be developed and deployed.

C-1E2.4: RMD needs more staff and better resourcing of the risk function.

C-1E2.5: There is a need for independent reassurance to the executive of BAM and the trustees of the Systems.

C-1E2.6: Risk management training is needed.

C-1E2.7: There is a need for standard risk monitoring reports to senior management and the Board of Trustees.

C-1E2.8: RMD should provide reassurance regarding the effectiveness of the Business Continuity Plan (BCP) - see 2J Information Systems Performance.

Summary of Recommendations

R-1E2.1: **The Risk Management Division (RMD) should adopt and implement a recognized enterprise-wide risk management framework to establish processes and tools to help identify and manage risks within BAM. (See the Appendices A-1E2.1 and 1E2.2)**

R-1E2.2: **RMD should develop a Risk Management Division Charter which clearly outlines the roles and responsibilities of the Division (operations risk support and independent reassurance) and its relationships with operating management and the Boards of Trustees. (See Appendices A-1E4.7 and A-1E2.2)**

R-1E2.3: **RMD should design and implement a bureau-wide risk assessment to assess the most significant risks and related exposures taking into account the inherent risk, the residual risk after controls and the potential velocity of risks. (See Appendix A-1E2.3)**

R-1E2.4: **RMD should develop an Operational Risk Appetite policy statement to assist in the prioritization of identified operational risks, i.e. how much performance variability is acceptable. (See Appendix A-1E2.4.1)**

R-1E2.5: **RMD should continue their efforts to fill their two open positions as well as to identify its overall short and long-term staffing needs.**

R-1E2.6: **BAM should arrange or provide in-house training in specific areas of risk so BAM staff can retain or acquire professional certifications.**

R-1E2.7: **RMD, in coordination with the Compliance Division and Internal Audit, should prepare a streamlined report to the Board of Trustees covering key areas of Strategic, Operational, Financial, and Compliance Risks. It should include a status report on progress being achieved in mitigating existing risks and deficiencies noted by Risk, Compliance, Internal Audit and others. (See Appendix A-1E2.7.1 TO A-1E2.7.3)**

R-1E2.8: **BAM should develop or obtain relevant Risk Management training courses to ensure that all BAM employees are being provided with the most up-to-date understanding of their role in risk management activities.**

R-1E2.9: **Develop and implement standard risk reports which can be used by management in identifying and communicating risk issues and anomalies. (See Appendix A-1E2.9.1 TO A-1E.2.9.4)**

R-1E2.10: **Create an Operational Risk Committee made up of the CIO's direct reports who would meet on a regular basis to review risk reports and coordinate bureau-wide and divisional responses to accelerate the reduction of operational risk. (See Appendix A.1.1.2)**

R-1E2.11: RMD together with Internal Audit should provide independent reassurance on the effectiveness of the BCP plan. (See recommendations re: BCP in 2J. Information Systems Performance)

SPECIFIC AREAS OF SCOPE

A. Risk Monitoring for the Systems

Leading Practice Expectations

Leading practices in Risk Monitoring include:

- Executive Summary (possibly including a heat map of high/moderate impact and probability (or vulnerability)
- Fund Performance Risks / Mitigation Strategies
- Investment Risk
- Operational Risks
    - Internal Financial
    - Market Risks
    - Compliance
    - Business Initiative Risks
    - IT Risks
- Supplemental Schedules and Tables

Given such risk reports, the Boards of Trustees should set aside an appropriate amount of time either in the monthly or quarterly Board meetings to discuss risk management and compliance issues and Trustees have indicated a desire to do so.

Risk Monitoring assumes there is a robust risk management framework and system that identifies, assesses, manages, monitors and reports risk exposures on an on-going basis. Leading practice also assumes there are adequate staff and resources to carry out the Division’s responsibilities. Finally, the Trustees and Executives should receive independent reassurance that the reports they are receiving are reliable.

Conclusions and Related Findings

C-1E2.1: Throughout BAM, operational risk is high due to the potential for unwanted variability caused by people, process, systems, and external factors.

As noted earlier, operational risk is the potential for loss caused by unwanted variability in people, processes, systems and external factors.

Operational failures can range from: the loss of key personnel; a lack of due diligence resulting in the inappropriate selection of an investment manager; fraud that may be facilitated by the absence of controls or proper segregation of duties and may remain undetected for a period of time; to the potential inability to provide service or a loss of records due to a lack of business continuity planning, disaster recovery and delays in business resumption. Each of these risks could incur serious financial loss, reputational damage and litigation with long lasting consequences.

To date, the Risk Management Division has been focused on a number of operational initiatives and analytical and special projects. It should be a peer with the other operational divisions and provide meaningful risk management advice and information to the operating divisions and the Trustees.

Although some analytical tools have been either internally developed or supported through subscription-based services such as Investor Analytics[14], these tools have not been routinely used to identify and assess risks in a consistent way. For instance, no standardized risk reports are currently being generated or reviewed by either management or the Trustees; it is difficult to provide an independent assessment of risks in the absence of basic reporting.

C-1E2.2: The Boards of Trustees are asking for reports on Investment, Operational, Compliance or Strategic risks as well risk remediation status updates.

Risk reporting currently is limited to four slides representing charts on Annual Income, Annual Disbursements, Market Value of Assets and Market Value of Liabilities. The Boards do not receive reports on Operational Risks, Compliance Risks or Strategic and Risk Mitigation updates. A number of trustees asked for better risk reporting in their meetings with FAS.

C-1E2.3: An overall BAM risk program (assessment/monitoring/reporting) needs to be developed and deployed.

There are seven key characteristics of a leading practice Risk Management group. Although BAM has taken steps to elevate the profile of the Risk Division, RMD still needs:

[14] Many in Investment Strategy do not know that BAM has this subscription. Additionally, we understand that RMD is evaluating other risk management solutions. We are agnostic as to which risk management system is chosen.

- A Risk Management Division charter, policies and procedures that outline the roles and responsibilities of the function as well as clearly outlining its role in the decisions on investment strategy and risk monitoring.
- A risk appetite policy statement. Such a statement should be developed in concert with the proposed Operational Risk Committee and adopted by the Boards of Trustees and used to develop agreed on metrics and tolerances. Such a policy statement will enable monitoring and will serve as a guide post for making investment decisions quantitatively as well as qualitatively. A risk appetite policy will provide BAM and the Systems with a key tool for prioritizing risks identified as part of a Bureau-wide risk assessment.
    - Appendix A-1E2.4.1 contains a sample Risk Appetite Framework that can be used as a starting point for developing a specific policy for BAM.
- A comprehensive risk assessment process to identify material risks whether they be operational, financial, legal, compliance, strategic or reputational.
- Quantitative risk management tools. BAM needs quantitative risk analytics and modeling tools. RMD should identify, evaluate and select appropriate tools to more effectively identify anomalies or trends which might breach one of the key Risk Appetite metrics.

Recommendations:

R-1E2.1: The Risk Management Division (RMD) should adopt and implement a recognized enterprise-wide risk management framework to establish processes and tools to help identify and manage risks within BAM. (See the Appendices A-1E2.1 and 1E2.2)

R-1E2.2: RMD should develop a Risk Management Division Charter which clearly outlines the roles and responsibilities of the Division (e.g., operations risk support and independent reassurance) and its relationships with operating management and the Boards of Trustees. (See Appendices A-1E4.7 and A-1E2.2)

R-1E2.3: RMD should design and implement a bureau-wide risk assessment to assess the most significant risks and related exposures taking into account the inherent risk, the residual risk after controls and the potential velocity of risks. (See Appendix A-1E.2.3)

Inherent risk represents the probability of loss arising out of circumstances or existing in an environment, in the absence of any action to control or modify the circumstances. While residual or net risk represents the exposure to loss remaining after other known risks have been countered, factored in, or eliminated. Finally, the velocity of risk is defined as how fast a risk may affect an organization and should be considered as a risk multiplier.

R-1E2.4: RMD should develop an Operational Risk Appetite policy statement to assist in the prioritization of identified operational risks, i.e. how much performance variability is acceptable. (See Appendix A-1E2.4.2)

This can be used to document the amount of risk BAM is willing to take in key areas as well as being the cornerstone to exception reporting by setting high and low tolerance levels for each metric being tracked.

Conclusions and Related Findings

C-1E2.4: RMD needs more staff and better resourcing of the risk function.

The Risk Management Division currently consists of three individuals: the Chief Risk Officer, a manager who has been focused and the development of query tools and data analysis, and a staff person. The group currently has two open positions, one of which has recently been posted. The FAS benchmark of BAM's peers would suggest the full complement of five may be adequate for BAM's needs, but this should be re-evaluated in the future.

Recommendations:

R-1E2.5: RMD should continue their efforts to fill their two open positions as well as to identify its overall short and long-term staffing needs.

Given the current maturity level of the Risk Management Division, additional resources are needed to develop and implement the risk infrastructure described in the other recommendations within this report section. In addition, Internal Audit, which is currently staffed with one FTE, should also reevaluate its staffing needs given its overall importance in independent assurance not only to BAM, but the City's other bureaus as well.

Once a Risk Management Charter has been developed, outlining all roles and responsibilities, the Division can then align those responsibilities to existing staff and managers. We understand that the Risk Management Division has recently posted one open staff position and that a temporary employee may fill the other opening.

R-1E2.6: BAM should arrange or provide in-house training in specific areas of risk so individuals can retain or acquire professional certifications.

These programs could also provide source materials for other internally delivered training to broader operational groups. This was also noted in the Investment Control Section [C-1B.2] of this report.

Conclusions and Related Findings

C-1E2.5: There is a need for independent reassurance to the executive of BAM and the trustees of the Systems.

Currently, the Boards of Trustees receive monthly and quarterly performance reports from BAM. Although these reports are compiled and distributed by the Financial Reporting Division, this group does not perform any significant reconciliations or testing procedures to ensure the data or information contained within the reports is accurate.

In addition, no procedures (other than net performance of public market managers) are performed by Risk, Compliance or Internal Audit to provide an independent assessment of the accuracy and completeness of the information contained within the Board reports. As noted in the Financial Reporting Division assessment found in Section 1H of this report, the Financial Reporting Division is primarily clerical in nature. Hence, we would have expected to see a much more robust independent reassurance process in place.

Recommendations:

R-1E2.7: RMD, in coordination with the Compliance Division and Internal Audit, should prepare a streamlined report to the Board of Trustees covering key areas of Strategic, Operational, Financial, and Compliance Risks. It should include a status report on progress being achieved in mitigating existing risks and deficiencies noted by Risk, Compliance, Internal Audit and others. (See Appendix A-1E2.7.1 TO A-1E2.7.3)

Conclusions and Related Findings

C-1E2.6: Risk management training is needed.

Leading Practice Expectations

Risk management training is a cornerstone in helping to educate and build a risk intelligent culture capable of identifying, mitigating and complying with risk and compliance issues. In a fully mature risk management setting we expect to see robust risk training programs associated with:

- Risk Management
- Risk Assessments
- Business Continuity
- Document retention
- Risk Management for new employees

In addition to the training programs themselves, it is important to ensure that all employees take annually required training or refresher training. Skills tests are typically used to ensure that the employee has understood the key learning objectives of the course. Failure to either attend required training or failure to pass the course's key learning objectives test after a predetermined number should be elevated to the employee's department manager for further development and training. Typically, the Compliance Division would obtain a report of individuals who have either failed to take a course or not passed the learning objectives tests. See also Compliance 1E.1, Conclusion C-1E1.3.

Recommendations:

R-1E2.8: BAM should develop or obtain relevant Risk Management training courses to ensure that all BAM employees are being provided with the most up-to-date understanding of their role in risk management activities.

B. Coordination of Quarterly Risk Reports

Leading Practice Expectations

Leading practice expectations for assessing quarterly risk reporting to management and the Boards of Trustees (see Section F: Risk Monitoring for the Systems) are based on the ISO and COSO frameworks described in the opening section. Risk reporting at the management level is critical for detecting exceptions and anomalies when they occur, but are also the basis for making continuous improvements to the Bureau's operating processes. We also would expect to see robust analytical tools and processes for independent reassurance of data, reporting and analysis.

There should also be an Operational Risk Committee (ORC) to review and monitor systemic operational and financial risks and to coordinate responses and communications to the Board. The ORC is typically comprised of many of the CIO's direct reports, representing all primary divisions. A senior member from Internal Audit might participate in order to discuss or address any open Internal Audit findings/reports. (See Appendix 9)

Conclusions and Related Findings

C1E2.7: There is a need for standard risk monitoring reports to senior management and the Board of Trustees.

As noted earlier, RMD does subscribe to Investor Analytics ("IA"), which can generate a number of risk analysis and modeling reports; however, these reports are not prepared or distributed to Investment Strategy senior management on a routine basis nor to the Board of Trustees. Quantitative modeling and data analytical tools like IA can be extremely useful to all stakeholders in identifying anomalies or trends which might breach one of the key Risk Appetite metrics. We understand that RMD is currently evaluating other quantitative tools such as FactSet. We are agnostic as to which risk management system BAM uses, but prevailing practice is to have a system which can generate risk reports of the types included in the appendices.

The Operational Risk Committee should discuss operational risk issues or review opportunities for improvement. We believe that this type of committee helps to ensure cross divisional sharing of leading practices, but also offers an opportunity to identify areas that may need further development.

Recommendations:

R-1E2.9: Develop and implement standard risk reports which can be used by management in identifying and communicating risk issues and anomalies. (See Appendix A-1E2.9.1 to A-1E2.9.4)

R-1E2.10: Create an Operational Risk Committee made up of the CIO's direct reports who would meet on a regular basis to review risk reports and coordinate bureau-wide and divisional responses to accelerate the reduction of operational risk. (See Appendix 9)

C. Business Continuity and Disaster Recovery

Leading Practice Expectations

In order to evaluate BAM's Business Continuity and Disaster Recovery Plan, we used the guidelines set forth by the Federal Financial Institutions Examination Council's (FFIEC) Business Continuity expectations. Among these expectations are that the roles of Executive Management are expected to be formally documented. Based on FFIEC guidelines, Executive Management are responsible for:

- Policy - Establishing policy to determine how BAM will manage and control identified risks of business interruptions.
- Resource Allocation - Employing BCM skilled and knowledgeable personnel and approval of sufficient resources for BCM Program implementation.
- Program Approval - Ensuring program review is conducted annually by an independent source. As well as an annual approval of the BCM Program, direction and progress.
- Training and Awareness - Monitoring to ensure BAM has a training and awareness program and that all key personnel are trained in their roles.
- Testing - Annual reviews and approval of tests for the BCP's, Disaster Recovery Plan's, and recovery strategies are administered bureau-wide.

- Testing Program - Annual reviews of a testing program to ensure business continuity and disaster recovery test results are reported, deficiencies noted, corrective actions are identified and monitored until resolved.
- Maintenance - Annual reviews and approval for the business continuity management program and that it considers and addresses BAM's current operational environment and business strategies.
- Ongoing Support - Understanding the consequences of the identified risks in order to continuously support BAM's business continuity management program.

An effective BCP needs to have a clearly defined operational policy, standards and procedures with appropriately skilled staff assigned to implement and manage the program. A robust program will define the requirements necessary to manage a process that controls the risk of interruptions to all business operations in an effective and efficient manner. The program should to be defined to encompass and ensure all legal, financial and reputational risks and requirements are addressed.

RDM's role in Business Continuity Programs is to provide independent assurance to BAM senior leadership, the Comptroller and the Board of Trustees that the agency is actively remediating deficiencies and adhering to its implementation milestones.

Conclusions and Related Findings

C-1E2.8: BAM's Business Continuity Program (BCP) needs accountability to ensure that all divisions and functions are adhering to the Comptroller's Bureau of Information Systems and Technology's processes. This is not part of RMD's management responsibility but RMD should provide reassurance regarding its effectiveness (See recommendations re: BCP in 2J. Information Systems Performance)

As described in Section 2J, Business Continuity Planning is managed within the Bureau of Information Systems Technology (BIST), Computer Operations. BIST provides a framework (process and structure) for all of the Bureaus it supports in terms of data center recovery and business resumption processes. For the most part, the framework is sound and touches on all of the testing and validation components one would expect.

A key tenet of the approach is to hold each bureau (and each business team within a bureau) accountable. Management should clearly understand what is required if there is a data center event (disaster recovery) or building access event (business continuity). Operating management should then develop and document the appropriate plans for each category of outage. There are such plans in place today.

R-1E2.11: BAM should implement a Bureau level business continuity policy which states the purpose, goals and objectives, while assigning clear accountability to management of the Bureau. (See Appendix A-2J.8.2). RMD should provide independent reassurance on the effectiveness of the BCP plan.

The policy should also include and describe the high-level process components of BAM's Business Continuity Program and the requirements to be able to measure compliance requirements that hold management accountable for their roles and responsibility in the program.

D. Board of Trustee Meetings Reporting

The nature of risk reports to the Boards is addressed under C-1E.27, R-1E2.9 and A-1E2.9.1 to A-1E2.9.3.

1F. Corporate Governance Division

Description Provided by BAM

"The Corporate Governance Division is responsible for developing and implementing the proxy voting and shareholder initiatives programs of the Systems, including, but not limited to: voting the Systems' and Related Funds' proxies for US public equities; engaging with management and directors at portfolio companies; advocating for legal and regulatory reforms to protect investors and strengthen shareholder rights; advising investment staff and trustees on environmental, social and governance risks and disclosures; and representing the Comptroller's Office, Systems and Related Funds in relevant investor organizations and other formal and informal collaborative investor groups and initiatives.

Consistent with the fiduciary obligations of the Systems' and Related Funds' Trustees, the proxy voting and shareowner initiatives programs actively promote sound corporate governance, responsible executive compensation and sustainable business practices at portfolio companies in order to protect and enhance the long-term value of the Systems' and Related Funds' investments. Corporate Governance Division staff present the proposed programs to the Proxy Committee of each System for review and approval. Each Proxy Committee acts on behalf of its respective Board of Trustees."

Scope of Review

A. U.S. proxy-voting policies, procedures and process
B. Global proxy-voting policies and oversight
C. Shareholder initiative process

Sources of Information

- BAM Self-Assessment Survey conducted by FAS
- System Self-Assessment Survey conducted by FAS
- Document Reviews
- Statement of Procedures and Policies for Voting Proxies for New York Board of Education Retirement System, New York City Employees' Retirement System, New York City Fire Department Pension Fund and New York City Police Pension Fund; last amended April, 2015.
    - Proxy Voting Guidelines, Teachers Retirement System of the City of New York, last amended June, 2005
    - Comparison of TRS proxy voting guidelines with general guidelines.
    - Statement of Procedures and Policies for Voting Global Proxy Issues, New York Board of Education Retirement System, New York City Employees' Retirement System, New York City Fire Department Pension Fund, New York City Police Pension Fund, last amended July, 2013.
    - Statement of Procedures and Policies for Voting Global Proxy Issues, Teachers' Retirement System of the City of New York; last amended July, 2013.

  - 2014 Shareowner Initiatives Postseason Report, New York City Pension Funds, New York City Comptroller's Office.
  - Spring 2015 Proxy Season Update, prepared by Director of Corporate Governance
- Interviews
  - Director of Corporate Governance
- FAS leading practices knowledgebase
- Professional opinion of team

Summary

Most large U.S. public pension funds have well-developed corporate governance programs that have moved beyond the routine but very necessary voting of proxies to active engagement with portfolio companies over environmental, social and governance issues including executive compensation and sustainability (i.e., ESG). These programs have developed over a long period of time in an effort to maximize the value of portfolio holdings given the reality that public pension funds are patient, long-term investors and the concomitant impracticality of "walking away" from an underperforming investment.

Some U.S. pension funds take this one step further and have established asset allocations or sub-allocations to investment managers that seek to add value by targeting and improving corporate governance practices at the companies in their portfolio holdings,

In recent years, BAM's Corporate Governance Division has increased its efforts by systematically focusing on the proxy access issue (the ability of investors to place a limited number of director candidates on a company's proxy ballot if the investor(s) meet certain qualifications). This has been done while maintaining its previous efforts around routine voting and sponsoring a variety of proxy resolutions authorized by the Trustees of the various systems.

Individually and/or in concert with other institutional investors, BAM, on behalf of the five NYC funds, routinely enters into written and/or oral dialogue with portfolio companies and has taken a high-profile on proxy votes involving issues such as "say-on-pay" and problem directors. The NYC systems, through BAM, have always been a leader with respect to the filing of shareholder proposals, and have achieved significant success in this area.

In short, BAM has a well-developed Corporate Governance program that is on par with the programs at similar leading, large institutional investors and is led by a Director who is focused on building upon the program's success. Notwithstanding the overall success of the program, there are underlying areas where significant improvement is both feasible and necessary. At the time our review commenced, the Director had already identified and begun work on the majority of those areas and our recommendations are largely consistent with those objectives.

Summary of Conclusions

C-1F.1: **The existing U.S. proxy voting policies and guidelines are cumbersome, and lack an overall statement of philosophy and purpose.**

C-1F.2: **BAM's existing proxy voting platform does not enable staff to organize and optimize workflow, facilitate productivity, or allow monitoring for compliance with proxy voting guidelines.**

C-1F.3: **The existing global proxy voting policies and guidelines lack an overall statement of philosophy and purpose but are otherwise effective.**

C-1F.4: **The existing decentralized process for voting global proxies creates the potential for inconsistent proxy votes and hinders comprehensive reporting of voting activity.**

C-1F.5: **The shareholder initiative process is a leader among its peers with respect to the shareholder initiative process, although the lack of a written overall statement of program purpose and strategy represents a lagging practice that should be corrected at the earliest opportunity.**

C-1F.6: **Coordination with other major U.S. institutional investors is good, but program effectiveness could be enhanced by improved coordination with non-U.S. institutional investors.**

C-1F.7: **The effectiveness of the program may be enhanced by improved coordination with the public equity classes and, as to securities litigation, with the Office of the General Counsel.**

C-1F.8: **The Division lacks a contemporaneous log of contacts with companies, activists, proxy solicitors and others which may try to affect its voting decisions.**

Summary of Recommendations:

R-1F.1: **The Corporate Governance Division should continue its efforts to develop new U.S. proxy voting guidelines for all five Systems which incorporate philosophy and guidelines which enable the Division to respond to new issues it may not have seen before in a manner consistent with the expressed desire of the Trustees.**

R-1F.2: **The Corporate Governance Division should continue its efforts, either through enhancing the current voting platform or moving to a different platform, to enable staff to organize and optimize workflow, facilitate productivity and improve the ability to ensure that proxy votes are cast consistently with guidelines.**

R-1F.3: **The Corporate Governance Division should develop and add a statement of philosophy and purpose to the global proxy voting guidelines, as well as a statement regarding problematic jurisdictions.**

R-1F.4: **The Corporate Governance Division should continue its efforts towards centralizing all global proxy voting by implementing an enhanced voting platform with the capability to integrate custom proxy voting guidelines.**

R-1F.5: **In conjunction with the five System boards, BAM's Corporate Governance Division should develop a written overall statement of program purpose and strategy for its shareholder initiative program.**

R-1F.6: **The Corporate Governance Division should develop more working relationships with non-U.S. institutional investors in order to further enhance the effectiveness of the program.**

R-1F.7: **The Corporate Governance and Public Equity divisions should strive to develop a strategic relationship with respect to the corporate governance activities on behalf of the five systems.**

R-1F.8: **The Corporate Governance Division and OGC should strive to develop a strategic relationship with respect to the incorporation of corporate governance provisions in securities litigation settlement agreements.**

R-1F.9: **The Corporate Governance Division should keep a log of all in-person or electronic engagement communications, particularly in contested or controversial situations. Also, the Division should have a formal, written "fairness" policy of being willing to meet with all sides in a given situation (though it should not have the affirmative obligation to reach out to all sides should one advocate see to engage with it).**

SPECIFIC AREAS OF SCOPE

A. U.S. proxy-voting policies, procedures and process

Leading Practice Expectations

For an institutional investor of BAM's size, we would expect to see U.S. proxy voting guidelines and procedures that articulate the overall purpose and philosophy of the proxy voting process. They should provide clear and concise direction to program staff with respect to how proxies should be voted.

This is important both from the internal perspective of operational efficiency as well as the external perspective of conveying to those outside BAM how the five City Retirement Systems are likely to cast proxy votes on given subjects. We would also expect the program to employ systems that enable staff to organize and optimize workflow, facilitate productivity and allow for monitoring of compliance of votes with the guidelines.

Conclusions and Related Findings

C-1F.1: The existing U.S. proxy voting policies and guidelines are cumbersome, and lack an overall statement of philosophy and purpose.

In voting U.S. proxies, BAM must follow two sets of guidelines. One set of guidelines covers NYCERS, Police, Fire and BERS on a consolidated basis (although there are differences within these guidelines between these systems on some issues) and the other set is solely for TRS. The consolidated guidelines are routinely updated with the most recent update occurring in April of 2015. While the TRS guidelines document has not been updated since June, 2006, the TRS proxy committee has reviewed and approved for TRS use the annual updates since then to the consolidated guidelines.

In late 2010, the Corporate Governance Division mapped the differences between the two sets of guidelines, which (according to the Director) for the most part involve issues that are no longer germane to votes being cast on behalf of the systems. This mapping, in combination with the adoption by the TRS proxy committee on an annual basis of updates to the consolidated guidelines, results in TRS proxies being voted in accordance with up-to-date guidelines.

TRS proxy votes are currently cast largely in reliance on the consolidated guidelines, which are reviewed and approved separately by the TRS proxy committee. On very rare occasion, votes of BAM-managed shares must be split to account for differences between guidelines among the five systems.

Both sets of existing guidelines are voluminous, running 111 pages in the case of the consolidated guidelines and 59 pages for TRS. Even with this volume, they lack an overall statement of philosophy and purpose and instead identify on a granular basis the required vote on 160 (consolidated) or 117 (TRS) proxy subjects, many of which are further divided into multiple sub-subjects. Each subject is accompanied by a statement of rationale for the vote that is directed by the guideline. Subjects are organized broadly into three categories of issues: Social, Financial and Corporate Governance.

While it could be argued that comprehensiveness and specificity helps to ensure that proxy votes are being cast in a manner that is consistent with the intent and direction of the respective System boards, the sheer volume and cumbersome nature of the existing guidelines do not lend themselves to efficient administration of the proxy voting process.

Moreover, capital markets evolve, and proxy issues change from year to year. The level of granularity written in a "yes or no" type of decision matrix, makes voting on a new issue, even if it is a logical application of a consistent philosophy, more cumbersome than it needs be. Further, they are nothing like the guidelines of other large, sophisticated institutional investors with active corporate governance programs with internal staff who are voting all U.S. proxies and as such represent a lagging practice.

C-1F.2: BAM's existing proxy voting platform does not enable staff to organize and optimize workflow, facilitate productivity, or allow monitoring for compliance with proxy voting guidelines.

In the 12 months ending June 30, 2014, the Corporate Governance Division voted on 30,970 ballot items at 3,475 annual and special meetings for portfolio companies. However, according to the Program Director, it is not possible with the existing voting platform to determine on a "look-back" basis whether proxy votes have been cast in accordance with guidelines and as a result there is no way to determine if instances of misapplication of the guidelines have occurred.

The existing platform also does not give BAM staff the ability to organize and optimize workflow, which would facilitate productivity. The Director has identified these shortcomings of the voting platform as a concern and is looking at technologic alternatives that would eliminate these gaps. Our concerns with respect to these platform shortfalls are mitigated by the overall strong culture in the Corporate Governance Program.

Recommendations

R-1F.1: The Corporate Governance Division should continue its efforts to develop new U.S. proxy voting guidelines for all five Systems which incorporate philosophy and guidelines which enable the Division to respond to new issues it may not have seen before in a manner consistent with the expressed desire of the Trustees.

R-1F.2: The Corporate Governance Division should continue its efforts, either through enhancing the current voting platform or moving to a different platform, to enable staff to organize and optimize workflow, facilitate productivity and improve the ability to ensure that proxy votes are cast consistently with guidelines.

B. Global Proxy-Voting Policies and Oversight

Leading Practice Expectations

For an institutional investor of BAM's size, we would expect to see global[15] proxy voting guidelines and procedures that articulate the overall purpose and philosophy of the proxy voting process. They should provide clear and concise direction to whoever will be voting the proxies with respect to the appropriate vote in a given circumstance.

As international proxy voting can involve expenses and/or cost portfolio managers trading flexibility, we would expect the guidelines and procedures to take into account specific jurisdictional issues. We would also expect that the voting of non-U.S. proxies would be handled on a centralized basis either by internal staff or a proxy advisor. We would further expect to see a voting platform or other systems in place that allow variances between votes and guidelines to be identified.

Conclusions and Related Findings

C-1F.3: The existing global proxy voting policies and guidelines lack an overall statement of philosophy and purpose but are otherwise effective.

In the case of global proxy voting, like U.S. proxy voting, BAM is responsible for voting two separate sets of guidelines, with one set applicable to TRS and the other applicable to the other four systems. Unlike the U.S. guidelines, however, the two sets of global guidelines are identical except for the cover page, and both are equally up to date, with the most recent amendment occurring in July, 2013.

In addition, the global guidelines are far less cumbersome and granular than the U.S. guidelines, are well-organized and easy to follow. While they lack an overall statement of philosophy and purpose, they are otherwise structured in a way that is much more in keeping with what we would expect to find in the case of a sophisticated institutional investor. They do not address various jurisdictional issues which might make voting either not cost effective or cumbersome for some managers who might object to share blocking (the inability to sell shares during a voting period).

C-1F.4: The existing decentralized process for voting global proxies creates the potential for inconsistent proxy votes and hinders comprehensive reporting of voting activity.

Currently, global proxy votes on behalf of the five systems are handled on a decentralized basis by the individual investment managers. One result of this is that BAM is currently unable to provide summary numbers with respect to the number of companies/meetings, ballot items, et cetera voted on behalf of the five systems. BAM requested this information from the custodian several months ago but has not received any information in response at the time of this report.

[15] For purposes of our report, we use the term "global" as used in the RFP to equate to "non-U.S." as opposed to the combination of U.S. and non-U.S. investments.

BAM has also identified some instances in which this decentralization has resulted in global proxy votes for the same specific issue being cast inconstantly between managers, although such instances reflected an extremely small percentage of the overall proxies voted during the time period that was evaluated. The Division has not identified a definitive cause for these inconsistencies, with possible explanations including 1) one of the managers voted inconsistent with the guidelines, 2) there may be a reasonable difference of opinion between managers regarding the interpretation of a guideline; or 3) one of the managers may not be contractually obligated to follow the NYC global guidelines.

BAM is currently exploring the centralization of all global proxy voting through implementation of an enhanced voting platform with the capability to integrate custom voting guidelines. Such an approach would eliminate the potential for votes to be cast inconsistently on the same issue. It would also provide BAM the opportunity both to evaluate on a "one-stop" basis whether votes are being cast consistently with the guidelines and to obtain summary numbers with respect to global proxy voting. BAM should also benchmark with its peers that vote global proxies internally to determine which approach is the most viable and cost-effective.

Recommendations

R-1F.3: **The Corporate Governance Division should develop and add a statement of philosophy and purpose to the global proxy voting guidelines, as well as a statement regarding problematic jurisdictions.**

R-1F.4: **The Corporate Governance Division should continue its efforts towards centralizing all global proxy voting the implementation of an enhanced voting platform with the capability to integrate custom proxy voting guidelines.**

C. Shareholder Initiative Process and Corporate Engagement

Leading Practice Expectations

As observed in the Summary, most very large U.S. public pension funds have expanded their corporate governance activities beyond the voting of proxies to active engagement with portfolio companies over issues affecting their long-term performance. A much smaller subset of these funds have taken the engagement process a significant step further and routinely sponsor shareholder proposals with portfolio companies. Typically, these funds have developed a statement of philosophy, purpose and strategy that establishes the foundation for shareholder engagement activities and a baseline against which such activities can be measured.

As an alternative (but not conflicting) approach, a handful of large U.S. funds have made specific asset allocations or sub-asset allocations to investment managers that seek to add value by taking larger ownership stakes in a relatively small number of companies and working to increase value by improving the governance practices at those companies. Depending on the individual institutional investor, these investments may be managed either by the public equity or corporate governance divisions.

Finally, while most large U.S. public pension funds have developed and implemented policies with respect to participation in securities litigation that are designed to maximize the value of economic recoveries, some of these funds also aggressively seek corporate governance reforms as a part of any settlement. FAS understands the reference to the "shareholder initiative process" specified in the scope of our review to include the entirety of this engagement process.

Conclusions and Related Findings

C-1F.5: The shareholder initiative process is a leader among its peers with respect to the shareholder initiative process, although the lack of a written overall statement of program purpose and strategy represents a lagging practice that should be corrected at the earliest opportunity.

In addition to ongoing oral and written engagement with portfolio companies, BAM has led "vote no" campaigns at portfolio companies and called on portfolio companies to disclose supplier diversity. It has also participated with several large institutional investors in developing the Carbon Asset Risk Initiative, which is designed to address the long-term financial risks of climate change, and helped form a working group on human capital management.

Most significantly, however, the NYC systems are leaders with respect to the filing of shareholder proposals at U.S. portfolio companies, thanks largely to BAM's efforts. In the 2014 proxy season, BAM filed 48 shareholder proposals on corporate governance and environmental/social issues.

Of these, 22 were settled, 20 were voted, 1 was omitted and 5 were withdrawn either because responsive corporate policies either were made known or adopted immediately prior to the filing of the proposal or because the company was acquired. Of the 20 that went to a vote, 3 requesting shareowner access to the proxy to nominate directors received a majority vote.

Pre-vote settlements resulted in significant governance changes such as the appointment of an independent chair at U.S. Steel, proxy access for a 3% group of shareowners at McKesson, the naming of women to boards at Jarden and Freeport-McMoRan, disclosure of political spending at Regions Financial, and disclosure by Exxon of its management of the environmental and community risks associated with its hydraulic fracturing operations.

The preliminary numbers for the 2015 proxy season reflect continuing program growth and success. With respect to proxy access, BAM submitted 75 proposals. Of these, 6 were settled, 62 have gone to a vote as of June 19 with 40 passing, 5 were awaiting a vote and 2 were moot due to acquisition or inversion. These are outstanding results and reflect meaningful shareholder inroads into the ability to nominate company directors.

While expressing justifiable pride in the program, the Director of Corporate Governance candidly admits that at present there is no written statement of the overall purpose for and strategy of the program and stated this is under development for consideration by the Trustees. In FAS' view, the absence of such a statement represents a lagging practice that should be remediated at the earliest opportunity.

C-1F.6: Coordination with other major U.S. institutional investors is good, but program effectiveness could be enhanced by improved coordination with non-U.S. institutional investors.

Overall, BAM has developed strong ties with several other large, mostly U.S. institutional investors that are similarly pursuing active shareholder engagement programs that include the filing of shareholder proposals and has worked cooperatively with this group on numerous initiatives. For example, the Director of the corporate governance program is an active participant in the Council of Institutional Investors (CII) and recently finished a term as co-Chair of its activism committee. The Council serves as an important clearinghouse of information regarding various public funds' governance efforts.

However, BAM could further enhance the effectiveness of the program by working more with non-U.S. institutional investors. For example, neither BAM nor any NYC system is a member of the International Corporate Governance Network (ICGN), which serves the same clearinghouse/networking function globally as does CII domestically. The absence is somewhat ironic; BAM was a key supporter in the founding of the ICGN two decades ago. We do note that the Director attended the most recent ICGN meeting as a guest and a speaker; and, hopefully, this is the beginning of improved international information sharing.

C-1F.7: The effectiveness of the program may be enhanced by improved coordination with the public equity classes and, as to securities litigation, with the Office of the General Counsel.

The Public Equities program does provide support to the Corporate Governance program as requested, but there is little day-to-day interaction or collaboration between the two programs and corporate governance is not integrated into Public Equity's processes. While this is not uncommon with other large institutional investors, this potentially detracts from the overall effectiveness of corporate governance activities since, ultimately, the purpose of such activities is to enhance the overall long-term value of the public equities under investment.

One of the overarching themes is that BAM needs to develop a culture of ownership both with respect to its own operations as well as with the assets it manages and in our view fostering a strong, collaborative working relationship between the Corporate Governance and Public Equity divisions would be a significant step in the development of that culture.

Another potential area for greater collaboration is between BAM and another division of the Comptroller's Office with respect to securities litigation. Some large institutional investors that initiate and control such litigation, either as lead plaintiff in a securities class action or as a sole plaintiff, have negotiated corporate governance reforms into the settlement of such matters.

While, for a host of reasons the financial recovery must take precedence in the negotiation of a settlement, if handled correctly such settlements could offer a potential additional "lever" with respect to achieving meaningful corporate governance reform in a portfolio company. In recent years, securities litigation settlements have resulted in the reshaping of corporate boards, greater transparency and other positive results.

In the case of the Comptroller's Office, the Office of the General Counsel (OGC) has negotiated corporate governance terms into settlements and the Director of Corporate Governance has been consulted but does not serve as a strategic partner in this process. As such, the efforts of the Comptroller's Office in this area would be enhanced by the development of a strategic, ongoing working relationship between the two offices in this area.

C-1F.8: The Division lacks a contemporaneous log of contacts with companies, activists, proxy solicitors and others which may try to affect its voting decisions.

While proxy voters have always been lobbied in contested situations, the emergence of widespread say-on-pay voting, and the explosion of activist funds has exponentially expanded the number of situations in which proxy voters, such as the corporate governance division, either engage, or are engaged by companies, activists and others.

As is prevailing practice at most funds, the Division writes a summary memorandum for the systems explaining its votes in such situations. It also has a verbal policy that if it meets with one side in such a situation, it will be available to the other side. However, there is no written policy around either documenting those meetings or the willingness to meet.

Recommendations

R-1F.5: **In conjunction with the five System boards, BAM's Corporate Governance Division should develop a written overall statement of program purpose and strategy for its shareholder initiative program.**

R-1F.6: **The Corporate Governance Division should develop more working relationships with non-U.S. institutional investors in order to further enhance the effectiveness of the program.**

R-1F.7: **The Corporate Governance and Public Equity divisions should strive to develop a strategic relationship with respect to the corporate governance activities on behalf of the five systems.**

R-1F.8: **The Corporate Governance Division and OGC should strive to develop a strategic relationship with respect to the incorporation of corporate governance provisions in securities litigation settlement agreements.**

R-1F.9: **The Corporate Governance Division should keep a log of all in-person or electronic engagement communications, particularly in contested or controversial situations. Also, the Division should have a formal, written "fairness" policy of being willing to meet with all sides in a given situation (though it should not have the affirmative obligation to reach out to all sides should one advocate see to engage with it).**

1G. Administration and Pensions[16] and 2I. BAM Interaction with the Systems

Section 2I of this report has been merged into 1G. It is difficult to segregate the two portions of the report as the scope of review originally envisioned. Some issues relate to the structure of the Pensions Division and its role with the trustees. Others are not directly related to the Pensions Division structure, but rather to actual operations, not only of the Pensions Division, but of other Divisions of BAM. Many of the Recommendations would apply to both sections of the report. The distinctions are not clean, so the two report sections should be viewed as a whole and are combined here.

Description Provided by BAM

"The Administration and Pensions Division monitors the investments and management of the Systems. This Division is also responsible for developing and maintaining BAM's relationships with Trustees. The Administration and Pensions Division staff attends Boards of Trustees meetings and actively represents the Comptroller as a Trustee at the Boards of Trustees meetings."

The Pensions Division staff attends all Boards of Trustees meetings and represents the Comptroller as a Trustee at four of the five Boards of Trustees meetings. In serving as the trustee designee the Pensions Division monitors the investments and management of the Systems. This Division is also responsible for developing and maintaining BAM's relationships with Trustees and acting as the initial resource for trustees with questions and concerns related to BAM. In preparation for board meetings the division gathers, organizes, reproduces and distributes materials to trustees.

The Comptroller through BAM serves as the investment advisor for the five New York City retirement systems. This role is authorized by State and City law and the five systems must approve the relationship on a no less than annual basis. In addition, BAM fulfills the Comptroller's duty to act as custodian for the assets of the systems. Finally, the Comptroller is a trustee of four of the five systems and has authorized two BAM employees of the Pensions Division to act as his fiduciary designees, a practice of long standing. These three functions require extensive coordination and interaction between BAM and the systems, and the Pensions Division to plays a key role. The success of those interactions is critical to the functioning of the five systems.

[16] The scope of work refers to Administration and Pensions, but the actual title of the Division is Pensions. That is how it is referenced in this report.

Scope of Review – 1G

A. Oversight of investment and management of the Systems
B. Establishing and maintaining Board of Trustee relationships
C. Comptroller representation at Board of Trustee meetings
D. Providing Board of Trustees with materials needed to make investment decisions prior to the investment meeting date, including information on any special issues or private equity/real assets decisions
E. Overseeing BAM operations
F. Attending meetings of full Boards of Trustees
G. Attending disability meetings of Boards of Trustees

Scope of Review – 2I

A. BAM interaction with the Systems' representatives
B. Evaluation of BAM's interaction with each of the Systems' accounting groups
C. Establish and maintain Board of Trustee relationships
D. Comptroller representation at Board of Trustee meetings

Sources of Information

- BAM Self-Assessment Survey conducted by FAS
- System Self-Assessment Survey conducted by FAS
- Document Reviews, including:

Sample board meeting agendas and materials from 2015; Investment Policy Statements for the systems; BAM annual plans; samples of 2014 CAFRS for the systems; most recent asset allocation studies; asset allocation policies for systems; CEM reports for 2012 and 2013; IFS report from 2003; NYC administrative code sections relevant to investment functions; trustee education survey results; trustee education schedule; draft rolling agenda for board meetings; calendar of material submission dates for board meetings; 2015 investment meeting schedule; investment authority delegations; investment manager search process; summary description of disability processes for systems; Comptroller's six point reform plan for BAM and related speech; sample general investment consultant contract; web sites for Comptroller, NYCERS and TRS; employee manual; description of pension consolidation proposal (Comptroller Liu) and counter proposal; table of board meeting policy changes 2013-15; sample monthly performance reports; sample quarterly performance reports; BAM budget summary past 15 years; summary of manager accounts by asset class past 14 years; BAM organization chart

- Interviews with BAM staff, system trustees and staff, system consultants, and service providers for BAM, including:
    - Comptroller's Office and Bureau of Asset Management Staff – Comptroller, Internal Auditor, General Counsel and other OGC staff, Deputy Comptroller Administration, Deputy Comptroller Contracts and Procurement, Deputy Comptroller Budget, Deputy Comptroller Asset Management (CIO), Chief Risk Officer, Chief Compliance Officer, Special Counsel for BAM, Assistant Comptroller for Asset Management, Pensions Division staff, Director Investment Control, Director Contracts, Public Equities staff, Hedge Funds staff, Private Equity staff, Real Estate staff, Infrastructure Investments staff, Fixed Income staff
    - System Representatives – representative trustees from NYCERS, TRS, Fire and BERS; Mayor's representative, Executive Directors NYCERS and Police, accounting staff NYCERS, Police, and BERS
    - External Service Providers – Rocaton, SIS, Callan, Buck, NEPC, Aksia, StepStone, Townsend, State Street, Citi, Russell, Deloitte, Avananth, BlackRock, Causeway, Brevan Howard

- FAS leading practices knowledgebase
- Professional opinion of team

Summary

As is the case with most other portions of this review, the legal structure of BAM and the systems presents unique circumstances when compared to other public sector pension investment operations. The Pensions Division's three principal roles (trustee (including disability reviews), liaison with the systems' boards and preparation of board meeting materials) are each to some degree shaped by those unique circumstances.

Each of the five New York City retirement systems has its own board of trustees. Those boards are the ultimate fiduciaries and have governance authority over the systems. The Comptroller is one of the trustees for four of the five systems. The boards are authorized to delegate investment authority to the City Comptroller. The boards do that on a periodic basis. In addition, the City Comptroller is by law the custodian for funds of the systems, separate from the role as delegated investment advisor.

BAM is a bureau formed within the Comptroller's Office. BAM's core duties derive from the City Comptroller's legal roles as investment advisor for the systems and custodian of assets for the systems. The bulk of BAM's operation is service as an investment advisor. In that respect, the most apt comparisons for BAM in the discussion that follows is with the investment staff that serves most public pension plans, or with an out-sourced CIO (OCIO).[17] Those investment staffs and some OCIOs also execute the custodian role through the use of a custodial bank. BAM does this as well.

The liaison role fulfilled by the Pensions Division of BAM involves representing BAM with respect to the investment advisor and custodian role. This role makes Pensions the point of contact for interactions with trustees. The responsibility for preparation of board meeting materials is an administrative assignment within BAM. While the Division does not create the materials, having the responsibility for accumulating, organizing and delivering meeting materials is a logical extension of a liaison role.

The third role fulfilled by the Pensions Division is of a different nature. The Comptroller has a legal duty to act as trustee of four of the five systems. This role is not mandatorily connected with BAM but the Division (more precisely, two individuals within the Division) has been assigned the responsibility. In the role of trustee, the Executive Director (and the Associate Director) of the Pensions Division are responsible for oversight of the investment and management of four of the five systems (excluding BERS). This assignment is consistent with a longstanding practice of the Comptroller's Office.

All three roles carried out by the Pensions Division are made more difficult by the need to address five different boards meeting separately each month, a paucity of delegated authority from the boards, and a lack of resources within BAM in many key areas. Notwithstanding these challenges, the Pensions

[17] Because BAM's staff are not employees of the systems comparison with an OCIO is logical. However, in the typical OCIO relationship the OCIO is delegated considerable authority and discretion to act, unlike the BAM relationship with the systems; OCIOs are typically well resourced and have full authority to determine resource levels and priorities; OCIOs operate without the many and varied operational restrictions often placed on public sector investment staffs, a circumstance certainly true for BAM. Finally, the OCIO model is used almost exclusively by funds with considerably less in assets than the assets of the NYC systems. Neither the staff model nor the OCIO model comparison fits BAM perfectly, but both are instructive in various ways.

Division fulfills its responsibilities. Detail concerning the challenges faced, areas of strength and weakness and potential improvements, even considering the structural challenges, are addressed within the scope of work framework below.

As noted throughout this report, the structure of BAM and the NYC retirement systems it serves has many unique features when compared to the investment operations of other public sector pensions. In the end, however, key fundamental functions are the same. Board(s) of trustees[18] are charged with the fiduciary responsibility of investing assets to meet pension and sometimes companion benefit obligations.

Usually an investment staff (advisor) provides advice on strategy and implementation and carries out the investment plan subject to board approval and oversight. An array of contract services often is procured in helping to carry out the investment functions and the staff (advisor) are responsible for procuring and day to day oversight of those services, with monitoring and oversight from the board.

Under this typical scenario a high-performing relationship between the governing board and the staff (advisor) is critical to success. In that regard NYC is no different. What is much different for NYC is that the link of accountability between the board and the staff (advisor) is incomplete or missing. [19]

All parties have worked to make a challenging structure function over the years. There have been consequences of the structural relationship, both direct and indirect, that have limited the success of that functioning. This section includes consideration of some of those consequences and possible improvements.

[18]There are a small number of sole trustee funds around the country. They are the exception and, in some cases, there are discussions of altering those arrangements in some fashion.

[19] While the Comptroller, acting through BAM, is technically an advisor and logically compared to an outsourced CIO, as noted above, the key point for the current discussion is that boards typically select and can discharge either a staff or an OCIO, and have a ready set of options for replacement.

Summary of Conclusions

C-1G.1: **The dual role as designated trustee and employee of BAM presents challenges to managing all areas of responsibility with respect to investment matters.**

C-1G.2: **The Pensions Division does not have a clear written description of its role within BAM.**

C-1G.3: **The time demands for preparation, attendance and follow-up for multiple meetings each month makes fulfilling the trustee role challenging.**

C-1G.4: **Successfully managing relationships with five boards meeting monthly is particularly challenging and leads to occasionally uneven outreach.**

C-1G.5: **The Comptroller's multiple roles as trustee, advisor, custodian and city elected officer compounds the complexity of managing relationships.**

C-1G.6: **New trustees do not receive an orientation to BAM, its staff and functions.**

C-1G.7: **The current leadership appointment process destabilizes the organization and inhibits long-term planning.**

C-1G.8: **The time demands of acting as investment advisor for five separate boards meeting approximately 55 times per year negatively impacts BAM's ability to serve the boards well and to focus on the core business as an investment advisor with oversight of investment managers.**

C-1G.9: **BAM has less delegated authority with respect to asset manager hirings than most comparable investment operations.**

C-1G.10: **There are frequently multiple presentations on the same agenda item that may be redundant.**

C-1G.11: **The boards are concerned, with justification, that BAM is under-resourced for the job it must perform.**

C-1G.12: **The boards have supported BAM with corpus funding but any increase in that funding must be supported by a strong business case.**

C-1G.13: **Trustees do not have clear information about BAM's resources, organizational strategy and priorities.**

C-1G.14: **Trustees, system consultants and BAM staff all would like to devote additional attention at board meetings to higher level strategy matters.**

C-1G.15: **Risk reporting to the systems is lacking and needs to be improved.**

C-1G.16: BAM finalizes individual meeting agendas with limited input from trustees; trustee additions, which are infrequent, must be initiated by trustees.

C-1G.17: BAM does not use an annual planning agenda with the boards.

C-1G.18: BAM and the boards do not use a consent agenda process for addressing routine and non-controversial agenda items.

C-1G.19: Trustees value education provided through BAM and would like to have a more regular program of education as part of board meetings.

C-1G.20: BAM does not use an electronic board materials system (board portal).

C-1G.21: Board meeting materials are frequently voluminous and lack executive summaries or other aids to identifying key points.

C-1G.22: Regular and routine reports, such as performance reviews and manager information, can be more effectively provided through summary or exception reporting.

C-1G.23: Board materials contain duplicative reports and information.

C-1G.24: The five systems have many common asset managers and there may be opportunities to use the same reports for multiple boards using portal technology.

C-1G.25: The Pensions Division procedures are sufficient to fulfill the trustee's fiduciary obligation with respect to disability determinations.

Summary of Recommendations

R-1G.1: **Any future fiduciary training at BAM should include discussion of responsibilities of the Pensions Division.**

R-1G.2: **BAM should develop a written description of the role of the Pensions Division.**

R-1G.3: **BAM should work with the systems' boards to create a BAM orientation program and make that program available to new trustees and initially to any currently serving trustees.**

R-1G.4: **The Comptroller and the Systems should explore ways to stabilize leadership (see Appendix 7: Proposed BAM Target Organization.)**

R-1G.5: **BAM should work with each board to determine whether some common issues can be addressed in a concurrent meeting of the boards.**

R-1G.6: **BAM should explore with each board the idea of a limited level of delegated authority to BAM for manager hiring, subject to appropriate oversight and reporting, and independent reassurance.**

R-1G.7: **Rather than providing multiple presentations on the same issue, BAM should provide a single presentation accompanied by an opportunity for the board to ask questions of other sources.**

R-1G.8: **BAM should use exception reporting in providing performance reports.**

R-1G.9: **BAM should use executive summaries to focus presentations and discussions at board meetings.**

R-1G.10: **BAM should provide reports to the boards periodically about staffing levels, vacancies and turnover. (See also, Recommendations 1A.1, 3 and 4.)**

R-1G.11: **BAM should provide periodic reports to the boards concerning the expenditure of corpus funds.**

R-1G.12: **BAM should annually share information about BAM's strategic plans with the boards. (See also, Recommendation 1A.6)**

R-1G.13: **BAM should share periodic reports on implementation of Recommendation 1A.9 with the boards.**

R-1G.14: **BAM should devote a portion of board meetings on a regular periodic basis to investment strategy issues and reviewing where the funds stand in execution of strategy.**

R-1G.15: **BAM should provide the boards regular risk reports with both asset class and** a **portfolio-wide focus. (See also, Recommendations 1A.8 and Recommendations in 1E. Risk Management Division)**

R-1G.16: **BAM should consider reviewing the succeeding meeting's agenda with the board at each meeting and use the opportunity to vet possible issues and better plan schedules.**

R-1G.17: **BAM should develop annual agenda plans and review them with the boards.**

R-1G.18: **BAM should work with the boards to establish a consent agenda process for routine and non-controversial agenda items. BAM should explore what types of manager approvals could be shifted to the consent agenda.**

R-1G.19: **BAM should make permanent the practice of regular educational sessions with each board on timely topics, using either BAM staff or outside resources.**

R-1G.20: **BAM should develop a process for annually soliciting feedback from the boards about educational needs of the trustees.**

R-1G.21: **BAM should establish a board portal for delivering and storing board meeting and other board materials.**

R-1G.22: **Executive summaries should be used for each agenda item identifying critical points and actions requested.**

R-1G.23: **BAM should use performance overviews and exception reporting for board meetings with further detail available through the portal.**

R-1G.24: **BAM should work with all providers of board materials to decrease redundancy where possible, and BAM should summarize multiple reports in a single document for the board.**

R-1G.25: **BAM should create a "manager book" for managers common to multiple systems and publish information periodically, using the board portal.**

R-1G.26: **The Pensions Division should memorialize the review process used for disability cases to ensure a smooth transition for employees in the future.**

SPECIFIC AREAS OF SCOPE

A. Oversight of Investment and Management of the Systems

Leading Practice Expectations

Pension trustees are the ultimate fiduciaries of the systems and must exercise judgment that is in the exclusive interest of the funds' beneficiaries as a whole. This requires the exercise of independent judgment based on the best information and advice available, whether elected, appointed, or serving as trustee designees. Trustees should be equipped, by disposition, knowledge and resources to carry out these responsibilities. Trustees must dedicate the time to prepare for and attend board meetings, seek education to equip them for the job at hand and be active participants within the board. Ideally, trustees should be without conflicts in executing their duties, and where potential conflicts do exist must eliminate or neutralize those conflicts.

Conclusions and Related Findings

C-1G.1: The dual role as designated trustee and employee of BAM presents challenges to managing all areas of responsibility with respect to investment matters.

C-1G.2: The Pensions Division does not have a clear written description of its role within BAM.

BAM, as investment advisor, is in a fiduciary relationship with the systems, and with regard to the investment function must meet the same fiduciary standard as trustees. Normally, trustees of a pension system are monitoring and overseeing authority which they have delegated to staff or to an OCIO (see discussion above concerning the comparison of BAM's function as investment advisor). However, this is not the case with BAM as BAM reports directly to the Comptroller and not the Systems and their trustees. In addition, where a board has retained authority and is directly making decisions on recommendations brought to the board, trustees must exercise independent judgment. By combining the role of trustee and a staff member of BAM (in particular a staff member charged with managing board relationships), the normal monitoring, oversight and exercise of independent judgment are complicated.

Regardless of whether the trustees are monitoring, overseeing or deciding, they must be confident that: the agenda materials and presentation/discussion at the meeting provide all of the information necessary for a proper understanding of the issue; all of the potential benefits and risks have been appropriately identified and analyzed; all viable alternatives to a proposal have been appropriately identified and analyzed; where there are differences of view among advisors that the bases for disagreement are adequately explained; and any questions of trustees are sufficiently addressed.

The Comptroller is by law both a trustee and authorized to be the delegated investment advisor. The staff of the Pensions Division are acting as surrogates of the Comptroller as trustee, rather than as separately appointed trustees. The arrangement is consistent with the legal structure, which in effect builds in the complicated inter-relationships. In addition, the combined role was never identified as an issue in surveys and interviews of trustees of the systems, probably a result of operating within the current legal structure for a number of years. Finally, appointment of a staff member within BAM to act as the fiduciary designee of the Comptroller has apparently been a longstanding practice.

It also is important to note here that the job of explaining BAM's recommendations and achieving consensus with five boards of diverse membership requires not only an intense time commitment but a thorough knowledge of all that went into arriving at the recommendations. That is especially true where the boards have made limited delegation of investment authority. It is important that BAM have that sort of knowledgeable resource to assist the CIO and investment staff in developing consensus with the boards. To some extent the dual role of trustee and BAM employee leverages the ability of the Comptrollers designee to fulfill this role.

However, the Pensions Division, as a trustee and as staff of BAM, takes on some responsibilities that are unclear or overlapping, requiring diligence to ensure sufficient dedication to all roles. It is, therefore, critical that Pensions staff maintain awareness of and manage the dual role they serve.

We were advised that there was no charter or similar document that defined the role of the Pensions Division within BAM. Again, the better business practice is for an organization to have written definition of the functions that are the responsibility of the various divisions within the office, and the particular functions of the Pensions Division make that all the more desirable.

Recommendations:

R-1G.1: Any future fiduciary training at BAM should include discussion of responsibilities of the Pensions Division.

R-1G.2: BAM should develop a written description of the role of the Pensions Division.

Conclusions and Related Findings

C-1G.3: The time demands for preparation, attendance and follow-up for multiple meetings each month makes fulfilling the trustee role challenging.

The four systems for which the Pensions Division staff serve as trustee (all except BERS) each meet once per month for investment purposes, plus they hold separate meetings for other system purposes. Obviously, preparation and attendance at that number of meetings is a major time demand. There is some time saving in that the investment agendas are highly similar, with virtually identical decisions to be made by each board in most cases.

Nonetheless, attendance at each meeting is required, along with preparation for whatever variations may exist in the investment agenda for each board. The non-investment agendas for the boards are unique to each operation, so there is no time saving through seeing repeat agenda items.

The Pensions Division addresses the time demand in several ways. Most important is that the Associate Director of the Division is also authorized to attend and vote at board meetings. As a matter of practice, both the Executive Director and Associate Director attempt to attend each meeting, but if necessary the work load can be spread between them.

Second, preparation for meetings can be divided to some extent. This is especially true with respect to disabilities where the Associate Director has greater familiarity with disabilities and takes lead responsibility for reading and analyzing material (see further comments in **G. Attending disability meetings of Boards of Trustees** below).

Third, the Associate Director was a part of BAM's equity staff for seven years and can bring that perspective and background to bear in preparing for investment meetings. In addition, the Executive Director attends the regular weekly meetings of the CIO and asset class heads. The exposure to these discussions provides an advantage and advance knowledge in preparing for the investment meetings of the boards.

Finally, being housed within BAM, having ready access to investment staff and in general being dedicated full time to the investment and operation of the systems, allow the development of greater expertise. This, in turn, provides some efficiency in dealing with the investment issues.

Overall, meeting attendance is a major time demand, but the Pensions Division seems equipped to meet the demand through sharing the workload and the knowledge and access to information available to the Executive Director and Associate Director. Further efficiencies, however, would improve the fulfillment of trustee responsibilities.

Recommendations:

In the sections that follow there are a number of Recommendations that may help address the issue of covering the large number of meetings as a trustee. For the most part those recommendations will require the assent of the boards of trustees or coordination with other Divisions within BAM, or both. Therefore, they seem to fit better in B. **Establishing and maintaining Board of Trustee relationships**, and D. **Providing Board of Trustees with materials needed to make investment decisions**.

B. Establishing and Maintaining Board of Trustee Relationships

Leading Practice Expectations

Assigning a position other than the CIO lead responsibility for relationship management with trustees is prevailing practice for the investment arm of public pensions. CIOs, while providing investment program leadership and having extensive contact with boards, do not usually manage the day to day relationships with trustees.

Regardless of what position is responsible for managing the relationships, certain aspects are important. Generally, the person(s) should: be knowledgeable enough to address trustee concerns directly or readily have access to resources that can; develop an understanding of the issues of import to trustees individually and collectively; act as a liaison between the board and staff; anticipate issues that may be controversial and assist all parties in achieving resolution; provide an early and thorough background to the trustees concerning the organization.

Communications Challenges

Conclusions and Related Findings

C-1G.4: Successfully managing relationships with five boards meeting monthly is particularly challenging and leads to occasionally uneven outreach.

C-1G.5: The Comptroller's multiple roles as trustee, advisor, custodian and city elected officer compounds the complexity of managing relationships and leads to occasional conflicts.

Resources and Time Demand

BAM appears adequately staffed for this function, notwithstanding the plethora of meetings and trustees, but there are communications challenges that do arise.

One issue that arises is in outreach to trustees in advance of board meetings to address questions and concerns. The Pensions staff attempt to contact trustees once agenda packets are distributed. Some trustees felt the contact was inconsistent, which may not be surprising given the number of meetings and trustees.

The Pension staff have ready access to all other BAM staff and attend a number of regular internal meetings, thereby facilitating the ability to respond to trustee issues. The Pensions staff and BAM staff in general are perceived by trustees as accessible, helpful and knowledgeable. In interviews, trustees remarked on the responsiveness of staff to trustee questions and concerns once those questions or concerns are raised.

Comptroller's responsibilities

The Comptroller has a wide range of responsibilities under law. Related to this review are the role as statutory custodian of the systems' assets, investment advisor to the systems (technically a delegated role, though specifically authorized in law) and trustee of four of the five systems.

Trustees of the systems identified as a historical and structural concern that Comptrollers, in general, may pursue interests as an elected official to the disadvantage of the systems, or at least in a direction not necessarily favored by the board as a whole. In addition, trustees are concerned about the long term stability and direction of an organization subject to electoral cycles. These concerns compound the challenges faced by the Pensions staff in building and maintaining relationships with trustees.

Issues related to the electoral cycle are beyond the purview of the Pensions Division, since those issues derive from the very nature of the legal structure. However, other elements of the trustee concerns are germane. Concerns about "politicization" of the investment operation can be engendered by causes either real or merely perceived. The point in mentioning this factor is simply that having BAM as a part of an elected official's office adds an additional layer to relationship management with the trustees. That will always be the case, and is one additional factor to be managed as part of the liaison role.

Although the current Comptroller evinces a strict awareness of and adherence to his fiduciary duty, as elected officials, Comptrollers take public stances on a variety of issues. Such stances, even when innocuous, can complicate the relationship with the trustees. That is particularly true when trustees themselves are elected officials, designees of elected officials or otherwise closely connected to the local political process.

As noted above, the merits of particular issues are not central to the foregoing discussion. Rather, the point is that a result of the legal structure is to make communications challenges all the greater.

Recommendations:

In the remainder of this section there are a number of Recommendations that may help address various specific aspects of communication challenges and help in making meetings and information sharing more efficient and effective. So long as the meeting volume remains the same and BAM is a portion of an elected official's office, some communications challenges will remain, but to the degree that overall communications can be enhanced, streamlined and made more effective, overall relationship management can be improved.

Trustee Orientation

C-1G.6: New trustees do not receive an orientation to BAM, its staff and functions.

It is important to provide trustees with an early understanding of BAM, its functions, its capacities and how it operates. Trustees will usually not have familiarity with any detail about BAM when they take office. That leaves them in the dark about the people who work at BAM, what functions they perform, what resources they have, what services they provide to the systems, and what strategies are being followed. When provided with that background trustees are much better equipped to make decisions, ask appropriate questions and set appropriate expectations. Education more broadly on institutional investing may be available in a variety of forums, but the specifics mentioned here are uniquely within BAM's ability to provide. Ideally BAM would design an orientation to BAM for the trustees. Consulting the boards during the design process will help assure the program suits trustee needs and foster support for encouraging attendance (or even requiring attendance via board policy).

Recommendations:

R-1G.3: BAM should work with the systems' boards to create a BAM orientation program and make that program available to new trustees and initially to any currently serving trustees.

C. BAM Interaction with the Systems (RFP-2G)

Leading Practice Expectations

In the relationship between an investment staff (OCIO) and a governing board, the board should focus primarily on setting policy, adopting strategy and applying rigorous monitoring and oversight to authorities it has delegated. The governing board should have the ability to select, compensate and dismiss management of the staff (or the entire firm in the case of an OCIO).

There should be a meaningful level of delegated authority from the board to the staff (OCIO) for implementation of the investment program, subject to the board's monitoring and oversight, and independent reassurance. Reporting from the staff (OCIO) should be concise, clear and comprehensive. Staff (OCIO) and board leadership should collaborate to focus board time and attention on matters most important to long term success of the operation, and the staff (OCIO) should coordinate meeting agendas with the board's chair to accomplish the best use of meeting time.

Accountability

Under the NYC structure, BAM staff are neither employees of the boards nor selected through a comparative process as a contractor by the board (the OCIO model). BAM is a Bureau within the Comptroller's Office separate from the boards that have the ultimate investment authority. The boards do not select the CIO or other staff, do not control individual compensation of the staff, do provide part of the funding for BAM, but do not set a budget for the organization.

The boards do "delegate" to the Comptroller on a periodic basis. This delegation must be renewed at least annually and in practice is sometimes done more frequently. That delegation establishes the investment advisor relationship but includes very limited delegation for manager selection. This delegation is more of a formalistic exercise than a true selection among choices. Under current circumstances it would be extraordinarily disruptive for a system to actually decline to extend the delegation. Such an act, while probably legally permitted, would negate the advantages that can legitimately be gained from an "in-house" investment shop and would be a major disruption in longstanding NYC governance. Most important it would leave the systems with no readily available practical alternative. In order for the end of the delegation to make sense there would need to be a viable and attractive alternative.

NYC is one of the few public pension systems where there are one or more fiduciary boards and the Chief Executive of the investment organization does not report directly to the board(s).

With several exceptions, the largest U.S. public pension funds are overseen by fiduciary boards. These fiduciary boards then delegate investment authority to a Chief Investment Officer, whose hiring, firing and compensation is approved by the Board, subject to certain powers being reserved by the board. The investment management function reports directly to the fiduciary board.

Ten Largest U.S. State or Municipal Retirement Funds	AUM ($billion) as of 9/30/2014	Fiduciary
California Public Employees' Retirement System	$297	Board
California State Teachers' Retirement System	$186	Board
New York State Common Retirement Fund	$178	Comptroller
New York City Retirement Systems	$159	Multiple Boards
Florida State Board of Administration	$146	Board
Teacher Retirement System of Texas	$129	Board
New York State Teachers Retirement System	$104	Board
State of Wisconsin Investment Board	$100	Board
North Carolina Retirement System	$97	Treasurer
Ohio Public Employee Retirement System	$91	Board

Source: *Pensions & Investments*, February 9, 2015

There remain four sole fiduciaries among large U.S. state funds: the NYS Common Retirement Fund (State Comptroller), North Carolina (State Treasurer), Michigan (State Treasurer) and Connecticut (State Treasurer). In each of these cases, the Chief Investment Officer reports to the sole fiduciary and the retirement Boards of Trustees do not have investment authority. In other words, whether the governance structure is a sole fiduciary or board, the reporting relationship goes directly to the ultimate investment fiduciary.

Leadership Stability

Conclusions and Related Findings:

C-1G.7: The current leadership appointment process destabilizes the organization and inhibits long-term planning

The electoral cycle inherent in a political office creates a shorter time horizon for the Chief Investment Officer, further reducing confidence of the boards. The Comptroller is elected for a four-year term (and can hold office for up to two consecutive terms). The Comptroller appoints the Chief Investment Officer (CIO).

From 2001 to the present, there have been four NYC Comptrollers and eight Chief Investment Officers. The average tenure of the CIO since 2001 has been 1.9 years. In one case, the CIO only lasted 28 days.

Comptroller	Term(s)	Deputy Comptroller/CIO	Years as Deputy Comptroller/CIO
Alan G. Hevesi	1994-2001	Jane Levine	2000-2002
William Thompson	2002-2009	James D. McIntyre Adam Blumenthal Deborah Gallegos Rita Sallis	2002 2002-2005 2005-2006 2006-2010
John Liu	2010-2013	Lawrence M. Schloss Seema Hingorani	2010-2013 2013-2014
Scott Stringer	2014-	Seema Hingorani Scott Evans	2014 2014-Present

The short-term nature of the appointment destabilizes leadership and effectively prevents the development and implementation of a long-term organizational strategy, enabling culture, and infrastructure capable of managing a sophisticated investment portfolio. Apparently, it has been the practice that the incoming CIO would then pick new heads of the asset classes. Thus, not only does the most senior executive turnover but so do many of the direct reports. This creates significant instability.

Recommendations:

R-1G.4: The Comptroller and the Systems should explore ways to stabilize leadership (see Appendix 7: Proposed BAM Target Organization.)

Time Demands

As noted in the opening Summary of this section, all parties work to make the operation function, and a number of specific issues are addressed in the following.

Conclusions and Related Findings:

C-1G.8: **The time demands of acting as investment advisor for five separate boards meeting approximately 55 times per year negatively impacts BAM's ability to serve the boards well and to focus on the core business as an investment advisor with oversight of investment managers.**

C-1G.9: **BAM has less delegated authority with respect to asset manager hirings than most comparable investment operations.**

C- 1G.10: **There are frequently multiple presentations on the same agenda item that may be redundant.**

Throughout this report there is discussion of the demand placed on BAM by staffing approximately fifty-five investment board meetings each year (eleven for each board). In addition, maintaining portfolios for five funds is a more complex task than comparable investment operations where fewer separate trusts are managed. The trustees, through surveys and interviews, express the importance to the boards of meeting with the frequency they do. Nonetheless, they also express recognition that the meeting schedule, combined with the portfolio management responsibilities, presents challenges for BAM. The trustees, and their consultants, also recognize and are concerned about BAM having inadequate resources, especially in terms of staffing levels.

In the trustee survey and interviews and in consultants' interviews, it was noted that board meeting time was often focused on selection of individual asset managers, and that too little time was devoted to longer term portfolio strategy, discussion of total portfolio risk and other strategic issues. At the same time, trustees almost uniformly expressed the view that it was important that the board interview private market managers before a commitment is made. The boards also have retained approval of each public market manager search scope. The competition for board meeting time is obvious.

Both BAM and the systems, therefore, have an interest in finding ways to make meeting time most productive and to reduce BAM's time commitment without sacrificing the assurance and independent reassurance trustees need.

The five boards have many managers in common and there may be opportunities for concurrent board meetings on some topics, rather than separate meetings. (It should be noted that where decisions are to be made by the boards a brief meeting of the separate boards would be required, following the concurrent meeting.) In effect, there are frequently duplicate presentations made to the five separate boards. Asset managers also commented on this duplication of effort.

Another topic where there may be opportunity for concurrent presentation is on educational topics. When BAM or others provide education for the boards it usually means multiple repetition of the same session. Our understanding is that discussions are taking place between system representatives and Comptroller's representatives on the potential for concurrent meetings with respect to some topics. FAS encourages the pursuit of these discussions.

In many pension systems, particularly in larger systems, boards have delegated a significant portion of manager selection to staff (or a third party fiduciary, like an OCIO)[20]. Trustees of the NYC system are reluctant to do so. The reasons seem to be the lack of direct accountability by BAM to the systems, concerns that trustees expressed about potential politicization and concerns about stability and depth of staff.

It should be noted that delegating manager selection is more common among public sector funds today than fifteen or twenty years in the past. Many boards have been reluctant to delegate that function historically. Even where an investment staff worked directly for the board there were frequently concerns about how to effectively obtain assurance that the function was done in a fiduciary manner.

In recent decades, staff sizes and qualifications have increased, providing a check and balance on the processes followed by consultants, who have traditionally led search efforts. The transparency of the search processes themselves has increased with the growth of analytical tools available to both staff and consultants. More funds have filled compliance, risk management and internal audit positions, providing another layer of independent assurance that search processes are robust and executed properly. In effect the consultants and staff frequently run parallel processes, automated tools shed light on decision making and independent assurances are more effective. Boards have opted to delegate more of the search processes and focus more on strategy, and oversight.

The NYC boards have to some degree delegated authority to BAM in various contexts. In those limited situations, trustees rely on monitoring reports and independent reassurance to gain fiduciary confidence. Each of the boards has a general investment consultant, separate from BAM. There are also specialty asset class consultants that serve multiple boards. The consultants and BAM staff essentially run concurrent independent search processes. (See Investment Strategy in this report for more discussion about due diligence.) The consultants are a significant source of independent reassurance.[21]

In addition, the recent move to upgrade Risk Management and Compliance within BAM is also a form of independent reassurance. The Comptroller has also added an Internal Auditor. BAM should discuss with the boards whether there are other areas where some level of delegation would be possible. At the same time, discussions should be held about how specifically to provide the robust independent reassurance to the boards.

[20] Internal FAS benchmarking of large public pension plans.
[21] Internal FAS benchmarking of large public pension plans.

With the added sources of independent reassurance, the continued involvement of board employed consultants and BAM pursuit of many of the recommendations contained in this report, the board may be amenable to some degree of additional delegation.

In 1G.D. of this report there is discussion of various ways to improve and streamline the provision of written materials for board meetings. One of the recommendations pertains to summarizing multiple reports in a single overview, with the separate reports available as back-up. In the case of manager hirings, not only are there multiple reports but there are also oral presentations to the boards on each report. (For real estate this can mean three presentations, plus the manager interview.)

If the report authors are available for questions, a single summary presentation by BAM staff is probably all that is necessary in many cases, saving time for the most important aspects of the issue being presented. As an example, in committing to a real estate fund BAM staff could make a presentation to the board. The consultants would not present, but would be available to answer questions, if any.

A number of boards also use exception reporting, for example, with performance reports. In that way only those performance items warranting discussion, for positive or negative reasons, take board time. Routine, “as expected” performance is reported in writing but not discussed.

Finally, many boards focus discussion on an executive summary level document, rather than working through a lengthier report. In discussions with NYC trustees and consultants, this potential way to streamline discussion and focus it on the most critical issues was mentioned several times.

Recommendations:

R-1G.5: **BAM should work with each board to determine whether some common issues can be addressed in a concurrent meeting of the boards.**

R-1G.6: **BAM should explore with each board the idea of a limited level of delegated authority to BAM for manager hiring, subject to appropriate oversight and reporting, and independent reassurance.**

R-1G.7: **Rather than providing multiple presentations on the same issue, BAM should provide a single presentation accompanied by an opportunity for the board to ask questions of other sources.**

R-1G.8: **BAM should use exception reporting in providing performance reports.**

R-1G.9: **BAM should use executive summaries to focus presentations and discussions at board meetings.**

BAM Resources

Conclusions and Related Findings:

C-1G.11: The boards are concerned, with justification, that BAM is under-resourced for the job it must perform.

C-1G.12: The boards have supported BAM with corpus funding but any increase in that funding must be supported by a strong business case.

C-1G.13: Trustees do not have clear information about BAM's resources, organizational strategy and priorities.

In the FAS survey of trustees and in interviews with trustees and the system consultants, the concern was raised that BAM was under-resourced for its responsibilities. At numerous places in this report FAS has identified specific areas where BAM lacks appropriate staffing levels or other resources. The trustee and consultant concern is not misplaced.

In recent years, the systems have helped with the resourcing of BAM by approving some corpus funding for BAM. Most recently, the boards approved funds for making pay adjustments at BAM – responding to acute pay disparities when compared even to other public funds, much less private sector competitors. However, trustees rightly expect that if they are asked to provide corpus funding there must be a strong business case presented and there should be accountability for fund expenditures. Trustees were obviously persuaded by BAM's most recent effort, but any future request will require equally strong justification.

Trustees expressed a desire to have a follow-up report on how BAM had applied the recent grant of corpus funding. Apparently, there has never been a detailed process for requesting annual funds from the corpus and reporting to the boards on use of those funds. Having periodic high level reports on budget variances would likely increase the boards' confidence and willingness to support future funding.

In addition, a budget process that tied authorized budgets to specific goals within units at BAM would help BAM in its own planning and internal accountability. The topic of internal strategic planning by BAM is addressed elsewhere in this report (See also, Recommendations 1A.6 and 1A.9). Should BAM begin a strategic planning process as recommended, sharing background on the plans with the boards will be desirable, and should help address concerns about BAM's organizational stability and capacity over the long term.

Recommendations:

R-1G.10: BAM should provide reports to the boards periodically about staffing levels, vacancies and turnover. (See also, Recommendations 1A.1, 3 and 4.)

R-1G.11: BAM should provide periodic reports to the boards concerning the expenditure of corpus funds.

R-1G.12: BAM should annually share information about BAM's strategic plans with the boards. (See also, Recommendation 1A.6)

R-1G.13: BAM should share periodic reports on implementation of Recommendation 1A.9 with the boards.

Strategic Issues

C-1G.14: Trustees, system consultants and BAM staff all would like to devote additional attention at board meetings to higher level strategy matters.

C-1G.15: Risk reporting to the systems is lacking and needs to be improved.

In the trustee survey and interviews and in consultants' interviews, it was noted that board meeting time was often focused on selection of individual asset managers, and that too little time was devoted to longer term portfolio strategy, discussion of total portfolio risk and other strategic issues. Likewise, BAM staff expressed a desire to more frequently focus on long term investment strategy with the boards. The asset allocation review that is in process will provide such a focus, but it is desirable to have ongoing discussion on investment strategy. It may be necessary to develop a process for assuring that more strategic discussions occur on a regular basis.

A number of the recommendations in the foregoing section of the report are aimed at reducing time demands. Foremost are the potential for concurrent meetings, and for some additional delegation. Even without the implementation of those two recommendations, however, board meeting time can be saved that should allow for at least some regular periodic focus on strategic topics. Setting a regular agenda for such discussion would be a helpful discipline in assuring it occurs.

Trustees and the systems consultants also were consistent in noting that discussion on total portfolio risk, and analytical presentations on the portfolio risk were lacking. The Investment Strategy and Risk Management sections of this report go into some detail on the resources and disciplines required, and make a number of Recommendations in that regard. It is not necessary to repeat that discussion here, but there obviously is a desire by the boards to have board level reports on total portfolio risk. Assuming the Recommendations regarding risk reporting and analysis from other sections of this report are adopted, board level reports can also be generated.

Recommendations:

R-1G.14: BAM should devote a portion of board meetings on a regular periodic basis to investment strategy issues and reviewing where the funds stand in execution of strategy.

R-1G.15: BAM should provide the boards regular risk reports with both asset class and portfolio-wide focus. (See also, Recommendation 1A.8 and Recommendations in 1E. Risk Management Division)

Agenda Management

C-1G.16: BAM finalizes individual meeting agendas with limited input from trustees; trustee additions, which are infrequent, must be initiated by trustees.

C-1G.17: BAM does not use an annual planning agenda with the boards.

C-1G.18: BAM and the boards do not use a consent agenda process for addressing routine and non-controversial agenda items.

Agendas for board investment meetings are set by BAM and presented to all board members when meeting materials are completed and sent out. Infrequently, trustees request that items be added to the agenda. A more typical process for similar funds would involve consultation with the board chair (and possibly the general investment consultant for the specific board) before the materials are sent out. In that way coordination of schedules can be accomplished, potential difficulties can be identified and vetted and, if necessary, adjustments can be made. Such a process can serve to make meetings more efficient and may help reduce risk that unexpected opposition to recommendations will surface.[22] An alternative approach sometimes used is to share the probable agenda for the subsequent meeting as part of the current meeting materials.

BAM presents annual plans to trustees that provide some general guidance for forward looking agendas, specifically on the investment "pipeline," but trustees could also benefit from a broader planning calendar that anticipates more complete agendas to come for some period in the future. BAM uses a "rolling agenda" for its own planning, which could be the basis for a working document with trustees, and for anticipating education needs related to agenda items.

Finally, on typical board agendas there are a number of items that may be routine and non-controversial, yet take up a fair amount of board time collectively. A number of funds around the country boards use a "consent agenda" for routine or non-controversial items. All consent items are moved on a single motion with no discussion. Individual board members always retain the right to remove an item from the consent agenda for discussion, but overall the practice streamlines board

[22] Internal FAS benchmarking of large public pension plans.

meetings by avoiding discussion where none is really needed, and by reducing the number of motions and votes.

Absent delegated authority, a consent agenda might also be used to streamline manager approval in certain cases, such as follow-on investments with existing general partners ("re-ups") or smaller allocations.

FAS recognizes that the recommended changes that follow will be notable changes in practice, and will require time to work with the boards to implement. None of the system boards are accustomed to working with a similar process. Nonetheless, these are prevailing practices among public pensions and foster improved and more efficient working relationships among board and investment staffs. BAM can explore, over time, approaches that may work with the respective boards.

Recommendations:

R-1G.16: BAM should consider reviewing the succeeding meeting's agenda with the boards at each meeting and use the opportunity to vet possible issues and better plan schedules.

R-1G.17: BAM should develop annual agenda plans and review them with the boards.

R-1G.18: BAM should work with the boards to establish a consent agenda process for routine and non-controversial agenda items. BAM should explore what types of manager approvals could be shifted to the consent agenda.

Board Education

C-1G.19: Trustees value education provided through BAM and would like to have a more regular program of education as part of board meetings.

Education is a topic that came up frequently in discussions with both trustees and their consultants. Generally speaking, trustees believe that BAM does a good job when programs are presented, whether the presentation is by BAM staff, consultants or third parties under arrangement with BAM. Trustees expressed a desire for more topical education and would like to see BAM take a lead role.

BAM surveyed the trustees recently concerning educational needs and developed a tentative plan. This plan is in the early implementation phase and should be continued and bolstered as needs are identified. A good discipline in connection with ongoing education is to periodically solicit feedback from trustees on topics of interest and on proposed sessions.

Recommendations:

R-1G.19: BAM should make permanent the practice of regular educational sessions with each board on timely topics, using either BAM staff or outside resources.

R-1G.20: BAM should develop a process for annually soliciting feedback from the boards about educational needs of the trustees.

D. Comptroller Representation at Board of Trustee Meetings

Leading Practice Expectations

Consistent attendance at board meetings, not just investment meetings, is critical to fulfilling the trustee function. Just as with respect to investment matters, trustees are the ultimate fiduciaries of the systems and must exercise judgment that is in the exclusive interest of the funds' beneficiaries. This requires the exercise of independent judgment based on the best information and advice available.

Trustees should, by disposition, knowledge and resources be equipped to carry out these responsibilities. Trustees must dedicate the time to prepare for and attend board meetings, seek education to equip them for the job at hand and be active participants within the board.

Conclusions and Related Findings

See the discussion of this topic under 1G.A. Findings, conclusions and recommendations concerning management of the time demands of the trustee role apply equally to representation of the Comptroller at non-investment meetings of the trustees. Efficiencies gained with respect any portion of the trustee role will provide overall benefit. As a result, Conclusion 4 and the associated Recommendations are applicable to this section.

E. Providing Board of Trustees with Materials Needed to Make Investment Decisions

These materials should be provided prior to the investment meeting date, including information on any special issues or private equity/real assets decisions

Leading Practice Expectations

Materials provided to the boards for their meetings should establish a basis for decision-making by the boards, help fulfill the boards' responsibility for monitoring and oversight of investment activities, and serve relevant educational purposes. Materials should be of sufficient quality and quantity, and should also be organized in a manner that facilitates use. Redundancy and excessive detail can distract from critical information. The purpose of the materials should be clear (decision, oversight, education) and the material must be provided in time for effective use by the trustees. Assignment of the responsibility for accumulating, organizing, reproducing and distributing materials for board meetings should be made to a unit outside the core investment staff and supervised separately.

Conclusions and Related Findings

C-1G.20: BAM does not use an electronic board materials system (board portal).

C-1G.21: Board meeting materials are frequently voluminous and lack executive summaries or other aids to identifying key points.

C-1G.22: Regular and routine reports, such as performance reviews and manager information, can be more effectively provided through summary or exception reporting.

C-1G.23: Board materials contain duplicative reports and information.

C-1G.24: The five systems have many common asset managers and there may be opportunities to use the same reports for multiple boards using portal technology.

BAM provides materials for investment board meetings to each of the five boards. The Pensions Division is responsible for accumulating the materials, usually from multiple sources, organizing those materials, reproducing them and delivering them to all trustees. With five separate boards and approximately fifty-five meetings per year, the task is substantial, and final production is often rushed, with no time for final substantive review. Timeliness and quality of materials for decision making received the lowest ranking in the trustee survey.

The Pensions Division does not create the materials. They come from BAM staff, consultants to the systems and other sources. Therefore, the Pensions Division can only address a few of the issues identified in this section, but this section is a logical focus for addressing a variety of meeting materials issues.

Currently, the process is to provide pdf or paper meeting materials and there is no “portal” available for board members to access materials. Many organizations with governing boards now use such a board portal to house and distribute materials.[23] (Those systems allow for posting as materials are available, for efficiently making available voluminous back-up or reference materials, for logical and consistent organization of materials, and through the use of electronic tablets can substitute for “board books.” Obviously such systems provide a means to reduce copying and shipping. Our understanding is that one of the systems, NYCERS, will begin using an electronic system to provide materials to its board. This could provide a chance for BAM to explore the potential of a portal.

A review of board meeting materials for a number of the systems’ meetings was done. The volume is usually large, including hundreds of data-heavy pages. There are seldom executive summaries.[24] Frequently, there are multiple reports on the same topic, showing considerable redundancy, with no effort to synthesize the various reports. Trustees may wish to see that, for example, both the staff and a consultant have reviewed an issue, but reports could be synthesized or summarized in a single

[23] Internal FAS benchmarking of large public pension plans.

[24] Executive summaries identify the issue, state options, provide pros and cons, elucidate the related risks and make a recommendation, all in summary form.

document to be used for board discussion. The separate back-up reports could be appendices or simply made available on a board portal.

Performance reports are extensive and not made user friendly, for example with key data featured prominently in front and distinguished from routine data not requiring board meeting time. In addition, detailed performance reports are an excellent example of data that can made available on a board portal. Board meeting material and discussion could be limited to exception reporting.

There is extensive overlap of managers among the five systems, and reports on manager issues and overall performance can largely be uniform. This fact provides an opportunity to use board portal technology to upload and maintain manager reports, and to do so as the data is ready rather than in conjunction with a meeting agenda.

Trustees and some consultants echoed the issues delineated above. They did note that, in their view, the information received from BAM was generally of good quality and germane. Trustees often appreciated having access to detailed data. At the same time, there was general recognition that materials could be arranged, organized and summarized for easier and better use. Again, this transformation is not within the power of the Pensions Division alone, but this section is a focal point for addressing board meeting materials.

Recommendations:

R-1G.21: BAM should establish a board portal for delivering and storing board meeting and other board materials.

R-1G.22: Executive summaries should be used for each agenda item identifying critical points and actions requested.

R-1G.23: BAM should use performance overviews and exception reporting for board meetings with further detail available through the portal.

R-1G.24: BAM should work with all providers of board materials to decrease redundancy where possible, and BAM should summarize multiple reports in a single document for the board.

R-1G.25: BAM should create a "manager book" for managers common to multiple systems and publish information periodically, using the board portal.

F. Overseeing BAM operations

Leading Practice Expectations

This part of the scope of work was inadvertently included with the Pensions Division and is not addressed here.

G. Attending meetings of full Boards of Trustees

Leading Practice Expectations

This topic is covered in conjunction with 1G.C. above

H. Attending disability meetings of Boards of Trustees

Leading Practice Expectations

All trustees are responsible for making informed decisions concerning claims for disability. Attendance at the disability meetings, advance review of materials and recommendations and participation in deliberations are part of the fiduciary obligation. Trustees are charged with acting with impartiality and in accordance with the provisions of the disability benefit plan, and must meet the same general fiduciary standards that apply to all trustee functions.

Conclusions and Related Findings

C-1G.25: The Pensions Division procedures are sufficient to fulfill the trustee's fiduciary obligation with respect to disability determinations.

The Comptroller's designee has the same responsibility as all other trustees with respect to disability determinations. As a consequence, attendance at these meetings and participation in decisions is an obligation. Our understanding is that the Associate Director has primary responsibility for digesting disability materials and briefing the Executive Director. Both individuals customarily attend the meetings.

The four systems apply varying standards for award of disabilities in accordance with their benefit plans. The processes used differ for each system. The legal and medical advice is provided from different sources. Cases loads are vastly different. In short, addressing disability cases across the four systems is a complex and demanding exercise. Each system appears to have a highly refined program for managing its disability determinations and presenting the cases to the trustees. Pensions staff are familiar with the standards to be applied and the processes used at each system. As noted above, the Associate Director reviews the files prepared for each case and briefs the Executive Director before the meetings. This process appears consistent with the trustee obligation.

There is not currently any memorialization of the review process. Given the need to address five different disability programs and a large number of cases and ensure a smooth transition of Pensions staff in the future, it is advisable to memorialize the review process within Pensions. This will help assure that the current process survives personnel changes, and provide a platform for revising the process based on any changes in the disability programs.

The complexity and volume of decisions have been noted above. Other than that, we were not made aware of particular concerns regarding disabilities. However, if there are any issues with the quality or sufficiency of information or analysis used in decision-making it is a topic for the entire board and should be raised with staff and advisors to the respective boards and addressed in that fashion.

Recommendations

R-1G.26: The Pensions Division should memorialize the review process used for disability cases to ensure a smooth transition for employees in the future.

1H. Financial Reporting Division

Description Provided by BAM

"The Financial Reporting Division assists the BOA, the Systems and Related Funds in gathering data for the Comprehensive Annual Financial Report issued by the Comptroller every October. This Division also helps produce reports such as GASB 28 (Securities Lending), Management Fees, Pie Charts of investment summary, GASB 40, Broker Commissions, and Quarterly and Monthly Reports.

The Financial Reporting Division is responsible for developing timelines for the processing of the quarterly Trustee reports (June, September, December, and March), and acts as a liaison between BAM staff and the Master Custodian Bank to ensure that information is accurate and corrections are made when necessary. The Division is responsible for maintaining a spreadsheet with a running total of investment expenses under each contract."

Scope of Review

Our review of the Financial Reporting Division (FRD) focused on the effectiveness and efficiency of its operations, processes and internal controls. We reviewed each of the following areas and identified a number of overall themes which emerged from this more detailed analysis. First, we described our summary analysis and recommendations. Then we describe our findings and conclusions for each of these areas:

A. Oversight of performance reports production (monthly, quarterly)
B. Oversight of CAFR production for the Systems
C. Data preparation for FOIL requests
D. Fees and corpus-funded contracts monitoring

Sources of Information

- BAM Self-Assessment Survey conducted by FAS
- System Self-Assessment Survey conducted by FAS
- Document Reviews (Procedures, Monthly/Quarterly Performance Reports, Contracts, etc.)
- Interviews
- FAS leading practices knowledgebase
- Standards established by the Financial Accounting Standards Board
- Standards established by the Governmental Accounting Standards Board
- Professional opinions of our team

Summary of Conclusions

C-1H.1: **The Financial Reporting Division lags behind its peers and leading practices with respect to its roles and responsibilities.**

C-1H.2: **Financial Reporting's role in the oversight of performance reports production on a monthly and quarterly basis is primary clerical in nature.**

C-1H.3: **CAFR reporting, like other reporting by the Division, is primarily clerical in nature.**

C-1H.4: **Financial Reporting's role in supporting the Office of General Counsel's with fact-based information for FOIL requests appears effective.**

C-1H.5: **When required, Financial Reporting prepares fee estimates for the Board Reports based on contracts and discussions with Investment Strategy. However, the Financial Reporting Division does not perform more independent analysis or build more internal capabilities to assess the reasonableness of the information and narratives provided.**

Summary of Recommendations

R-1H.1: **Establish a Financial Reporting Division Charter to specifically identify the roles and responsibilities.**

R-1H.2: **Consider establishing a Chief Financial and Administrative Officer role to implement all the capabilities of a mid-office function which will not only bring value through independent assurance, but can also provide more analytical analyses and governance to the operational areas. (See Appendices A-1H.1, A-1H.2 & A-1H.3)**

- **This role would have overall financial management responsibility including the review and approval of monthly, quarterly and annual financial reporting materials and metrics for the CIO and Board of Trustees.**
- **Coordinate and lead the annual CAFR audit process, liaise with external auditors, other divisional leaders and the Board.**
- **Oversee and lead annual budgeting and planning process in conjunction with the CIO; administer and review all financial plans and budgets; monitor progress and keep senior leadership team abreast of the Bureau's financial status.**
- **Implement a robust financial management and reporting system and ensure that financial data and information supports operational requirements.**

- **Update and implement all necessary Bureau policies and accounting practices; improve the financial reporting division's overall policy and procedural manual. (See Appendices A-1H.7 & A-1H.8)**

R-1H.3: **Enhance the division's capabilities through identifying additional accounting, finance and trust fund expertise.**

R-1H.4: **Develop and update formal policies, procedures and job aides to document the activities of the function and act as source materials for training and education.**

R-1H.5: **Develop a comprehensive list of State Street Reports that can be generated on a regular basis to assess, monitor and detect anomalies associated with operational divisions and data sources.**

R-1H.6: **BAM should develop detailed procedural guidelines for constructing the Board Reporting packages as well as continue to cross train staff for succession planning and out of office events.**

R-1H.7: **BAM should also establish Board Reporting package quality assurance procedures to ensure that each division contributing materials or information to the Board has approved the final deliverables and/or data. There should also be a formal sign-off to ensure that all materials are included and that all content is accounted for.**

R-1H.8: **BAM should ensure that Board of Trustee Reports contain an appropriate balance between charts/graphs, data tables and analysis. Striking the right balance between these three elements help to ensure that the reader is going to understand the issues and trends contained within the report.**

R-1H.9: **Perform independent reconciliations and analyses of data inputs.**

R-1H.10: **Provide more analyses and summary descriptions to each section of the Monthly Performance Reports.**

R-1H.11: **Conduct meetings and critically review content relating to management's discussion within the CAFR. Such review should assess the reasonableness of assumptions, accounting practices in relation to the investment policies and current accounting pronouncements.**

R-1H.12: **Develop CAFR content quality review checklist and approval processes. (See Appendices A-1H.5 & A-1H.6)**

R-1H.13: **Develop formal procedures for receiving, fulfilling and ensuring completeness of FOIL requests and provide departmental training to key individuals who have a role in performing information gathering activities.**

R-1H.14: Develop a job aide to log requests, FOIL Ref Number, date in, date responded and who performed the procedures.

R-1H.15: Develop formal fee estimate reporting procedures.

R-1H.16: Evaluate tools to automate the fee estimate report preparation process. Consideration should be given to exception and variance reports which may highlight out of balance, fee range exceptions or other anomalies which can be followed up by the respective financial and operational divisions.

Financial Reporting Summary

Leading Practice Expectations

In a leading practice Financial Reporting function, we would expect to see the following roles and responsibilities:

- A primary contact role and interface with fund custodians.
- Custodial account set-up.
- Fund manager reconciliations of accounts.
- Accounting reconciliations, schedules and statement preparation.
- Monthly and quarterly report production, charts, etc.
- Budgeting and variance reporting.
- Manager fee reviews and approvals.
- Private market year-end valuations.
- Corporate action management oversight.
- Cash forecasting and budgeting.
- Other possible roles:
    - Data management
    - Operational due diligence

Conclusions and Related Findings

C-1H.1: The Financial Reporting Division lags behind its peers and leading practices with respect to its roles and responsibilities.

BAM's Financial Reporting Division's existing role is to gather information and prepare monthly and quarterly reports for the Board of Trustees. In addition, it assists the Bureau of Accountancy's preparation of the annual City's CAFR report, FOIL and coordinating external financial auditors' requests. It does not provide adequate independent assessment of data or information provided to it from the other BAM divisions.

The Financial Reporting Division primarily performs a clerical role. An important role of a Financial Reporting Division should be to provide a reasonable degree of independence reassurance regarding the reliability of reconciliations and analyses outside the operational areas. This is not currently being done. Such reassurance would help to enhance overall governance, reduce the possibility of errors or omissions as well as bring additional value-added points of view on improvement opportunities for operational and financial internal controls.

The role of the Financial Reporting Division is a mid-office, outside of the operational execution of transactions while at the same time not duplicating the role of the Bureau of Accountancy. This role is normally led with someone who has extensive accounting, finance and trust fund accounting experience. Likewise, the Division would be expected to have access to the necessary analytical tools and models to help it assess data and information independently from the operational divisions. Last, but not least, is the important role of developing and maintaining appropriate policies, procedures and job aides that will help to ensure consistent execution of the work performed by staff as well as provide for cross training, career development and succession planning.

Policies and procedures have not been updated in at least two years and in some cases not since 2009. "Pair-Off Procedures" referenced the Bank of New York and specific systems that are no longer used since the termination of that relationship. There are also various examples of policies containing open questions about specific procedures, which raises quality and completeness concerns over the document. However, there are examples of additional procedures that "are not currently performed" that should be evaluated as potentially increasing the confidence levels of the work being performed.

Recommendations

R- 1H.1: Establish a Financial Reporting Division Charter to specifically identify the roles and responsibilities.

R-1H.2: Consider establishing a Chief Financial and Administrative Officer role to implement all the capabilities of a mid-office function which will not only bring value through independent assurance, but can also provide more analytical analyses and governance to the operational areas. (See Appendices A-1H.7 & A-1H.8)

- **This role would have overall financial management responsibility including the review and approval of monthly, quarterly and annual financial reporting materials and metrics for the CIO and Board of Trustees.**
- **Coordinate and lead the annual CAFR audit process, liaise with external auditors, other divisional leaders and the Board.**
- **Oversee and lead annual budgeting and planning process in conjunction with the CIO; administer and review all financial plans and budgets; monitor progress and keep senior leadership team abreast of the Bureau's financial status.**
- **Implement a robust financial management and reporting system and ensure that financial data and information supports operational requirements.**
- **Update an implement all necessary Bureau policies and accounting practices; improve the financial reporting division's overall policy and procedural manual. (See Appendices A-1H.7 & A-1H.8)**

R-1H.3: Enhance the division's capabilities through identifying additional accounting, finance and trust fund expertise.

R-1H.4: Develop and update formal policies, procedures and job aides to document the activities of the function and act as source materials for training and education.

R-1H.5: Develop a comprehensive list of State Street Reports that can be generated on a regular basis to assess, monitor and detect anomalies associated with operational divisions and data sources.

SPECIFIC AREAS OF SCOPE

A. Oversight of Performance Reports Production (Monthly, Quarterly)

Leading Practice Expectations

We would expect to see investment performance reporting to be performed on a monthly basis, while providing quarterly updates based on the reporting cycles of the underlining funds. In addition, performance reports should contain enough information, tables, graphs and narratives to allow the reader to quickly read and analyze trends or deviations from expectations for the entire portfolio as well as being able to drill down into specific funds without overwhelming the reader with pure data and charts.

Conclusions and Related Findings

C-1H.2: Financial Reporting's role in the oversight of performance reports production on a monthly and quarterly basis is primary clerical in nature.

There are no significant recalculations of performance, reconciliation of accounts or independent review of transactions. While the Investment Strategy group is most knowledgeable of the asset class activity, there is an inherent conflict of duties associated with the preparation of internal performance reporting. Monthly Performance Review reports consisted of the following topics:

- Economic Indicators – From BAM
- Market Indicators – From BAM
- Market Indicators for the current and previous month
- Contribution to Returns
- Asset Allocation and Adjusted Policy Weight Mixes
- Classification of Investments
- Market Value (Annual Data)
- Market Value (Life to Date)
- Manager / Benchmark Comparison Report
- Private Equity Fund Supplemental Details

- Private Equity Cash Flow Tracker
- Real Estate Fund Supplemental Details
- Real Estate Cash Flow Tracker

The Quarterly Board Total Fund Overview reports prepared by State Street contained extensive Equity and Fixed Income Analyses. However, there is a lack of overview analysis and highlights noted in the monthly performance reports. Having a good balance between analyses, data and charts would help the readers understand not only the big picture, but also to more quickly identify and focus on deviations or anomalies as part of the discussion.

We noted that there are no formal procedures in place for managing the information flow to the Financial Reporting Division's manager or approving the final report(s). Although we did note that the Financial Reporting manager cross trains several staff in compiling each month's reports and that one person takes turns leading the effort.

From a distribution perspective we noted that hard copies are mailed to the Trustee's home or office within four or five days of the meetings, which has been problematic for some as they may have been out of town prior to the Board meeting. A consistent theme among Trustee members was the need for better means of distributing reports and board materials.

When they've used PDF files, printing some documents would get cutoff or take "forever" to open or print. From FAS's previous experiences, there are a number of electronic board reporting services that could be utilized and work on a variety of different device platforms (Apple iPad/iPhones versus Microsoft PCs and slates for instance). These board reporting services also provide for secure messaging and document change control.

Other feedback on the reports is that they contain either too much granular data or "pretty pictures" however, they're very light in the way of analysis. FAS has found that having the right balance between graphs/charts, data tables and analysis narratives is crucial in not only understanding the information being provided, but also potential trending issues and root causes of unusual data points.

Recommendations:

R-1H.6: **BAM should develop detailed procedural guidelines for constructing the Board Reporting packages as well as continue to cross train staff for succession planning and out of office events.**

R-1H.7: **BAM should also establish Board Reporting package quality assurance procedures to ensure that each division contributing materials or information to the Board has approved the final deliverables and/or data. There should also be a formal sign-off to ensure that all materials are included and that all content is accounted for.**

R-1H.8: **BAM should ensure that Board of Trustee Reports contain an appropriate balance between charts/graphs, data tables and analysis. Striking the right balance between these three elements help to ensure that the reader is going to understand the issues and trends contained within the report.**

R-1H.9: **Perform independent reconciliations and analyses of data inputs.**

R-1H.10: **Provide more analyses and summary descriptions to each section of the Monthly Performance Reports.**

B. Oversight of CAFR production for the Systems

Leading Practice Expectations

By New York City mandate, the Bureau of Accountancy is responsible for preparing the City's CAFR report on behalf of all bureaus and department trust funds. However, each Bureau is responsible for providing accurate financial accounting data and management discussion and analysis content. Leading practice is that the Financial Reporting Division would be the primary support for providing this information to the Bureau of Accountancy as well as being an independent assessor of the accuracy and completeness of all representations made as part of the disclosure process. This is in keeping with Governmental Accounting Standards Board's Standards 28, 34, 40, 67, 68 and 72 as described in the Appendices.

Conclusions and Related Findings

C-1H.3: **CAFR reporting, like other reporting by the Financial Reporting Division, is primarily clerical in nature.**

Information is obtained by the Financial Reporting Division from various BAM functions and copied and keyed into the CAFR reporting templates used by the Bureau of Accountancy. Although the Financial Reporting staff have been preparing these reports for a number of years, and they appear to have an adequate understanding of what information is being requested, they rely on working with the various other divisions for information and do not perform any significant reassurance functions or recalculations of performance. This can lead to erroneous data and content being included in the CAFR report with only the External Financial Accounting Firm to provide assurance over the information.

Based on various discussions with both BAM and the external auditors, it was noted that there have been proposed accounting adjustments to reflect errors found during the audit process. Realizing that errors do and will occur even in the best run accounting and operational areas, it is still management's responsibility to design and implement internal controls that help to prevent and detect material errors from occurring.

Recommendations

R-1H.11: Conduct meetings and critically review content relating to management's discussion within the CAFR. Such review should assess the reasonableness of assumptions, accounting practices in relation to the investment policies and current accounting pronouncements.

R-1H.12: Develop CAFR content quality review checklist and approval processes. (See Appendices A-1H.5 & A-1H.6)

C. Data preparation for FOIL requests

Leading Practice Expectations

As part of an overall FOIL request process, we have found that organizations that achieve effective and efficient turn-around times on information requests have the following characteristics:

- Well documented policies and procedures.
- Automated tools for performing email and electronic documents searches.
- Increased awareness of the FOIL process and location of hardcopy materials through multi-level training and continuous improvement initiatives.
- Processes for monitoring the progress of FOIL requests to ensure that strict timeline requirements are achieved.
- Documentation and audit trails exist to ensure accountability and completeness with the ability to review the audit trail.

Conclusions and Related Findings

C-1H.4: Financial Reporting's role in supporting the Office of General Counsel's with fact-based information for FOIL requests appears effective.

Freedom of Information Law (FOIL) requests are coordinated through the Comptroller's Record Access Officer. Requests are made either in writing or using the Comptroller's online record request form. Once a FOIL request has been approved by the Comptroller's Records Access Officer, it is forwarded to the Office of General Counsel for processing.

Specific requests for fact-based BAM FOIL requests are directed to the Financial Reporting manager for research and information gathering. The FR manager coordinates with any other BAM function to obtain the requested data and to perform an initial review for completeness of the materials to the request. Once the manager is assured all relevant information has been obtained, she forwards it to the Office of General Counsel for final completeness approvals and distribution.

Based on our discussions with the Manager of Financial Reporting along with interviews of Internal Audit, Compliance and the General Counsel, no issues were brought to our attention relating to completeness, accuracy or timeliness of submissions from the Financial Reporting Division. However, we did note that several Bureau respondents to our survey questionnaire noted that the FOIL information request process overall can be time consuming and is not well documented. Consequently, we believe the following recommendations would help to improve the process:

Recommendations

R-1H.13: Develop formal procedures for receiving, fulfilling and ensuring completeness of FOIL requests and provide departmental training to key individuals who have a role in performing information gathering activities.

R-1H.14: Develop a job aide to log requests, FOIL Ref Number, date in, date responded and who performed the procedures.

D. Fees and Corpus-funded Contracts Monitoring

Leading Practice Expectations

In order to ensure that investment fees and corpus-funded contracts are being monitored in accordance with each System's investment policies we would expect to see formal fee and contract compliance and monitoring policies and procedures in place. Contract monitoring policies and procedures are intended to ensure that there is an appropriate level of management oversight and internal controls are in place to identify and follow-up on variances to investment contract parameters.

Conclusions and Related Findings

C-1H.5: **When required, Financial Reporting prepares fee estimates for the Board Reports based on contracts and discussions with Investment Strategy. However, the Financial Reporting Division does not perform more independent analysis or build more internal capabilities to assess the reasonableness of the information and narratives provided.**

Recommendations

R-1H.15: **Develop formal fee estimate reporting procedures.**

R-1H.16: **Evaluate tools to automate the fee estimate report preparation process. Consideration should be given to exception and variance reports which may highlight out of balance, fee range exceptions or other anomalies which can be followed up by the respective financial and operational divisions.**

1I. Contracts Division

Description Provided by BAM

"The Contracts Division develops and manages RFPs and Notices of Search, negotiates contracts and handles related registration, renewal and amendment activities for approximately 125 contractual relationships. The Contracts Division staff handles all procurement and contracting for external services used by BAM, including for example, investment advisory, consulting, information, and custodian services. The Division is also responsible for drafting, producing, advertising, and distributing RFPs, creating and maintaining mailing lists, and responding to inquiries. In addition, the Division coordinates the receipt, distribution and evaluation of proposals."

Scope of Review

A. Management of all BAM procurements and contracting activity
B. Management of contract negotiations and interaction with Office of the General Counsel
C. Procedures for drafting and producing RFPs and other solicitations
D. Retention procedures for advertisements, mailing lists and responses to solicitations and contracts
E. Management of contracts, renewals, extensions, and amendments
F. Fee calculations maintenance

Sources of Information

- BAM Self-Assessment Survey conducted by FAS.
- System Self-Assessment Survey conducted by FAS.
- Document Reviews
    - Contracting Division Procedures as of June 22, 2015.
    - Innovative Procurement Final Report for Investment Management Services, December 28, 2012.
    - City of New York Procurement Policy Board Rules.
    - Notice of Adoption of Final Rule, Procurement Policy Board, October 24, 2013.
    - Representative investment management contracts, renewals and amendments.
    - Investment Advisor/Manager Compensation Policy, March 7, 2001.
    - Annual Summary Contracts Report for the City of New York, Comptroller's Office, Fiscal Year 2014.
    - Spreadsheets indicating contract/procurement process status.
    - BAM Solicitation Plan for 2015.
    - Contracting Division Procurements, PowerPoint slides, undated.

- Interviews
  - Director of Contracts (multiple).
  - Assistant Comptroller for Asset Management (multiple).
  - Agency Chief Contracting Officer, Office of the General Counsel (multiple).
  - General Counsel and staff responsible for BAM contracts.
- FAS leading practices knowledgebase.
- Professional opinion of team.

Summary

The Contracts Division is doing an admirable job of ensuring that BAM and the five retirement systems receive investment management, consulting/legal, operations and other services notwithstanding an extraordinarily cumbersome City procurement process, understaffing, and the lack of a comprehensive management information system. How one ultimately views the Division's performance depends upon the chosen frame of reference. As compared to other City departments, by all accounts BAM's Contracts Division performs as well as any other.

However, while some of BAM's service providers / business partners said that contracting with BAM was comparable to other large public pension funds, others felt that contracting with BAM takes longer and involves more frustration than at other public funds. By any measure, the Division's success in overcoming the hurdles it faces comes at the additional cost of significant staff stress.

In our experience, contracting is almost always a "point of pain" in the administration of a large, complex public pension fund. Even those systems that, unlike BAM, have a high degree of independence from control agency rules and oversight, nevertheless often struggle to issue RFPs, evaluate and select service providers and negotiate, agree on and finalize agreements within a time frame that is satisfactory either to end users, system boards or service providers.

Perhaps counterintuitively, this is often more of a problem with very large funds. While in this regard BAM is not alone, in our view BAM is at the far end of the spectrum. Slower is not better, as delays in procurement create implementation risk and, in the case of investment management contracts, opportunity costs.

To its credit, within the last year or so BAM has realized significant improvements in two key areas. Working with the City's Procurement Policy Board, BAM, and the Comptroller's Office of the General Counsel (OGC) developed and implemented an expedited investment manager search process that has reduced the time necessary to select and contract with a manager from an average of 16 ½ months to 6 ½ months. With this significant process enhancement, however, some but not all investment managers are still of the view that contracting with BAM takes longer than it does with other public pension funds. In addition, the Contracts Division has developed a comprehensive procedural manual that covers all aspects of the contracts process.

Even within the confines of the bureaucratic constraints within which the Division operates, we believe additional changes can be made that will reduce the time it takes to get contracts in place, enhance management and system board oversight of the process, and enable a much less stressful working environment for Division staff.

Summary of Conclusions

C-1I.1: **The procurement process administered by the Contracts Division is well documented in most respects but is difficult to administer.**

C-1I.2: **The Contracts Division is understaffed at the senior level and potentially at the junior/mid-level.**

C-1I.3: **There is no comprehensive, end-to-end information technology management system that tracks BAM procurements.**

C-1I.4: **While the relationship between the Contracts Division, investment staff, and OGC works well overall, there is room for improvement.**

C-1I.5: **The procurement process is cumbersome, inefficient and time-consuming.**

C-1I.6: **BAM needlessly retains large volumes of hard copy documents in addition to electronic copies.**

C-1I.7: **The renewal process is relatively straightforward and efficient.**

C-1I.8: **While contracts may be extended for up to an additional year beyond the permissible renewal periods using the "negotiated acquisition process," the process is unwieldy and is used only in exigent circumstances.**

C-1I.9: **The amendment process is relatively straightforward and efficient.**

C-1I.10: **While, with one significant exception, no concerns have been expressed about the efficiency or accuracy with which the existing fee cap process is being implemented, the practice itself is unique and its purpose and utility are unclear.**

Summary of Recommendations

R-1I.1: **Create and fill an executive-level position to serve as "second-in-charge" to the Director of Contracts who can think strategically and take some of the existing administrative and special project workload from the Director and determine if an additional staff position at the junior or mid-level is required to meet workload resulting from the recommendations of our report as a whole.**

R-1I.2: **The Contracts Division needs to create a comprehensive information technology management system for all BAM procurements that accounts for all steps in the contracting process, provides automated reminders for key milestone dates, and allows monitoring of the end-to-end process from inception of the procurement, whether by RFP or otherwise, through the end of the contract.**

R-1I.3: **Following the conclusion of every operationally and/or financially significant procurement, there should be a debriefing meeting including representatives from BAM's Contracts Division, the BAM end-user, and OGC (including assigned staff counsel and the ACCO) to identify what went well with the procurement, what did not, and whether there are any lessons that can be learned that can be applied to future procurements.**

R-1I.4: **The current every-six week meetings between the Director of Contracts, the ACCO, and the Special Counsel should be continued, and on a semi-annual basis should be expanded to include the CIO and the General Counsel for the purpose of discussing high-level issues or concerns.**

R-11.5: **BAM should establish a task force with representatives from the Contracts Division, BAM administration, the investment groups, and OGC to engage in a comprehensive review of existing procurement processes and to make recommendations to the Comptroller and system Boards with respect to their optimization/simplification, including revisions to PPB rules and/or City law.**

R-1I.6: **Consistent with our recommendations R1E1.13 and R1E1.14, the Contracts Division should work with the rest of BAM in developing revised document retention policies and procedures that focus on the secure and efficient retention of documents in electronic form, making it unnecessary to retain hard copies.**

R-1I.7: **The fee calculations maintenance process and the identification of maximum fees in public asset class investment management contracts should be reexamined and either modified in a way that better balances its costs and benefits or refocused towards the sole purpose of satisfying the requirement of the contract registration process.**

SPECIFIC AREAS OF SCOPE

A. Management of all BAM procurements and contracting activity

Leading Practice Expectations

For a public pension fund institutional investor such as BAM, we would expect to see a rationalized and well-documented end-to-end procurement process in which contracts staff, program staff and counsel effectively collaborate to produce agreements on a timely basis that meet the business needs of staff, the system's governing board and service providers.

Conclusions and Related Findings

C-1I.1: The procurement process administered by the Contracts Division is well documented but is difficult to administer.

C-1I.2: The Contracts Division is understaffed at the senior level and potentially at the junior/mid-level.

We have documented elsewhere in this report the significant growth in size and complexity of the investment portfolio in recent years. The resulting additional procurement workload has been compounded more recently by requests relating to the developing Risk and Compliance areas within BAM.

Contracts staff is keeping up with the increased demand only because of the enormous efforts of the Division Director and her staff as well as OGC, and there is insufficient time to focus strategically on ways to improve internal processes and to develop additional potential modifications to the Procurement Policy Board rules beyond the recently enacted expedited manager search process. An additional concern, not unique to the Contracts Division, is that there is a lack of a clear successor to the Director in the event that she leaves BAM either by way of retirement or to accept another position.

The Contracts Division currently has one vacancy in its authorized staffing level and for the above reasons we believe that this position should be reclassified at an executive level as a Chief Deputy Contracts Director. Once the position is reclassified, BAM should engage in an aggressive recruitment process with an eye to hiring an individual who has a complimentary skillset to the Director's, can take some of the existing administrative and special project workload from her and, with the Director, can take a "step back" and begin to identify potential areas of process optimization as well as evaluate the alignment of the knowledge, skills and abilities of the existing Contracts Staff with existing Division workload as a prelude to the creation of the procurement task force recommended in the next subsection.

Depending on the decisions made with respect to the implementation of FAS' recommendations in the report as a whole, it is likely that there will be a significant increase in the workload of the Contracts Division. In that event, consideration should be given to adding an additional position to the Division at the junior/mid-level to ensure that this workload can be addressed.

C-1I.3: There is no comprehensive, end-to-end information technology management system that tracks BAM procurements.

The Contracts Division currently lacks and very much needs a system that tracks each step of all BAM procurements from authorization to commencement of each procurement through the end of the resulting contract. Currently, this information is available in pieces on Excel spreadsheets and other reports but nothing that combines the entirety of available information into a single source that includes a dashboard that allows users both inside and outside of BAM to measure the time procurements take, the number, nature and dollar amounts of contracts, the status, time remaining on the original contract, timeframes for amendment/extension, et cetera. The system should also flag and provide automated reminders of key milestone dates requiring action, such as approaching contract term expirations requiring either a renewal or new search process.

Recommendations

R-1I.1: Create and fill an executive-level position to serve as "second-in-charge" to the Director of Contracts who can think strategically and take some of the existing administrative and special project workload from the Director and determine if an additional staff position at the junior or mid-level is required to meet workload resulting from the recommendations of our report as a whole.

R-1I.2: The Contracts Division needs to create a comprehensive information technology management system for all BAM procurements that accounts for all steps in the contracting process, provides automated reminders for key milestone dates, and allows monitoring of the end-to-end process from inception of the procurement, whether by RFP or otherwise, through the end of the contract.

B. Management of contract negotiations and interaction with General Counsel

Leading Practice Expectations

We would expect to find program staff, contracts staff, in-house counsel and, where applicable, outside counsel working collaboratively to ensure that the contracting process works as quickly and smoothly as possible and results in agreements that meet the business needs of the organization, provide appropriate safeguards, and fulfill applicable legal requirements.

Conclusions and Related Findings

C-1I.4: While the relationship between the Contracts Division, investment staff, and OGC works well overall, there is room for improvement.

As FAS commenced work on this project, we were struck by the fact that in the responses to the Self-Assessment survey, the performance of the Office of the General Counsel (OGC) was, on the whole, viewed as an operational strength for BAM. And, during our initial round of interviews, no concerns were expressed to us regarding the interaction of OGC and the Contracts Division, either as to OGC's role as legal advisor to BAM or in its "control" role with respect to the Agency Chief Contracting Officer ("ACCO").[25]

As we delved deeper into the review, however, conflicting themes began to emerge. For their part, OGC and the ACCO devote substantial time and assistance to BAM during the contracting process and believe that they provide a high level of service. As reflected in the comments section of our survey, some BAM staff concur that OGC and the ACCO are excellent business partners. Others within BAM felt that there was a need for more collaboration and better communication between OGC attorneys and BAM as contracts are being negotiated. One concern that was identified was that at times "business terms" and "legal terms" were addressed separately by BAM staff and OGC, respectively, instead of on a collaborative basis.

With respect to the relationship between BAM and the ACCO, BAM staff indicated that over time ACCOs have exhibited different approaches with respect to the strictness or flexibility of the interpretations of applicable procurement laws and rules. The current ACCO is viewed by some at BAM as being stricter in his approach than his predecessor, and this has caused frustration at times with BAM staff that are facing pressure both from program staff and service providers to get contracts into place. For his part, the current ACCO believes that in some cases the applicable laws and rules lend themselves to flexible interpretations while others do not, and the ultimate responsibility of the ACCO is to ensure compliance with these laws and rules.

[25] The Agency Chief Contracting Officer (ACCO) is responsible for approvals at several steps in the procurement process in a New York City agency. In the Comptroller's Office, the ACCO function is housed within the OGC but it is not necessarily a legal function and at other City agencies it is housed elsewhere.

A positive development in this area is the recent initiation of meetings every six weeks between the Director of Contracts, the ACCO, other OGC staff and the Special Counsel to the CIO to discuss anticipated and pending procurements.

A separate issue was raised with respect to OGC's role vis-a-vis outside counsel in negotiations over private market investment transactions. Our initial understanding was that as a general matter, once outside counsel is retained, most communication regarding the negotiation of transactions is done through OGC. In other words, for the most part BAM private markets professionals communicate with OGC, who then communicates with outside counsel and vice-versa. Some concern was expressed in the private market classes that they should be to be able to communicate directly with outside counsel on deal terms.

Following the submission of our draft report, OGC provided us with a written protocol concerning BAM interaction with outside counsel that OGC indicates has been in place for approximately one year. While the protocol does state that direct communications should not take place between BAM and outside counsel without the presence of OGC except in time-sensitive situations where BAM has not been able to arrange for a joint BAM/OGC communication with outside counsel, the protocol does otherwise provide for participation by BAM on an optional basis on conference calls between OGC and outside counsel.

In our experience, different attorneys have different styles and occasional friction and/or frustration with counsel develops even under the best of circumstances. While it can be improved, the existing relationship between BAM and OGC generally works well and ultimately yields positive results. We believe that better communication between BAM and OGC with an eye towards developing an even more collaborative working relationship would enhance the relationship and address any existing concerns.

Recommendations

R-1I.3: **Following the conclusion of every operationally and/or financially significant procurement, there should be a debriefing meeting including representatives from BAM's Contracts Division, the BAM end-user, and OGC (including assigned staff counsel and the ACCO) to identify what went well with the procurement, what did not, and whether there are any lessons that can be learned that can be applied to future procurements.**

R-1I.4: **The current every-six week meetings between the Director of Contracts, the ACCO, and the Special Counsel should be continued, and on a semi-annual basis should be expanded to include the CIO and the General Counsel for the purpose of discussing high-level issues or concerns.**

C. Procedures for drafting and producing RFPs and other solicitations

Leading Practice Expectations

In our experience, most U.S. public pension funds have to varying degrees been able to achieve independence from control agency review of many if not most procurement processes otherwise applicable to local or state administrative agencies. The value of such independence is two-fold. Fundamentally, it places the procurement process fully in the hands of the system board members, who as fiduciaries owe their ultimate duty to the members, retirees and beneficiaries of the system. And, invariably it leads to faster, more efficient procurement processes.

At most systems, the procurement process can roughly be broken down into the following steps:

Step 1: End user identifies procurement need and obtains requisite internal agency approvals to move forward to drafting RFP;

Step 2: RFP is developed in conjunction with end user and the contracts office with the assistance of agency counsel;

Step 3: RFP is issued and advertised;

Step 4: Proposals are received and evaluated and the highest-scoring proposers are scheduled for interview by the ultimate decision-maker;

Step 5: A selection is made;

Step 6: The contract is negotiated; and,

Step 7: The contract is executed and work commences.

This is not to say that public pension fund procurements are always straightforward, cost-effective and problem-free. As noted in the Summary, even those public funds that have relatively streamlined processes often encounter concerns with the procurement process. However, for the most part these are the result either of self-imposed contracting requirements, delays caused by end users, contracts staff, or counsel workload, or other internal factors.

Conclusions and Related Findings

C-1I.5: The procurement process is cumbersome, inefficient and time-consuming.

As compared to the typical procurement process found at other large U.S. public pension funds, there are multiple internal steps and external control points involved in BAM procurements. Broadly speaking, the steps involved for an RFP other than an investment manager search are as follows:

Step 1: End user identifies procurement need and obtains requisite internal BAM approvals to move forward to drafting RFP;

Step 2: Contracts Division develops RFP in conjunction with end user with the assistance of OGC. The RFP is subject to approval of OGC, Agency Chief Contracts Officer (ACCO) and end user;

Step 3: Before issuing RFP, a Pre-Solicitation Review Report (PSR) must be created by the Contracts Division that must be approved by the Agency Chief Contracts Officer (ACCO) within the OGC and then approved by the First Deputy Comptroller. While BAM's written procedures specify that at least one week of lead-time should be allowed for approval by the ACCO, more typically this takes a day. The PSR contains information such as the justification for obtaining the services or goods covered by the contract and a cost estimate;

Step 4: RFP is issued and advertised;

Step 5: Proposals are evaluated by an Evaluation Committee pursuant to PPB rules comprised of at least three persons;

Step 6: A "Best and Final Offer" (BAFO) is requested from all proposers;

Step 7: Proposals are reevaluated after discussions or receipt of BAFOs and the highest-scoring proposals based on the combination of technical criteria and fees are submitted to the Trustees (if the subject of the procurement is corpus-funded) for further consideration/selection;

Step 8: A selection is made by the applicable Board of Trustees;

Step 9: A draft contract is negotiated that must be approved by OGC;

Step 10: For new contracts, the Law Department (City Corporation Counsel) must approve the draft contract, requiring completion by BAM of a "Request for Review" form for that purpose. This review typically takes at least one to two weeks;

Step 11: A public hearing is held in accordance with PPB rules after the hearing is advertised for at least 10 days in advance;

Step 12: The contract is sent to the contractor for signature and notarization. If there are any changes made to the contract at this point, which is rare, the Contracts Division will consult with OGC to determine whether the Law Department needs to be apprised of such changes by memorandum;

Step 13: The contract is executed by the contractor and, once received by BAM, is entered into the "Automatic Requisition Approval System" (ARAS) for five steps of final agency approvals, as follows:

- Director of Contracting
- Bureau Chief of the Bureau of Asset management
- Chief Investment Officer
- OGC
- Purchasing Chief

Step 14: Once the agreement is fully executed, before becoming final and work commencing it must be registered with the Comptroller's Bureau of Contract Administration (BCA). This bureau has up to 30 days to register the contract once it is submitted. While there is a procedure for expediting registration we have been advised that the only time staff recalls a request for expedited treatment being made is in the case of FAS' contract for this Review. Work cannot commence until the agreement is registered.

Describing the above process by the sheer number of steps entailed, even though some occur simultaneously as opposed to sequentially, does not do full justice to its length, complexity and resulting potential for delay and frustration. Many of the steps outlined above entail multiple sub-parts and the preparation of extensive documentation. In FAS' own experience, contracting with BAM required certifications for matters such as insurance that varied substantially from those commonly used and accepted in other jurisdictions, adding further delay to an already long and complex process.

We recognize that much of this is a function of City rules and/or law. For example, the contract registration process is required by the City Charter. Nevertheless, BAM was successful in working with the PPB in developing an alternative process for investment managers that has resulted in significant time savings, albeit still including most of the time-consuming review and approval steps following initial vendor selection.

Overall, however, the existing procurement process is ripe for an end-to-end review that focuses not only upon improvements that can be made internally within BAM but also the recommendation of additional PPB and/or law changes designed to rationalize and add significant efficiency to the process with an eye to bringing overall performance more in line with other large public pension funds. As a part of this review, consideration should be given to whether contract terms that are longer than the existing initial three- year period plus renewals would be advisable.

We believe that this review can best be accomplished by a task force with representatives from the Contracts Division, BAM administration, BAM investment groups and OGC that would evaluate BAM's current and future procurement needs, measure existing procurement processes and rules against those needs and, after benchmarking with other large public retirement funds, determine how to reform the procurement process in the manner that best meets those needs and ensure that staffing, in terms of both size as well as knowledge, skills, and abilities aligns with the reformed process.

The end result should be a strategic three-year plan for the overall improvement of the procurement process that is brought to the Comptroller and the five system Boards for concept and resource approval as well as updated written contracting procedures that reflect the improved process.

Recommendations

R-1I.5: BAM should establish a task force with representatives from the Contracts Division, BAM administration, the investment groups, and OGC to engage in a comprehensive review of existing procurement processes and to make recommendations to the Comptroller and system Boards with respect to their optimization/simplification, including revisions to PPB rules and/or City law.

D. Retention procedures for advertisements, mailing lists and responses to solicitations and contracts

Leading Practice Expectations

For an institutional investor like BAM, we would expect to find a comprehensive records retention schedule that includes rational periods for retaining documents and places an emphasis on electronic document retention and the elimination of hard copies at the earliest opportunity. See section 1.E.H, Compliance and Risk Management, Document Retention procedures for a more comprehensive standard of comparison.

Conclusions and Related Findings

C-1I.6: BAM needlessly retains large volumes of hard copy documents in addition to electronic copies.

BAM as a whole maintains large volumes of hard copy documents, and the Contracts Division is no exception. This is largely a function of existing policy, which requires hard copies of all responses to RFPs to be retained on-site for at least three years and all original contracts, amendments, renewals and assignments to be retained on-site for nine years. In addition to these hard copies, which are subsequently retained in on off-site storage for many years thereafter, electronic copies of all of these documents are maintained in one or more network locations. Consistent with our overall findings with respect to document retention procedures generally at BAM, many critical files are stored electronically on shared drives absent appropriate guidelines or procedures for the maintenance of such electronic records.

Recommendations

R-1I.6: Consistent with our recommendations R1E1.13 and R1E1.14, the Contracts Division should work with the rest of BAM in developing revised document retention policies and procedures that focus on the secure and efficient retention of documents in electronic form, making it unnecessary to retain hard copies.

E. Management of contracts[26], renewals, extensions and amendments

Leading Practice Expectations

We would expect to see rules and processes for contract renewals, extensions and amendments that provide for reasonable flexibility in modifying existing contractual provisions in order to meet business needs.

Conclusions and Related Findings

C-1I.7: The renewal process is relatively straightforward and efficient.

BAM contracts typically have an initial term of three years and can be renewed for one or more additional periods totaling not more than six years on top of the original term of the contract. Renewals are drafted by the Contracts Division after consulting with OGC regarding any necessary changes in terms. Typically, a renewal is a relatively short document that specifies the period of renewal and substitutes a new fee schedule, including maximum fees, for the one in the original contract. The calculation of maximum fees follows the process set forth in subsection F.

BAM has recently begun to use the renewal process as a means to re-evaluate and, where they deem it appropriate to do so, renegotiate fees in investment manager contracts. The CIO has directed that the existing management fees be compared to the CEM database, and if the fees are within the top 10th percentile they are either renegotiated or a justification must be included in the supporting documentation for maintaining the existing fee level. This is a positive step with respect to managing the cost of investment management fees that has led to a greater need for analysis and discussion at the renewal stage than was previously the case.

The renewal is sent by the Contracts Division to OGC for review and approval, and once approved the renewal is sent by the Division to the contractor for signature. If the contractor has questions or requests changes in the renewal, the Division tries to resolve them without making changes. If this is not possible, Contracts acts as a liaison between the BAM end-user, OGC and the contractor. Any changes must be approved both by the BAM end-user and OGC. Once the contractor signs the renewal agreement, it is placed on ARAS for all required agency approvals and then registered as a contract would be.

[26] Management of contracts is addressed in Subsections A and C.

C-1I.8: While contracts may be extended for up to an additional year beyond the permissible renewal periods using the "negotiated acquisition process," the process is unwieldy and is used only in exigent circumstances.

The negotiated acquisition process provided for by PPB rules provides a means for BAM to extend contracts for an additional year beyond the maximum permissible renewal periods. While the extension itself is made by letter, the required documentation, review, advertising and approval process resembles in many respects the original contract process. Since this process only becomes necessary in the event that a RFP for a new contract has not been commenced within in time to get the contract in place, we think the focus should more appropriately be placed on optimizing the RFP management process so as to avoid the need for extensions rather than attempting to optimize the extension process itself.

C-1I.9: The amendment process is relatively straightforward and efficient.

According to BAM, most contract amendments are made for one of two reasons. The first is where the original contract covered the investment of specified system assets and an additional system wishes to allocate assets to the contracted manager. The other occurs when additional assets are being allocated by one of the original systems covered by the contract to the manager, necessitating an increase in the maximum fee amounts specified in the Fee Schedule.

The process is virtually identical to that followed for contract renewals; with the exception that prior to signature and registration a "Request for Change or Modification" must be prepared by the Contracts Division and submitted to the ACCO for signature before the amendment is submitted to the First Deputy Comptroller for signature. This form must include the reason for the amendment and details about the changes in contract amount, term, et cetera.

F. Fee Calculations Maintenance

Leading Practice Expectations

None. We are not aware of any other public pension fund or institutional investor that calculates at the outset of an investment management agreement and for ensuing investment periods a hard cap on total fees paid to public asset class investment managers as an express term of such agreements.

Conclusions and Related Findings

C-1I.10: While, with one significant exception, no concerns have been expressed about the efficiency or accuracy with which the existing fee cap process is being implemented, the practice itself is unique and its purpose and utility are unclear.

Each public asset class investment management contract negotiated by BAM for the investment of the assets of the five retirement systems and ancillary investment programs initially sets forth in Schedule A (the Fee Schedule) the maximum amount that can be paid to the investment manager for an initial year or partial year under the agreement and for the original full term of the agreement. The body of the agreement states that the fee paid to the manager "shall in no event exceed the maximum Fee amount listed in Schedule A for the first period indicated therein."

The agreement goes on to state that for each 12-month period thereafter, the management fee "may not exceed an amount determined by the Comptroller" and provides that the Comptroller must make this determination 30 days before the start of each new period. The agreement also provides that total fees paid during the term of the agreement may not exceed the amount specified in Schedule A.

According to the section 5 of the Contracting Division Procedures, which cover fee calculations, the maximum base fee amounts are calculated in the following manner. First, a specified growth rate is applied to the initial amount of assets under management (AUM) subject to the agreement for each of the years of the agreement (typically three). These rates vary by asset class and range from a low of 7.5 for Fixed Income – Growth to a high of 15 for Emerging Markets, with U.S. Equity having a rate of 10, REITS a rate of 12, et cetera.

The cap specified in the agreement for the three-year period is derived by applying the growth rate to the AUM for each of the three years, multiplying the result for each of the three years by the fee rate as expressed in basis points specified in the agreement, and then adding the result for each of the three years into an aggregate sum.

For the second and third years of the agreement, a "fee letter" is generated by the Contracts Division and sent to the manager. This letter sets forth the maximum fee amount for that year and includes a proviso that total payments are subject to the maximum amount provided for in the contract. The calculation methodology is the same as described above for the agreement maximums, with the base level of AUM being obtained from monthly market value reports and the specified growth rate applied thereto.

If the agreement provides for performance fees, those fees are calculated separately from the base fee and are subject to a separate cap that is calculated by applying a specified basis point maximum to AUM. The agreements we reviewed provided for positive carryforwards to the next year in the event that the performance fee exceeds the applicable yearly cap and for negative carryforwards in the event that the performance fee in a given year is negative.

Investment management agreements can be renewed for one or more periods not to exceed a period of six years (in addition to the original contract term). Typically, renewals set forth the period of renewal and substitute a new Schedule A for the original but otherwise carry forward the terms of the original agreement in their entirety.

Like the original agreement, the new schedule includes a maximum fee for the first period (in this case typically 12 months) and the total period of the renewal. These amounts are calculated as they are for the original agreement and the requirement for the Comptroller (through the Contract Division) to calculate the fee maximum for each period after the first period is continued.

The identification of a contract maximum in every investment management contract (excluding private asset class limited partnership agreements) is a required part of the contract registration process that is specified by the City Charter. The maximum fee is calculated by the Contracts Division. Beyond the fulfillment of this legal requirement, the maximum fee serves as an actual cap on fees in incremental contract periods (typically 12 months).

When the cap is reached, no further fees are payable to the investment manager until the commencement of a new incremental contract period. Monitoring investment manager fees against the cap is a function of the Investment Control Division. Administering the maximum fee as a cost-control measure came into being in 2001 when the City was directly paying all investment expenses as a means to protect the City from sudden cost increases resulting from upward swings in the financial markets.

We have been advised that for the most part there are no issues or concerns either within BAM or from most investment managers with respect to how the process is being administered. A significant exception exists with respect to some “Manager of Managers” agreements, particularly those involving a variety of underlying investment styles or mandates.

In those instances, administering the maximum fee that is established on an aggregate basis as to the manager of managers can be problematic when the cap is reached and a determination must be made as to which of the underlying investment managers should stop receiving an allocation of fees as a result. In this situation, it is not infrequent for there to be very long delays in payment and/or instances of non-payment that are borne by smaller investment managers who may be less equipped to handle an interrupted revenue stream.

While the calculation of a maximum contract fee is required by the registration process, the current means of calculating and administering the cap as a means of controlling costs can work as a very blunt instrument. For those investment managers who have run into the cap, it has created both frustration as well as a disincentive for the negotiation of reduced fee structures. It is also a significant driver of the number of contract amendments given that every time an asset manager receives an additional allocation of funds to invest either from an existing client system or the addition of a new client system, a new maximum fee must be calculated and incorporated into an amendment.

To the best of our knowledge, this process is unique to BAM. Going beyond the fulfillment of the statutory requirement of establishing a contract maximum and administering the process as a cost control mechanism does not result in a significant overall reduction in the investment management fees paid by BAM, creates significant headaches for certain investment managers, and represents a significant workload for the Contracting and Investment Control Divisions.

In the absence of a demonstrated efficacy of the current process, consideration should be given either to reworking it in a manner that achieves a better cost/benefit result or refocusing the process towards the sole purpose of calculating a maximum contract amount to satisfy the registration requirement.

Recommendations

R-1I.7: The fee calculations maintenance process and the identification of maximum fees in public asset class investment management contracts should be reexamined and either modified in a way that better balances its costs and benefits or refocused towards the sole purpose of satisfying the requirement of the contract registration process.

1J. Bureau of Accountancy (only the units that interact with BAM)

Description

The Bureau of Accountancy is a component unit of the Comptroller's Office. Using the information provided by BAM's Investment Control group, the Pension Accounting Unit within the Bureau of Accountancy creates the year-end Trial Balance for the City and the five pension systems. This unit prepares the data needed for the City of New York's Comprehensive Annual Financial Report (CAFR) and assists the accounting departments of the five pension systems with information so that each system can prepare its own CAFR.

Scope of Review

A. Interaction with BOA and BAM staff and the accounting groups at the pension systems
B. Procedures for preparing market value schedules for all investments at fiscal year end
C. Advisor fee schedules
D. Procedures for preparing trial balances at fiscal year end

Sources of Information

- BAM Self-Assessment Survey conducted by FAS
- System Self-Assessment Survey conducted by FAS
- Document Reviews
    - Audit Management Letters 2012, 2013, 2014
    - New York City Comprehensive Annual Financial Reports
    - BERS, NYCERS, TRS, Fire, and Police Comprehensive Annual Financial Reports
    - Various investment information sheets
    - Various investment accounting procedure sheets
    - BOA organizational chart
    - Trial Balances and market value detail
- Interviews
    - Interview with Deputy Comptroller for Accountancy with follow-up email correspondence
    - Interviews with Accountancy staff at NYCERS, Fire, Police and BERS
    - Interviews with Assistant Comptroller for Asset Management
    - Interviews with Investment Control Director
    - Interview the External Auditors

    - Interviews with Custodial Bank
- FAS leading practices knowledgebase
- Professional opinion of team

Summary

The Bureau of Accountancy is a separate department under the New York City's Comptroller's Office. This group is responsible for including BAM's investment activity and holdings in the New York City financial statements. The Pension Accounting Unit within the Bureau of Accountancy is assigned to record the investment and pension activity. The unit has six civil service positions: five degreed accountants and one experienced bookkeeper.

Investment data is received from BAM's Internal Control group through the General Ledger accounting system and from over 900 spreadsheets prepared within the Internal Control group. Data is rekeyed to create a trial balance that is used to develop the year-end financial statement for the City and for the five pension systems. No interim reports (monthly or quarterly) are prepared by the Bureau of Accountancy.

BAM and the Pension Accounting Unit are coordinating a transfer from using the General Ledger system as the source of accounting data to using the State Street General Ledger as the book of record for the activities of the Bureau of Asset Management. It should be noted that the Bureau of Accountancy lacks a consolidation accounting system to automatically aggregate financial information from reporting entities.

Summary of Conclusions

C-1J.1: **The flow of written, verbal and communications data is satisfactory between the two groups. The Bureau of Accountancy has concerns with the quality and controls on the data received from BAM.**

C-1J.2: **Accounting for private market assets on spreadsheets maintained in the Investment Control group that are then rekeyed into the General Ledger system by BOA has serious control issues both in the preparation and in the manual transfer of the data.**

C-1J.3: **The delay in the receipt of month-end accounting data by BOA from BAM is not acceptable.**

C-1J.4: **Operating the current general ledger system and creating the associated spreadsheets are processes that are no longer necessary.**

C-1J.5: **The Pension Accounting Unit does not have adequate policies and procedures for the preparation of investment schedules and the Trial Balance.**

C-1J.6: **Timely accounting data is not available to BAM, the pension systems and their governing boards.**

Summary of Recommendations

R-1J.1: **It remains essential that communications between BOA and the corresponding unit at BAM continue to be collaborative. See R-1J.4 below.**

R-1J.2: **Responsibility for subsidiary accounting for private equity investments should be transferred to State Street.**

R-1J.3: **The contract with the custodial bank sets that entity as BAM's Book of Record. The project by BAM to transfer the source of accounting data from the general ledger system to the State Street General Ledger should be a top priority.**

R-1J.4: **As soon as possible after the transition to the new data source, policies and procedures should be written and brought up to date.**

R-1J.5: **BAM, the pension systems and their governing boards should have interim monthly financial statement available on a timely basis.**

SPECIFIC AREAS OF SCOPE

Leading Practice Expectations

Accounting for investments and related activities requires investment-focused knowledge. The accounting unit needs specialized personnel, but must be separated from investment activities as a structural control. The accounting group of an investment pool serviced by a quality custodian and without significant internal trading activity should be able to download the general ledger accounting data from the custodian each month after the data has been finalized and audited. The data feed would be reviewed and approved internally and then downloaded into the entity's general ledger accounting system. Additional entries for assets not held by the custodian, for notional values, and other adjustments would be made.

The custodian's records serve as the subsidiary ledger for the entity. The custodian provides drill-down capabilities for the accounting unit and for auditors to review and validate the general ledger accounts. The custodian provides a robust query system to accommodate both accounting and investment information needs.

In a leading practice, financial statements are prepared monthly. Audited data should normally available a few days after the end of the month from the custodian, allowing the accounting group to issue finalized financial statements with associated schedules by the middle of that month.

Year-end statements take longer to prepare, with the custodian requiring additional time to finalize and audit the year-end data and the accounting group requiring additional time to validate the private market values. Leading practice requires that accounting for each private market account be current with the year-end date (many report a quarter in arrears) and documents from the manager, international accounting standard differences, as well as due-diligence reports be reviewed for discrepancies before the value for the financial statements is finalized. Final year-end statements for investments can be prepared, depending upon the assets held by the entity, by the second month after year end or shortly thereafter.

In a leading practice, accounting policies and practices are documented and followed. Decisions made regarding accounting issues, such as private market asset values, are documented.

A. Interaction BAM staff

Conclusions and Related Findings

C- 1J.1: The flow of written, verbal and communications data is satisfactory between the two groups. The Bureau of Accountancy has concerns with the quality and controls on the data received from BAM.

The Investment Control Director and the Pension Accounting Unit Chief regularly interact with each other. The Bureau of Accounting (BOA) Unit Chief often serves as the intermediary between BAM and the pension system. Pension system accountants contact the Unit Chief in BOA with questions and she reviews the issue with State Street or takes it to the Director of Investment Control for clarification.

The data received by the Pension Accounting Unit from BAM's Investment Control group is always extremely late (months behind). Concern was expressed by the Bureau of Accountancy with both the accuracy and the controls over the data received from the Investment Control group. A project has started that will transfer the source of accounting data from the general ledger system and spreadsheets to the custodial bank. See D. General Ledger Reports below.

R-1J.1: It remains essential that communications between BOA and the corresponding unit at BAM continue to be collaborative. See R-1J.4 below.

B. Procedures for preparing market value schedules for all investments at fiscal year end

Conclusions and Related Findings

C- 1J.2: Accounting for private market assets on spreadsheets maintained in the Investment Control group that are then rekeyed into the General Ledger system by BOA has serious control issues both in the preparation and in the manual transfer of the data.

Accounting for fixed income and equity investments is automated and transferred to the general ledger system by a daily feed from State Street. BAM's Investment Control group is responsible for the reconciliation of these assets in the general ledger system. The BOA Pension Accounting Unit then uses the data provided in the General Ledger.

Investment Control tracks private market investment on over 900 spreadsheets that are provided to the BOA Pension Accounting Unit. These are rekeyed into the General Ledger module to create the Trial Balance Report for each of the pension systems and a combined Trial Balance for the City of New York financial statements.

BOA generally accepts the values of the private market assets as provided by the Investment Control group. The Pension Accounting Unit does confirm investment balances by reviewing the cash values in the State Street reports and investigates any discrepancies.

Leading practice would have the accounting data totally provided by the custodial bank and delivered to the entity's accounting system via file transfer so that data integrity is maintained.

R-1J.2: Responsibility for subsidiary accounting for private equity investments should be transferred to State Street.

C. Advisor fee schedules

Conclusions and Related Findings

The Pension Accounting Unit within the Bureau of Accountancy has no responsibility for manager or advisor fee schedules. BAM's Investment Control group provides a schedule of expenses to BOA. See 1B. Investment Control and 1C. Cash Management.

D. General ledger reports

Conclusions and Related Findings

C- 1J.3: The delay in the receipt of month-end accounting data by BOA from BAM is not acceptable.

Accounting data in the General Ledger System is received by the Pension Accounting Unit from the general ledger system reconciliation module operated by the Investment Control group, from spreadsheets manually created by Investment Control and from the State Street reports. (See "B. Procedures for preparing market value schedules…" above.) The Unit accumulates the data into the General Ledger system and then prepares a Trial Balance for BAM in total and for each of the five pension systems.

The monthly data flow from the general ledger system and Investment Control is seriously late. July data may be received as late as the following January, with the June data often not received until September. The lateness of the data does not allow for careful review and analysis, delays control reconciliations balance reviews, and makes the data useless for decision making.

Audited data is available from the custodial bank on 3rd or 4th business day after the close of the month and should be immediately available for input into the Trial Balance. The current agreement with the Custodian has audited data available during the fiscal year by the 12th business day. This does allow a very small amount of data to be finalized, but that degree of preciseness is only needed for final year-end financial statements.

R-1J.3: The contract with the custodial bank sets that entity as BAM's Book of Record. The project by BAM to transfer the source of accounting data from the general ledger system to the State Street General Ledger should be a top priority.

C- 1J.4: Operating the current general ledger system and creating the associated spreadsheets are processes that are no longer necessary.

State Street has been engaged by the Bureau of Asset Management to be the accounting book of record. State Street has the capability and the capacity to provide that service to BAM.

BAM and BOA have started a project to provide data transfer from State Street to BOA for accounting purposes. The new process will allow monthly data to be available to BAM and BOA shortly after the end of the month. This could allow monthly financial statements and schedules to be prepared by the middle of the next month.

BAM is aware that the data feed from State Street's General Ledger needs to be reviewed for anomalies before being accepted into the New York City financial records. The review could be performed in the Bureau of Accountancy, who accepts the data, or in an Investment Control group by those who are in daily contact with State Street's accounting section. The overview needed is specific to the mapping of the accounts from State Street to NYC and is affected by the granularity or summarization of the accepting accounts.

C- 1J.5: The Pension Accounting Unit does not have adequate policies and procedures for the preparation of investment schedules and the Trial Balance.

Policies and procedures used by BOA's Pension Accounting Unit are few, rudimentary and seriously of date. The procedures are desk procedures and still refer to the processes used with the previous custodian.

R-1J.4: As soon as possible after the transition to the new data source, policies and procedures should be written and brought up to date.

C- 1J.6: Timely accounting data is not available to BAM, the pension systems and their governing boards.

The Bureau of Accounting only provides financial statements at the end of the year. No interim statements are provided. Leading practice would make interim financial statement available to staff and governing boards as soon as possible after the close of each month. BAM and the Bureau of Accountancy are in discussions to provide monthly investment statements to the pension systems after the transition to State Street General Ledger is completed.

R-1J.5: BAM, the pension systems and their governing boards should have interim monthly financial statement available on a timely basis.

2A. Investment Performance Analysis

Description

While performance analysis may seem straightforward – what was the return and what did the benchmark do – truly understanding what happened and why is remarkably complicated. It is the equivalent of trying to solve a multi-variate equation where the numbers are always changing. The factors one needs to understand are almost unlimited. They could, for example, include: A complex understanding of the assets in a portfolio, including risk factors, cash flows, geographies, etc.; the equivalent understanding of the market to which it is being compared; investment flows across markets and geographies; and the links between markets and the "real" economy. Analyses which consider those factors are often called "performance attribution".

The above list, as daunting as it is, is a partial one. Moreover, those factors only help in analyzing market-relative performance. Most institutional investors also want to understand risk and risk-adjusted returns, so risk measures are added into the mix. Also, investors such as BAM, who seek to offset liabilities, often want to understand how the assets are performing against some theoretical return level that is needed to offset liabilities, which suggests there ought to be an understanding of the market value of those liabilities.

And, of course, portfolios and markets constantly change, so the analyses must be repeated periodically to create an understanding of the performance over time and in different market conditions.

Financial professionals have designed, literally, thousands of benchmarks and analyses to delve into performance and risk attribution, and they look at tens of thousands of factors and the relationships between those factors.

Therefore, even the most sophisticated investors make a series of simplifying choices and assumptions which combine to form their specific framework for performance analysis. Some are obvious and accepted by so many investors that they have become consensus: Selecting benchmarks to proxy certain market risk attributes; looking at a limited number of time periods (e.g. 1, 3, 5 years, and inception to date, or ITD); and using some number of "modern portfolio theory" ratios that examine the relationship of return and risk, such as information ratios.

But there are other analyses which are less broadly accepted, but can be useful. Some, such as the use of Internal Rate of Return (IRR) by private equity, are industry standard within one asset class but not widely used in other asset classes. Others, such as drawdown or maximum time to recovery, begin as widely used in one asset class (in this case, hedge funds) and are then used by some investors to examine other asset classes. Still others, such as value at risk (VaR), attempt to measure total portfolio risk. There are even measures designed to understand the limitations of the standard measures, such as conditional value at risk, which tries to measure the extreme "tails" of potential portfolio performance beyond those usually measured by value at risk.

The tools themselves are science. But how they are applied is art. What assumptions do you use? Do you look at performance on a disaggregated (single time frame) basis, over rolling time periods, or both? What performance measures do you care about: absolute or market-relative or liability-relative? Risk-adjusted or not? What confidence levels do you use? And, most basically, which tools do you use?

Scope of Review

A. Evaluation of the process used to determine and measure investment performance
B. Assessment of the performance benchmarks used to evaluate its investment returns
C. Review of process used to select benchmarks for each asset class under evaluation
D. Benchmarking against other large public pension funds and against any other benchmarks the Consultant deems appropriate

Sources of Information

- BAM Self-Assessment Survey conducted by FAS
- System Self-Assessment Survey conducted by FAS
- Document Reviews, particularly performance reports and consultant performance reports
- Interviews with BAM staff, consultants, Trustees
- FAS leading practices knowledgebase
- Academic and practitioner literature regarding performance measurement and benchmarks
- Professional opinion of team

Leading Practice Expectations

As noted above, simplifying performance analysis is not a choice: all investors do it to some extent. How, and how much to simplify is the relevant question? Performance analysis should be as complex as a plan sponsor needs, but no more so. Therefore, the type of performance analytics to qualify for prevailing or leading practice depends on the nature of the investor.

In this case, BAM runs a complex, multi-asset class (and multi system) investment program featuring both public and private asset classes. Given that, we would expect to find appropriate benchmarks, tools to attribute performance, and the ability to generate some MPT-type risk analyses.

Summary of Conclusions:

C-2A.1: **BAM, as pointed out frequently in this report, lacks sophisticated risk management and performance analytic tools. BAM's understanding of performance is almost entirely reliant on performance versus benchmark analyses, an approach which would only be appropriate for a much less sophisticated investment program. It does not do performance or risk attribution. It does not measure total fund risk. Given the size and level of sophistication of its investment program, these are lagging practices.**

C-2A.2: **The private equity and opportunistic fixed income benchmarks need to be re-examined and, perhaps, augmented or improved.**

C-2A.3: **Selecting benchmarks is the result of consultation between the consultants and BAM.**

C-2A.4: **Benchmark selection has implications beyond performance measurement. It can affect actual performance and asset allocation. Those implications need to be adequately considered by BAM.**

Summary of Recommendations:

R-2A.1: **BAM should ask the systems to add a second total fund benchmark, equal to the actuarial interest rate, to assess progress against the goal of offsetting liabilities.**

R-2A.2: **BAM should obtain the necessary tools to routinely do performance attributions, train the appropriate staff in their use, and incorporate performance attribution reporting into its manager monitoring program and into its reports to the Trustees.**

R-2A.3: **BAM should obtain the necessary tools to perform routine risk analyses, train the appropriate staff in their use, and incorporate risk reporting into its manager monitoring program and into its reports to the Trustees. Ideally, the risk package should be able to measure total fund risk.**

R-2A.4: **BAM should explore adding a peer group benchmark, such as Burgiss IQ, for the private equity asset class.**

R-2A.5: **BAM should explore using a compound benchmark composed of an appropriate interest rate plus a hurdle for the OFI managers.**

R.2A.6: **BAM should use the occasion of the asset allocation study to review all current benchmarks to determine if they remain the best available. BAM should give special focus to bespoke benchmarks created primarily for BAM and to any investment influence they may exert, and on all benchmarks which contain hurdles to ascertain if they are reasonable.**

SPECIFIC AREAS OF SCOPE

A. Evaluation of the process used to determine and measure investment performance

Conclusions and Related Findings

C-2A.1: BAM, as pointed out frequently in this report, lacks sophisticated risk management and performance analytic tools. BAM's understanding of performance is almost entirely reliant on performance versus benchmark analyses, an approach which would only be appropriate for a much less sophisticated investment program. It does not do performance or risk attribution. It does not measure total fund risk. Given the size and level of sophistication of its investment program, these are lagging practices.

BAM receives monthly manager returns and benchmark data directly from State Street Bank. Included in that report is a listing of returns by asset class against their respective benchmarks, return of all market managers against benchmarks, and returns of some internal programs, such as cash management and the ETI program against benchmarks.

It is a detailed, comprehensive report, totaling some 20+ pages. In addition, StepStone, the private equity consultant, calculates and reports on private equity investments on a quarterly basis. Those reports include IRR calculations.

As BAM's performance analysis is so dependent on benchmarks, it is worth a brief discussion of the types of the types of benchmarks and their purposes, particularly with regard to public asset classes. Relative return benchmarks are typically market indices, such as the Russell 3000 for public US equity.

The benchmark may be fine-tuned to better reflect the manager's style, for example by choosing a small or large capitalization index, or by choosing a style index (i.e. value or growth) in US equities, or by choosing particular risk factors such as credit quality or duration in fixed income, or by defining geographies for international or global mandates. Effectively, these relative return benchmarks seek to define the normal opportunity pool of securities from which a manager constructs its portfolio and, therefore, determines its performance.

The goal is to provide a benchmark to understand how well a particular manager has exploited market opportunities over a particular time period. Such a benchmark effectively measures whether a manager has added or subtracted value as compared to a passive index alternative.

However, there are disadvantages to only using relative return benchmarks. They are not helpful in understanding how the Funds are progressing towards their ultimate goal of funding pension liabilities. To understand why, assume that we are in a bear market, such as happened to equities in 2008, when the S&P 500 was down by 36.55%.

To make the math easier, let us assume that 100% of the fund was in large capitalization stocks benchmarked to the S&P 500. If the Fund lost 25%, rather than 36.55%, the fund would have beat its benchmark by 11.3%. But the fund would have lost money, so, from an economic or liability perspective, it would have regressed. Looking at the opposite situation also illuminates the issue: If that 100% equity portfolio returned 20% in 2009, it would have underperformed the S&P 500 by some 5.94%. But there would be some 20% more to offset liabilities.

Relative return benchmarks are useful and appropriate for measuring managers and the total fund against their market opportunity sets, but less useful for measuring how well a total fund performs over time.

For that reason, many pension funds choose to use an absolute return benchmark as well, such as the actuarial assumed interest rate, to measure total fund performance. Some investors take the practice a step further, and estimate the market value of their liabilities (which tend to move in inverse relationship to interest rates) against the market value of their assets, and use the resulting ratio (often called a shortfall analysis) as part of their performance measurement program. Given the divorce of BAM from deep liability analysis, which is done in the Office of the Actuary, this may not be possible for BAM.

There are, of course, also disadvantages in using absolute benchmarks (or even shortfall analyses) for total fund performance analysis. It results in mismatches between the Fund's performance and that benchmark in short time periods, and even over a few years, as markets wax and wane. Nor does such a benchmark provide information about how the fund performed relative to market opportunities. That is why many funds use both relative return and absolute return benchmarks at the total fund level.

Benchmarking of private asset classes is notoriously problematic. There tend to be a number of approaches to measuring them. Many funds choose compound benchmarks, usually composed of a recognized public asset class benchmark plus some return hurdle, such as BAM's use of a Russell 3000 + 300 basis points as the benchmark for its private equity investments.

There are usually two rationales for such benchmarks. First, the private asset class shows some (but not all) the attributes of the public asset class. So, in this case, private equity has some small capitalization equity characteristics and may be affected by many of the same economic conditions as public small capitalization companies. The return hurdle is added to capture an illiquidity premium.

There is, however, also an "aspirational" aspect to the use of such compound benchmarks. Private asset classes are complicated and demanding. Some funds adopt a hurdle using a rationale of "if we can't make x hundred basis points above the public asset class, why should we invest in that asset class." The use of absolute return benchmarks such as the OFI benchmark of 10%, also often has an aspirational, or expectation aspect to it (i.e. this is what we expect from this asset class).

Finally, another approach is to abandon benchmarks totally and use peer group analysis. BAM's use of the HFRI fund of fund composite index plus 100 basis points is an example of using a peer group (plus a return hurdle) as a benchmark.

Obviously benchmarking is complicated, and what works for one asset class may not work for others. Therefore, best practice is to use carefully selected benchmarks fit for specific purpose so as to allow analysis from different perspectives: How did we do against market opportunities, against our objective, against peers.

Turning to BAM specifically, it relies on relative-return benchmarks to measure its public asset class investment programs and managers. Private asset classes are measured against a potpourri of benchmarks, including a proxy public asset class benchmark, peer groups and absolute returns. Total fund performance is measured using a relative return metric. Each fund's policy benchmark is a mathematical roll-up of the asset class benchmarks, weighted by allocation. There is no absolute or liability-relative return.

BAM does not perform any routinized performance attribution analysis. While ISD staff may be expert and know their managers well, and while they may compare returns to what happened in the market and get reports from managers that explain why their returns were what they were, that is not a substitute for formal performance attribution.

There is no BAM-wide tool, or set of tools, that routinely decomposes performance into risk factors and then maps those risk factors as contributors to under- or out-performance. Such attributions can assist even the most expert allocators and portfolio managers understand their portfolios across a number of dimensions.

Nor does BAM create standard risk analyses and ratios, such as Sharpe ratios, Information Ratios, Sortino ratios, etc.[27] Finally, BAM does not look at total fund risk across managers and asset classes.

B. Assessment of the performance benchmarks used to evaluate its investment returns

Conclusions and Related Findings

C-2A.2: The private equity and opportunistic fixed income benchmarks need to be re-examined and, perhaps, augmented or improved.

In general, BAM selects appropriate benchmarks with regard to its public asset class investment programs and to measure managers. Asset class and sub-asset class returns are benchmarked against well recognized indices, specifically Russell and S&P indices for US equity and MSCI indices for international equity managers, respectively. Fixed income programs have a wider variety of benchmarks, including custom longer-duration indices designed specifically for the Core+5 fixed income program.

Due to the number of sub-asset class allocations (e.g. mortgages, TIPs, bank loans, etc.), there are specific benchmarks designed to measure them. That is appropriate and better matches market

[27] A number of consultants do provide such analyses to the trustees at the funds they advise.

opportunities with the investment programs. Benchmarks for individual mangers are even more tailored; BAM uses a plethora of indices reflecting styles, capitalizations, geographies, credit quality, etc.

The use of these indices is appropriate and reduces basis risk between the manager's potential opportunity set for investments and the securities in the benchmarks. As noted, the purpose of such relative return benchmarks is to judge a manager's ability to exploit market opportunities; managers can and do get put on a watch list for underperformance, though there are not standard metrics for how much underperformance or for what period of underperformance results in a manager being placed on watch.

Private asset classes are measured against a potpourri of benchmarks:

- Real estate (NCREIF ODCE plus 100 basis points) and hedge funds (HFRI Fund of Funds Composite plus 100 basis points) use peer groups plus a hurdle
- Private equity uses a proxy public asset class benchmark plus a hurdle (Russell 3000 plus 300 basis points)
- Infrastructure uses an economic proxy plus a hurdle (CPI plus 400 bps)
- OFI uses an absolute return number (10%)

As discussed, benchmarking alternative asset classes is problematic. The goal is to have a benchmark that gives insight into a manager's skill in selecting portfolios. The best benchmarks directly measure the returns that "naturally" result from the investment universes in which the managers invest. That is what a traditional public asset class benchmark such as the Russell 3000 does.

Traditional benchmarks are capitalization weighted because that, in theory, is the combined wisdom of all the market participants. But that is not possible with alternative asset classes. However, with that as the goal, it is possible to suggest a philosophic framework as to which types of benchmarks are closer to the ideal.

The closest would be a robust peer group measure. A peer group benchmark is the combined wisdom of a number of market participants. Depending on how robust the number of participants (and how well-scrubbed the data), it can be useful to judge manager performance.

Next farthest away from ideal would be an adjusted proxy benchmarks (such as the Russell 3000 plus a hurdle, lagged). The idea here is that the systemic factors which affect that asset class also affect the alternative asset class and that some of the differences between them can be dealt with by the adjustment. Next best would be the use of an adjusted economic proxy (such as CPI plus 400 bps).

The idea of this construct is that the economic factor affects the asset class. In some ways this is very similar to using an adjusted proxy benchmark, though with single factor. Finally, the use of an absolute number is farthest away from ideal; it is an arbitrary default with a strong aspirational/expectation component.

Looked at in against that analytical framework, it may be possible to improve the benchmarks BAM uses for private equity and OFI.[28]

For private equity, there is a widely accepted peer group index, the Burgiss Private IQ which could be used to supplement the R3000+3 existing benchmark[29]. Burgiss aggregates return data from limited partners in some 6000 partnerships, with aggregate assets of some $4 trillion. The Private Equity staff actually does use Burgiss in its internal reviews and in some internal memoranda within BAM. However, the only PE benchmark reported to the Systems by either the asset class consultant or BAM is the Russell 3000+300 basis points.

For OFI, the 10% absolute return number is, at best, arbitrary and aspirational. Ten percent may be appropriate in today's interest rate environment, where 10-year Treasury bills yield approximately 2.25%. But that can and will change. Ten-year Treasury bill rates were more than 6% as recently as 2000. The obvious problem with a 10% absolute return hurdle is that 10% in a higher interest rate environment is much less desirable than 10% today.

The less obvious issue is that the OFI managers largely invest in spread product, that is, fixed income instruments which are priced at some spread above treasuries. Therefore, any move upward in interest rates will make it easier for the managers to achieve the 10% bogey (and any move down would make it more difficult). Simply put, the 10% absolute benchmark is a fixed number in a moving world. It is almost a guarantee that it will be inappropriate at some point in the future. OFI recognizes this and internally uses a second benchmark, the JPMorgan Global High Yield Index + 300bps. However, only the 10% absolute number is reported to the Boards.

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[28] One might think there is a better methodology to benchmark infrastructure investing, but there just is not enough data available to create a peer group at this time, though that may change in the future. BAM's use of CPI plus a hurdle is consistent with other large infrastructure investors such as CalPERS (CPI + 5%) and the Ontario Teachers' Pension Plan (CPI + 4%, adjusted for foreign investments).

[29] http://www.burgiss.com/home/private_iq/

C. Review of process used to select benchmarks for each asset class under evaluation

Conclusions and Related Findings

C-2A.3: Selecting benchmarks is the result of consultation between the consultants and BAM.

Benchmarks are now chosen through consultation between BAM and the various consultants and approved by the Trustees. But it is not a routinized process. Perhaps that is understandable; selection of benchmarks is not an everyday occurrence. While benchmarks are discussed during the annual asset class, there is a fair amount of inertia built into the process. Once a benchmark is selected, it tends to stay, as evidenced by the discussion of the Core+5 fixed income benchmark below

C-2A.4: Benchmark selection has implications beyond performance measurement. It can affect actual performance and asset allocation. Those implications need to be adequately considered by BAM.

It is important to note that the selection of benchmarks has consequences beyond performance measurement. First, they influence the investments of the managers. For instance, the Core+5 benchmark for the fixed income program means that the investments will have a longer duration – and thus be more sensitive to changes in interest rates – than the more commonly used generic benchmarks.

The Core+5 was chosen both to better match the duration of the systems' liabilities, and because interest rates at the time, in the 1980's, interest rates were well into double digits and it seems likely interest rates would decline over time. This decision proved prescient; benchmarking the fixed income portfolio to a longer duration metric proved a beneficial decision.

Today, of course, liabilities remain long-lived, but the interest rate environment is very different. (Indeed, BAM has been keeping extra cash to try to shorten duration.) Whether or not the Core+5 is a desirable benchmark today is beyond the scope of this review. But the point is that benchmarks not only reflect how well managers invest, but affect how they invest.

They also affect asset allocation. Asset class return expectations – expressed in the form of a benchmark return expectation -- are one of three key capital market assumptions input into asset allocation studies. Choosing a benchmark which systematically either over- or under-states likely future returns will result in a sub-optimal asset allocation.

For example, modeling the private equity allocation at return expectation of 300 basis points above the Russell 300 will result in a higher allocation to private equity than would modeling it with a return expectation equal to the Russell 300. That is not to say that a zero increment is correct or that a 300 basis point increment incorrect. It is merely to point out that the choice of benchmarks will affect the results of the current asset allocation study.

One notable aspect of all the private equity benchmarks BAM uses is that they contain aspirational hurdles (except for OFI, which is an aspirational absolute return). Comparing the historic returns of the asset classes to the benchmarks suggest that the hurdles consistently have not been achieved for private equity. As noted above, systematically under- or over-estimating asset class returns will mischievously affect asset allocation.

D. Benchmarking against other large public pension funds and against any other benchmarks the Consultant deems appropriate.

The performance analysis practices of other large public pension funds and other standards were considered throughout this section, particularly in the discussion of the benchmarks for each asset class (Conclusion 2).

Recommendations:

R-2A.1: **BAM should ask the systems to add a second total fund benchmark, equal to the actuarial interest rate, to assess progress against the goal of offsetting liabilities.**

R-2A.2: **BAM should obtain the necessary tools to routinely do performance attributions, train the appropriate staff in their use, and incorporate performance attribution reporting into its manager monitoring program and into its reports to the Trustees.**

R-2A.3: **BAM should obtain the necessary tools to perform routine risk analyses, train the appropriate staff in their use, and incorporate risk reporting into its manager monitoring program and into its reports to the Trustees. Ideally, the risk package should be able to measure total fund risk.**

R-2A.4: **BAM should explore adding a peer group benchmark, such as Burgiss IQ, for the private equity asset class.**

R-2A.5: **BAM should explore using a compound benchmark composed of an appropriate interest rate plus a hurdle for the OFI managers.**

R.2A.6: **BAM should use the occasion of the asset allocation study to review all current benchmarks to determine if they remain the best available. BAM should give special focus to bespoke benchmarks created primarily for BAM and to any investment influence they may exert, and on all benchmarks which contain hurdles to ascertain if they are reasonable.**

2B. Investment Team Performance

The RFP scope included the following for section 2B. Investment Team Performance:

A. Quality and Depth of Team
B. Quality of BAM'S Investment Activities

Please see Section 1A.

2C. Master Custodian Services provided to BAM

Description

State Street Bank and Trust Company (State Street) provides custody services for the five NYCRS pension funds. Services include safekeeping, transaction processing and settlement, cash management, income collection, securities pricing, accounting, corporate action and proxy processing, performance measurement and analysis, securities litigation, claims filing and management support, audit and compliance, risk analysis and measurement, and certain specialty functions – such as valuation and tracking of economically targeted investments (ETIs).

The Assistant Comptroller for Asset Management oversees the relationship with State Street, which involves interaction with all parts of BAM and many of its staff.

Scope of Review

A. Oversight of Master Custodian bank
B. Security pricing discrepancies and escalations
C. Foreign tax withholding and reclaim process
D. Failed trades process and escalation
E. Monitoring of the STIF sweeping mechanism
F. Fail to deliver and fail to receive procedures
G. Timeliness and quality of reporting

Sources of Information

- BAM Self-Assessment Survey conducted by FAS
- System Self-Assessment Survey conducted by FAS
- Document Reviews
    - Manager Reconciliation Procedures 2015 V2

  - Service Level Agreement drafts
  - Draft Operations Manual
  - SSAE-16 reports, Custody Services and IT Controls
  - 2C1 Legal authorities re custodian
  - State Street Funds Transfer Signature Form
  - NYC Open Initiatives with State Street 7/14/2015
  - Documentation of most recent meeting of BAM staff and Master Custodian staff
  - Executed Master Custody Agreement
  - Investment Manager Reconciliation Template
  - Master Custodian RFP
  - Manager Input Sheet for Performance Reconciliation
  - NYC Manager Reconciliation Procedures
  - CEM Benchmarking Report for 2014
- Interviews
  - State Street staff
  - Russell (on foreign exchange and written responses)
  - Citibank (on securities lending)
  - State Street's on-site client services representative
  - Assistant Comptroller for Asset Management
  - Director of Risk
  - Investment Control Director
  - Deputy Comptroller for Accountancy
  - Director of Risk Management
  - Other BAM staff
- FAS leading practices knowledgebase
- Professional opinion of team

Summary

BAM transitioned to State Street as its custodial bank from BNY Mellon about two years ago. Changes in custodial bank by a large public fund are never easy due to the extensive role the custody bank has in the day-to-day operations of an asset manager. This is especially true for BAM with the complexity posed by reporting for the five Systems and over 2,300 separate portfolios which must be serviced.

The transition to State Street has generally been smooth, without major incident. State Street is working with BAM to evaluate several potential major enhancements, such as a unitized accounting structure and daily valuation, which could add significant value but entail complexity. Other major initiatives are in progress, such as the conversion to State Street's general ledger. However, the full implementation of the custodian's capabilities is not yet completed, and several basic relationship management tools (a service level agreement and an operations manual) are not finished.

BAM staff is dissatisfied in a number of areas. The myStateStreet platform which has been provided to BAM is capable of providing additional functionality and reporting than is currently being utilized by BAM; in many cases this is due to lack of initiative by BAM staff and reluctance to demand a higher level of service from State Street.

There are a number of open issues, large and small, which should be addressed and resolved. While the relationship at the senior levels of the State Street account team and BAM leadership is sound, communications could be improved and a stronger focus by BAM on completing and improving the myStateStreet implementation is warranted.

Summary of Conclusions

C-2C.1: **NYC's process for selecting State Street unbundled custody services from foreign exchange and securities lending, which is a leading practice.**

C-2C.2: Two years into the contract, the transition to full and effective use of State Street's services is far from complete. Discontent among BAM staff is widespread. BAM is a large enough client to leverage more of State Street's capabilities and push for better support. (See also Investment Strategy IA and Investment Control C-1B.14)

C-2C.3: The service level agreement is comprehensive but lacks sufficiently specific benchmarks to measure performance.

C-2C.4: An operations manual is contractually required but not completed and is awaiting further input from BAM.

C-2C.5: Oversight responsibility and accountability for BAM's day-to-day management of the custody relationship needs to improve.

C-2C.6: The custodial relationship is overly complex with over 2,300 individual accounts.

C-2C.7: A lengthy list of specific service needs requires focused involvement and prioritization by State Street and BAM to address.

Summary of Recommendations

R-2C.1: BAM should monitor the ongoing costs of its unbundled custody, securities lending and foreign exchange services to confirm that they are meeting the expectations BAM had when it entered into these agreements.

R-2C.2: BAM should be more persistent in communicating its needs and expectations to State Street so that they are addressed and that BAM is taking full advantage of State Street's capabilities. (See also Investment Control C- 1B.14 and C-1B .16).

R-2C.3: **BAM should review its expectations of State Street to ensure that the SLA clearly contains what those expectations are and aligns with the contract. The benchmarks should be reasonable, attainable, measurable and clearly stated. The SLA should require State Street to monitor compliance to the benchmarks and report to BAM at set intervals on the results.**

R- 2C.4: **BAM should designate a project lead to work with State Street for the creation of a fully functional operations manual.**

R-2C.5: **BAM should assign oversight responsibility for BAM's day-to-day management of the custody relationship to someone below the most senior levels of the organization.**

R-2C.6: **BAM should pursue the unitization solution with State Street to simplify the investment account structure at the custodial bank**

R-2C.7: **BAM should engage State Street to perform a process review and assessment, minimally related to the original RFP, to determine areas for improved platform usage. It should be managed as a project similar to a full implementation. The goal would be to migrate spreadsheet based applications to State Street's systems. (See Information Systems 2J.1)**

R-2C.8: **State Street should develop a comprehensive list of reports that can be generated on a regular basis to assess, monitor and detect anomalies associated with operational divisions and data sources. (See Financial Reporting R-1H.5)**

R-2C.9: **Management should make training, integration and use of MyStateStreet a priority. BAM also needs to add staff such as quantitative analysts, investment accountants, and performance analysts who have the training and inclination to garner valuable insights from the data. The elimination of the general ledger system should free up staff time which could be directed toward these other functions. (See Investment Strategy 1A.2)**

R-2C.10: **BAM should assess the reporting capabilities of the myStateStreet system to maximize the value associated with exception reporting as well as the reconciliation processes used for end of day and month trading activity. (See Compliance Division R-1E1.8)**

R-2C.11: **BAM should continue to emphasize the design, development and implementation of exception reporting capabilities within the State Street system. (See Compliance Division R-1E1.9)**

R-2C.12: **BAM should continue to implement the State Street exception reporting initiatives it has underway. (See Compliance Division R-1E1-11)**

R-2C.13: **The Quarterly Board Total Fund Overview reports prepared by State Street should provide additional overview analysis and highlights noted in the monthly performance reports to help readers understand not only the big picture, but also to more quickly identify and focus on deviations or anomalies as part of the discussion.**

R-2C.14: BAM should hold State Street accountable for tracking and insisting on resolution of outstanding reclaims of foreign tax claims.

R-2C.15: BAM should utilize State Street's cash forecasting capabilities for investment activities. (See Cash Management R-1C.1)

R-2C.16: BAM should continue with the planned rollout of State Street's eCFM and implement as soon as possible. [redacted] (See Cash Management R-1C.2)

R-2C.17: BAM should take advantage of State Street's data export capabilities once BAM's general ledger processing is moved there in its entirety. Even though the numbers are still input into a spreadsheet, the automated data export process will eliminate rekeying and the corresponding risk of errors. (See Cash Management R-1C.4 and Investment Control 1B.2)

R-2C.18: BAM should assign internal responsibility for oversight of failed trades and for ensuring that BAM is made whole if there is financial loss.

R-2C.19: Someone in BAM should be responsible for reviewing the information provided in the SSAE 16 reports regarding controls for the STIF.

SPECIFIC AREAS OF SCOPE

A. Oversight of Master Custodian bank

B. Security pricing discrepancies and escalations

C. Foreign tax withholding and reclaim process

D. Failed trades process and escalation

E. Monitoring of the STIF sweeping mechanism

F. Fail to deliver and fail to receive procedures

G. Timeliness and quality of reporting

Leading Practice Expectations

In an organization such as BAM, we would expect to find:

- The custodian would be able to effectively provide a full range of services, including safekeeping, trade settlement, income and dividend collection, fund accounting, cash sweep, securities valuation, client account reporting, data management and query, investment performance analytics, corporate actions notifications and processing, and tax services.

- Along with global sub-custodians, the custodian would be able to support the full range of assets in which the fund invests and in all countries in which it invests.
- Custody service providers would be fiduciaries.
- The cost of services would be clearly defined by contract and associated documents, and would be competitive with peers.
- A service level agreement would further define the contractual responsibilities and expectations of all parties.
- Effective reporting and data look through capability would be provided and included fund assets custodied elsewhere.
- The custodian would have a client services team dedicated to the relationship and prompt resolution of issues.

Conclusions and Related Findings

C-2C.1: NYC's process for selecting State Street unbundled custody services from foreign exchange and securities lending, which is a leading practice.

The master custody relationship is critical to nearly every aspect of the investment of public pension funds. State Street is one of the largest global custodial banks and BAM is a large, complex client. The major services which State Street has contracted to provide are typical of what other large public pension funds receive from their custodians.

Many public pension funds also use their custodian for securities lending and foreign currency exchange (F/X), as BAM did in the past. In 2012, as a leading practice, BAM unbundled the bidding for those two services from custody. This was driven by a desire to select the best vendor for each service, recognizing that the custody bank is not always the best vendor. The goal was also to allow BAM to replace individual service providers as necessary without custody services always becoming a material factor to consider.

State Street was awarded the custody contract, and the lending and F/X contracts were awarded to other vendors (see sections 2D. and 2E.). The initial three-year term of the State Street contract ends October 31, 2016 with provisions for renewal for up to six additional years. The Comptroller may terminate the contract with 30 days' notice and with less advance notice for certain breaches.

Based upon the recent draft CEM investment cost benchmarking report for calendar year 2014, BAM's reported custody costs nearly doubled in 2014 with the transition to State Street. It would be expected that the explicit fees paid to the custodian would dramatically increase when the fund sponsor unbundles its custody, securities lending and foreign exchange services as BAM has done. However, the unbundling makes benchmark comparisons difficult when the peer group includes funds who still receive custody services under a bundled contract. The 2014 CEM analysis shows BAM custody costs of 0.7 bps compared to the peer group median of 0.3 bps and at the 81st percentile on cost. (The fund with the highest costs is at the 100th percentile of the peer group.)

BAM was aware that its reported custody costs would increase with the unbundling of the contract. While specific comparable benchmark custody fees are not available, based upon the process through which BAM made it selection of the new custodian, it appears that they negotiated a competitive level of custody fees, particularly in consideration of the high level of fund complexity with 2,300 separate portfolios. Higher custody fees will be offset by the greater share of securities lending revenue BAM receives from Citi (93.5%) compared to what it received from the previous custodian (90%), and by lower F/X costs than it had with the prior custodian.

C-2C.2: Two years into the contract, the transition to full and effective use of State Street's services is far from complete. Discontent among BAM staff is widespread. BAM is a large enough client to leverage more of State Street's capabilities and push for better support. (See also Investment Strategy IA and Investment Control C-1B.14)

Transitions from one custodial bank to another are typically challenging and can be stressful. It often takes many months to fully implement new systems and procedures that meet the full range of service needs. The uncommon structure of the Systems and BAM's own organizational limitations add challenges to this transition.

BAM is working with State Street on a number of major initiatives that are in progress, such as conversion from the general ledger system to State Street's general ledger and improved cash forecasting. State Street is also helping BAM evaluate major potential changes such as daily valuation and a unitized trust structure. However, nearly two years into the contract, there are basic aspects of the day-to-day relationship which need to be addressed and improved.

We found a fairly high level of discontent with State Street in almost every department we interviewed. There is dissatisfaction both with State Street's response time and with the resources that State Street has provided. For example, the consultant working with the investment compliance program is considered to be quite good, but over-extended and over loaded. As a result, progress in making the compliance system a meaningful part of BAM has been slowed.

While the migration from BNYM to State Street improved the level of accounting and reporting services available, many investment teams are relying on consultant tools or spreadsheet applications to monitor their overall portfolio and manage their external investments. (See section 2J.)

"myStateStreet.com" is the online client information delivery portal providing access to State Street's market data, tools and reporting services. It is not being fully leveraged by BAM teams. Although initial training has been provided, the portal has been unevenly used and staff have struggled to readily locate information. Some areas, such as Financial Reporting, should be particularly proficient in the use of the portal, but have not yet mastered the use of the system. Management needs to make the integration and use of myStateStreet a priority for such areas.

BAM also needs to add staff such as quantitative analysts, investment accountants, and performance analysts who have the training and inclination to garner valuable insights from the data. State Street has capabilities BAM does not seem to be aware of or have not been fully implemented such as reconciling transactions, supporting private equity, and compliance monitoring. (See Investment Control 1B.)

State Street has a person working on site and five others dedicated solely to BAM's account. The in-house person works with BAM in integrating myStateStreet with current processes and progress has been made in some areas, but only where the product is seen to be of value.

State Street does provide a high-level list of open initiatives and their status which is updated weekly and discussed in a call with BAM. State Street does not have a tracking process which is tied to the draft Service Level Agreement (SLA).

State Street knows its own processes and has worked with many public pension plans. It should use that knowledge and be more proactive in finding and offering reports and processes that will greatly benefit BAM staff. BAM needs to have up-to-date information on all aspects of its interaction with State Street – how quickly resolution occurs and what issues remain outstanding.

This will allow, for example, the escalation and resolution of multiple minor issues before they overwhelm the tenor of the relationship. In the experience of FAS team members, the custodian's client relationship manager is perhaps the single most important factor in achieving a successful partnership. BAM should make sure that it is being proactively served by the manager and his team. If not, it should make that known to State Street.

BAM has been surprised at what it considers to be the high cost that State Street has quoted for some projects that BAM has proposed, such as a fully automated general ledger account feed. This is where the in-house State Street representative can be most helpful. This person is in position to leverage the capabilities and solutions that State Street has used with other public pension systems with the environment in which BAM operates. To make this work, BAM must be open to alternatives beyond business as usual.

FAS has the impression from several interviews that State Street is not being pushed aggressively enough to support BAM with training and other tools to assist BAM with process optimization. (See section 1A.) As a very large client, BAM has leverage to push for timely attention to its concerns.

There should be a BAM staff member responsible for tracking and recording final resolution of the day-to-day issues such as security pricing discrepancies and escalations, foreign tax withholding and reclaim process, failed trades process and escalation, monitoring of the manager's cash, fail to deliver and fail to receive procedures, and the timeliness and quality of reporting. BAM must judiciously escalate problems and issues that are not being adequately addressed by State Street.

Clearly defined priorities, well-documented procedures, a more robust training plan, more focused day-to-day oversight by BAM and a persistent push from BAM regarding its expectations should help alleviate concerns.

One potential benefit of rebidding the custody contract when the initial three-year term ends in October 2016 is that BAM is a large and, presumably, desirable client. The RFP could address specific service needs that BAM has been unable to resolve with State Street or the prior custodian. If BAM is dissatisfied with the cost structure of the current contract, and what is covered in the base fee and what is not, rebidding would provide an opportunity to address those issues. Even if BAM ultimately decided to stay with State Street, it may be under better terms. On the other hand, the search process is time consuming and the transition to another custodian is likely to be long, disruptive and consume a lot of staff resources that BAM lacks. Each custodian has its own systems and structure that would require accommodation by BAM, whichever one it chooses.

C-2C.3: The service level agreement is comprehensive but lacks sufficiently specific benchmarks to measure performance.

Leading practice is a service level agreement (SLA) that further defines what the custodian and the client will each do under the contract. Service level agreements set service level expectations so that performance metrics show whether those expectations are being met. The agreement should include all activities for which either party is responsible.

The draft SLA between State Street and BAM is fairly comprehensive in scope but not yet completed and signed. State Street indicates that the current version is more detailed than its typical SLA. However, there are few measurable expectations set forth. The set benchmark is often “timely” or “without undue delay” or “mutually agreed upon.” The purpose of a SLA is to set specific benchmarks and acceptable service levels, such as “all trades received each day by 4 pm will be entered same day. Expected compliance is 99.5%.” “Mutually agreed upon” should be reserved for unusual circumstances; otherwise, the parties should set for such “mutually agreed upon” expectations in the SLA.

A well drafted SLA should result in better defined processes that run more smoothly. It should improve the accountability the bank and BAM each have in making the relationship work well. BAM should review its expectations of State Street and ensure that the SLA clearly contains what those expectations are. The benchmarks should be reasonable, attainable, measurable, and clearly stated. Part of the SLA should require State Street to monitor compliance to the stated benchmarks and report to BAM at set intervals on the results.

C-2C.4: An operations manual is contractually required but not completed and is awaiting further input from BAM.

The contract with State Street requires the preparation of an operations manual. An operations manual is the guidebook for how an operations group works with the custodian. State Street provided a draft of an operations manual on September 24, 2014 and indicated that it is awaiting a further response from BAM. BAM indicated that this draft was not responsive to BAM’s needs, so it has not pursued it further with State Street. BAM also noted that there is internal agreement that BAM needs an operations manual that goes beyond those processes in which State Street is involved.

A year has passed with neither State Street nor BAM pushing the process forward. Since investment operations functions are currently dispersed within BAM, no one group has primary responsibility for this project. BAM needs to designate a project lead to work with State Street for the creation of a fully functional operations manual and to also have a plan for including areas which do not relate to State Street's areas of responsibility, assuming it is intended to have a comprehensive operating manual.

C-2C.5: Oversight responsibility and accountability for BAM's day-to-day management of the custody relationship needs to improve.

State Street is in frequent contact with many BAM staff because custody matters cut across the organization. The State Street team meets with the Chief Investment Officer quarterly and has a monthly meeting with the Assistant Comptroller and several senior BAM staff to review a list of key initiatives and performance indicators. (The June 2015 report included 19 such initiatives.)

BAM lacks someone specifically charged to manage day-today relationship matters and pursue resolution with State Street. The Assistant Comptroller for Asset Management has oversight of the whole relationship, but it is among many other duties that compete for his attention. It also appears that some senior staff below the level of the Assistant Comptroller are reluctant to reach out directly to State Street when they have complaints.

Most other pension funds have someone below the level of BAM's Assistant Comptroller who manages the day-to-day relationship and resolution of issues as they arise, even in the best of custody relationships. An example description of the duties of this BAM staff member is provided as Appendix A-2C.5.

A BAM reorganization should address this situation. The elimination of the general ledger accounting system, and its many related manual processes, is in progress and should free up BAM staff to increase oversight.

C-2C.6: The custodial relationship is overly complex with over 2,300 individual accounts.

BAM invests the monies of legally separate entities and must be able to properly account for the investments belonging to each one. As a result, over 2,300 accounts are separately maintained at the custodial bank. This complexity filters throughout the BAM organization beginning with the initial account set-ups for a manager and extends to compliance, accounting, and reporting. It greatly increases the cost of custodial services.

BAM and State Street have initiated conversations on unitizing BAM's investments and operating the resulting pool(s) much as a mutual fund or an endowment fund operates. This is a leading practice among funds that have multiple legally-separate funds. BAM will need to determine if there are any legal impediments to this structure and whether audited daily account values will be needed, as this requirement will increase custodial costs.

C-2C.7: A lengthy list of specific service needs requires focused involvement and prioritization by State Street and BAM to address.

Most of the following items identified in our review require active involvement of BAM staff along with State Street to achieve the intended improvements.

- A platform to provide consolidated risk and exposure analysis is not in place and many investment teams are relying on consultant tools or spreadsheet applications to monitor their overall portfolio and manage their external investments. (See Information Systems, C-2J.1)

- (See Investment Control C-1B.11). The conversion to State Street did not:

    a. Address some of the legacy data problems inherent in BAM, including full reconciliation of positions
    b. Lead to a newly set of documented processes to support State Street's functionality
    c. Result in clear training documentation for team members in some areas.

- Standard accounting reports are generally timely but State Street doesn't always advise BAM of revisions before a report is posted.

- Feedback from BAM staff is that exception reporting is minimal or non-existent. State Street's current reporting capabilities "sometimes generates reports containing hundreds of pages." Although a State Street project is currently underway to improve the reporting capabilities, there is no consistent process for identifying and addressing exceptions. The Compliance Division is aware of the situation and is working with the operational divisions to address these concerns. (See Compliance Division C-1E1.5)

- BAM is calculating net performance itself and wants State Street to provide that calculation. It requires expense data reporting from BAM to State Street and is being worked on.

- Guideline mapping to the State Street compliance systems has not been fully implemented. Although some compliance reporting is being performed, we understand that individual investor manager transaction reconciliations occur on a monthly basis, rather than on a daily basis, potentially allowing multi day trading activity to obscure trades that provide little or no economic value to the systems. (see Compliance Division C-1E1.4)

- Investment control process documentation contains no mention of specific application pages to use in myStateStreet.com, screen shots, or data field and value descriptions. (See Investment Control C-1B.13)

- [redacted] (See Cash Management C-1C.2)

- The current process of loading State Street transactions, cash, and holding files into the general ledger system and then reconciling the general ledger system to State Street is broken. On average, reconciliations between the general ledger system and State Street run about two months behind. Monthly accounting closes are three to six months behind. The translation between the two systems is flawed, creating a lot of manual work When the general ledger moves to State Street, most of this problem will go away. (See Investment Control C-1B.6)

- **Security pricing discrepancies and escalations**. BAM requires managers to sign off on State Street's investment asset pricing. Current practice requires BAM to research and decide the outcome. This process negates the expert third-party role of the custodian. The proposed Service Level Agreement places more of the responsibility of researching and resolving the dispute on State Street, which is where the responsibility should be. Only in rare instances should BAM be involved in the decision.

- **Foreign tax withholding and reclaim process**. Dealing with issues of foreign tax withholding and reclaiming withheld foreign taxes is frustrating for both the custodian bank and the client. Meeting the set-up requirements in some foreign markets can be a time-consuming and daunting task. The custodian bank can be quite helpful in some countries; in other countries, the custodian or sub-custodian is not permitted to take on any liability. The process of meeting a country's requirements is an obvious task for an investment operations team who can build up expertise in this area.

  The custodian has the responsibility for tracking and recovering any tax reclaims. Again, this is not an easy process and, in some countries it can require a long period of time to resolve. BAM and State Street are dealing with reclaim carry-overs from the previous custodian. An investment operations team at BAM would be a clear choice for tracking State Street's progress in reclaiming taxes owed to BAM. BAM should hold State Street accountable by tracking and insisting on resolution of outstanding reclaims.

- **Failed trades process and escalation.** Failed trades happen fairly often and are usually easily resolved with the custodian. State Street provides a monthly report to BAM management of trades in a failed status for more than 30 days and a resolution strategy for each trade. It should be rare that BAM has to become involved in the resolution of a failed trade. However, BAM should assign internal responsibility for such oversight and for ensuring that BAM is made whole if there is financial loss.

- **Monitoring of the STIF sweeping mechanism.** The short-term investment of managers' cash is a standard core custodial function. BAM has accounting controls in place to monitor the cash in the short-term investment fund (STIF) compared to the aggregate manager's cash. It also has mutually agreed upon procedures for the removal and receipt of cash from BAM. Accounting entries allocate the STIF earnings/loss to each manager's accounts.

- Due to lack of capacity, there is no one in Investment Control (IC) who currently has the view into the daily sweeps. They get monthly reports that showed the daily movements and earnings. IC used to reconcile the daily movements but didn't turn up anything fruitful so they stopped doing it. IC staff does look at the posting of STIF income to the manager accounts making sure the account balance reconciles across managers. (see Investment Control C-1B.12)

- BAM relies on the internal controls of State Street for the STIF. These controls are audited by outside independent auditors and State Street makes the resulting SSAE 16 report available to BAM. Someone in BAM should be responsible for reviewing the information provided in those reports. We are aware that the Bureau of Accountancy is looking at the SSAE 16 reports for the first time this year.

- BAM also needs assurance that the earnings on the STIF are in compliance with the contract and/or associated agreements with State Street. Either periodic internal review or audits should occur.

- Some retirement systems have determined that additional income can be earned on the STIF cash if invested outside of the custodian's STIF. For that process to be viable, the additional projected income must be greater that the increased custodian costs and sufficient infrastructure must be in place to ensure that: 1) manager's call for cash at the custodian is immediately available; 2) incoming manager cash is immediately transferred and invested, and, 3) sufficient controls are in place to safeguard the transfer and movement.

Recommendations

R-2C.1: **BAM should monitor the ongoing costs of its unbundled custody, securities lending and foreign exchange services to confirm that they are meeting expectations BAM had when it entered into those agreements.**

R-2C.2: **BAM should be more persistent in communicating its needs and expectations to State Street so that they are addressed and that BAM is taking full advantage of State Street's capabilities. (See also Investment Control C- 1B.14 and C-1B .16).**

R-2C.3: **BAM should review its expectations of State Street to ensure that the SLA clearly contains what those expectations are and aligns with the contract. The benchmarks should be reasonable, attainable, measurable and clearly stated. The SLA should require State Street to monitor compliance to the benchmarks and report to BAM at set intervals on the results.**

R- 2C.4: **BAM should designate a project lead to work with State Street for the creation of a fully functional operations manual.**

R-2C.5: **BAM should assign oversight responsibility for BAM's day-to-day management of the custody relationship to someone below the most senior levels of the organization.**

R-2C.6: **BAM should pursue the unitization solution with State Street to simplify the investment account structure at the custodial bank**

R-2C.7: **BAM should engage State Street to perform a process review and assessment, minimally related to the original RFP, to determine areas for improved platform usage. It should be managed as a project similar to a full implementation. The goal would be to migrate spreadsheet based applications to State Street's systems. (See Information Systems 2J.1)**

R-2C.8: **State Street should develop a comprehensive list of reports that can be generated a regular basis to assess, monitor and detect anomalies associated with operational divisions and data sources. (See Financial Reporting R-1H.5)**

R-2C.9: **Management should make training, integration and use of MyStateStreet a priority. BAM also needs to add staff such as quantitative analysts, investment accountants, and performance analysts who have the training and inclination to garner valuable insights from the data. The elimination of the general ledger system should free up staff time which could be directed toward these other functions. (See Investment Strategy 1A)**

R-2C.10: **BAM should assess the reporting capabilities of the myStateStreet system to maximize the value associated with exception reporting as well as the reconciliation processes used for end of day and month trading activity. (See Compliance Division R-1E1.8)**

R-2C.11: **BAM should continue to emphasize the design, development and implementation of exception reporting capabilities within the State Street system. (See Compliance Division R-1E1.9)**

R-2C.12: **BAM should continue to implement the State Street exception reporting initiatives it has underway. (See Compliance Division R-1E1-11)**

R-2C.13: **The Quarterly Board Total Fund Overview reports prepared by State Street should provide additional overview analysis and highlights noted in the monthly performance reports to help readers understand not only the big picture, but also to more quickly identify and focus on deviations or anomalies as part of the discussion.**

R-2C.14: **BAM should hold State Street accountable for tracking and insisting on resolution of outstanding reclaims of foreign tax claims.**

R-2C.15: **BAM should utilize State Street's cash forecasting capabilities for investment activities. (See Cash Management R-1C.1)**

R-2C.16: **BAM should continue with the planned rollout of State Street's eCFM and implement as soon as possible.** [redacted]

[redacted]. (See Cash Management R-1C.2)

R-2C.17: BAM should take advantage of State Street's data export capabilities once BAM's general ledger processing is moved there in its entirety. Even though the numbers are still input into a spreadsheet, the automated data export process will eliminate rekeying and the corresponding risk of errors. (See Cash Management R-1C.4 and Investment Control 1B.2)

R-2C.18: BAM should assign internal responsibility for oversight of failed trades and for ensuring that BAM is made whole if there is financial loss.

R-2C.19: Someone in BAM should be responsible for reviewing the information provided in the SSAE 16 reports regarding controls for the STIF.

2D. Effectiveness of Third-Party Foreign Exchange services provided to BAM

Description

Under a contract with BAM, Russell Implementation Services, Inc. (Russell) provides foreign exchange (F/X) services for NYCRS' international securities investments. Russell executes F/X to facilitate the settlement of international equities trades, facilitate private equity capital calls or returns of capital, and to convert foreign investment income, such as dividends and tax reclaims, to US dollars.

BAM contracted with Russell in late 2013 and began transitioning F/X trading to Russell in early 2014. The stated objectives of using Russell rather than continuing to utilize the custodial bank were to find the lowest-cost solution for external managers to trade foreign currencies and to obtain visibility into F/X costs.

The NYCRS international equities managers may currently choose Russell or State Street, NYC's custodial bank, for F/X. Several managers, primarily the quantitative and passive funds, use internal staff for this purpose. All eight managers in BAM's active international equity program now use Russell; BAM anticipates that number will grow as the passive and quantitative managers are also asked to switch to Russell. BAM is more directly involved with Russell in executing F/X for private equity and alternative investments.

Scope of Review

A. Implementation of FX program objectives
   i. Transparency
   ii. Transaction costs reduction
   iii. Best execution procedures
   iv. Cost of the execution
B. Evaluation of trading and settlement of orders directed to investment managers
C. Performance reports provided to BAM upon the Comptroller's request
D. Performance measurement and risk management
E. Assessment of the firm's annual meetings with the Systems' representatives

Sources of Information

- BAM Self-Assessment Survey conducted by FAS
- System Self-Assessment Survey conducted by FAS
- Document Reviews
    - Russell F/X Flow Diagram
    - Russell Investment Trade Summary June 30, 2015
    - F/X and Lending Selection Summary as of June, 2014
    - FX Activity March, April, May 2015 (BAM spreadsheet)
    - State of New York ex rel. FX Analytics v. The Bank of New York Mellon Corporation
    - Foreign Exchange Committee: Guidelines for Foreign Exchange Trading Activities
- Interviews
    - Assistant Comptroller for Asset Management
    - Director of Risk
    - Director of Contracts
    - Senior Investment Officer, Non-U.S. Equity
    - Senior Investment Analyst, Non-U.S. Equity
    - Russell F/X team
- FAS leading practices knowledgebase
- Professional opinion of team

Summary

Foreign currency trading for public pension funds in general has been plagued by controversy and litigation for much of the last decade regarding excessive or hidden F/X costs that detract from investment performance. Although its role is not formally defined by written policies or procedures, BAM considers its primary responsibility to be helping NYCRS international managers find the best low cost solution to foreign exchange with visibility into individual transactions.

NYCRS investment managers are only permitted to use F/X for standing order trades[30] to settle overseas securities trades and repatriate investment income into U.S. dollars. Because of legal restrictions on the use of derivatives, BAM indicates that NYCRS funds are not able to consider using F/X to hedge against the portfolio risk of volatile foreign currency prices, or to engage in speculative strategies to attempt to profit from fluctuating currency prices.

[30] In "standing order" transactions the client gives the F/X firm a standing authorization to execute certain foreign exchange transactions on the client's behalf without negotiating the price of the purchase or sale in advance of execution. Standing Instructions cover: (a) conversions of any income distributions, tax refunds and dividends the client receives in a foreign currency; and (b) currency conversions incident to purchases or sales of foreign securities. In "directly negotiated" transactions the dealer and client negotiate the price in advance of each transaction.

Most foreign exchange dealers are banks trading through an interbank market that is lightly regulated and decentralized. In a 2012 FAS survey, ten of 15 large public funds responded that they used their custodial bank for standing order F/X trades and nine did so for directly negotiated trades.

In 2011, the Attorney General for the State of New York, on behalf of the NYC Comptroller and the NYCRS, sued BNY Mellon (the custodial bank), alleging a ten-year history of fraud in the execution of standing order F/X transactions. The complaint stated that BNYM "priced transactions to their clients at the worst rate at which the currency had traded during the day rather that the market rate at the time of the trade, and that the bank pocketed the difference between the price it had given clients and the market price at the time it executed the transaction."[31]

The complaint also alleged that BNYM had failed to net trades in the same currency to reduce costs to the client. In March, 2015, BNY Mellon agreed to a payment to settle this suit and other complaints. Several major banks have been sued by other public pension funds for similar practices.

More recently, In December 2014, five major banks reportedly agreed to payments totaling $5.6 billion to settle complaints that they had colluded to manipulate F/X prices. Such actions further demonstrated that F/X needs to be conducted with firms that demonstrate that they act in the best interests of clients. Although the foreign exchange program with Russell is not yet implemented with all eligible external managers, the approach does appear to be fulfilling BAM's stated objectives of finding the lowest-cost solution for external managers to trade foreign currencies and to obtain visibility into foreign exchange costs. To further reduce costs, BAM plans to pursue a renegotiation of Russell's fees and plans to explore ways to reduce F/X volume.

[31] State of New York ex rel. FX Analytics v. The Bank of New York Mellon Corporation

Summary of Conclusions

C-2D.1: NYC's selection process unbundled F/X from other custody services and is a leading practice.

C-2D.2: The current F/X agent provides much greater transparency into its trading activities than the prior provider.

C-2D.3: Transaction costs are now significantly lower than BAM's estimated costs with the previous F/X provider. Participation by more NYCRS external managers in the Russell program and lower rates are necessary to move closer to the amount of savings BAM anticipates.

C-2D.4: The contract and Russell's procedures appear to follow leading practices to achieve best execution.

C-2D.5: The monthly performance report from Russell provides data which could be used to benchmark its performance against industry averages. BAM intends to contract for an independent evaluation for this purpose. This could include an assessment of whether the volume of F/X trading could be managed more efficiently.

C- 2D.6: Annual meetings with NYCRS funds are provided for in the Russell contract and could be beneficial as the Systems review asset allocation and how foreign currency risk is managed.

Summary of Recommendations

R-2D.1: Develop written policies and procedures that define and assign BAM's duties for F/X, including who is responsible for monitoring performance and compliance.

R-2D.2: Conduct an independent review of Russell's performance and fees before the January 1, 2016 fee renegotiation and before the initial term of the contract expires in September 2016.

R-2D.3: In the independent evaluation, address whether certain benchmarks could be incorporated into the regular monthly performance report Russell provides.

R-2D.4: Based on the outcome of the evaluation, encourage or require more NYCRS external managers to move their F/X trading to Russell.

R-2D.5: As part of the next asset allocation study, solicit input from Russell in a review of how foreign currency risk is managed.

SPECIFIC AREAS OF SCOPE

A. Implementation of FX program objectives

B. Evaluation of trading and settlement of orders directed to investment managers

C. Performance reports provided to BAM upon the Comptroller's request

D. Performance measurement and risk management

E. Assessment of the firm's annual meetings with the Systems' representatives

Leading Practice Expectations

In an organization such as BAM, we would expect to find:

- Policies which would clearly define permitted F/X uses and currency risk management objectives;
- A clear definition of the responsibilities of all parties;
- F/X transaction providers would be contractually required to serve as fiduciaries;
- The basis for determining exchange price and best execution would be clearly defined;
- Transactions would typically be executed at current market rates;
- All service charges would be clearly defined in contracts;
- Criteria and process for selecting counterparties would be clearly defined;
- Netting of currency buy and sell orders would be maximized to reduce transaction costs;
- There would be a transparent audit trail for each F/X transaction that identifies counterparties, currencies, amount, price, associated service charges, and trade date/time;
- Trading would maximize electronic interfaces;
- There would be automated reporting to the client. The client would receive and review trading reports on a timely basis; and,
- There would be an independent periodic cost review to confirm best execution.

C-2D.1: NYC's selection process has unbundled F/X from other custody services and is a leading practice.

In 2012, NYC split the bidding for custody services from the bidding for F/X and securities lending. The primary reasons for unbundling are that the custodian may not be the best available F/X option, and it is easier to change F/X service providers, should that become necessary, without disrupting custody arrangements. The contract with Russell states that the objectives include transparency of the F/X program, reducing transaction costs, promoting best execution, and enhancing governance of the NYCRS' investment processes. Russell has not been a party to F/X litigation.

The contract provides that Russell is a fiduciary and that it executes transactions on an "agency" basis only, meaning that it must act exclusively on behalf of the NYCRS. In a "principal" role, an F/X firm takes the other side of the trade with its customer. In addition to greater transparency, BAM projected cost savings, but could not quantify the projected savings due to lack of visibility into F/X costs under the prior BNY Mellon contract. The current three-year agreement with Russell is set to expire September 30, 2016, with provision for the Comptroller to renew for up to nine years.

Some public pension funds allow external managers to select the firms they use for F/X. The rationale for this approach is that the cost is reflected in the managers' performance so they have an incentive to use whatever F/X firm may offer them the best terms. In establishing the relationship with Russell, in which most or all NYCRS eligible managers are expected to eventually participate, BAM's intent is that efficiency will increase and costs will go down. This would be due to Russell's expertise and the continued growth in the substantial volume of NYCRS trading managed by Russell. BAM staff are pleased with Russell's performance to date.

The Frank Russell Company was acquired by a new owner in 2014 who put the company's asset management business up for sale last February. The Russell F/X team indicated that the company's foreign exchange service is a significant component of the support provided to Russell funds. They consider it highly unlikely that the Russell funds could or would continue without the assistance of the Russell currency team. Should a sale of Russell's asset management business occur, the F/X business would likely be part of the deal. The contract includes provisions that enable BAM to terminate the contract with or without cause.

C-2D.2: The current F/X agent provides much greater transparency into its trading activities than the prior provider.

Each F/X transaction is recorded by Russell with data that includes the time the order was received, the time the order was delivered to the trade order management system, and execution time. Consistent descriptors are used for asset managers and counterparties.

BAM receives a monthly report which identifies each transaction, currencies bought and sold, amounts, exchange rates, time of execution and estimated cost of execution. The lack of such information was the major contributor to the issues in NYC's lawsuit with BNYM and other issues which have arisen throughout the F/X industry. The information provided to BAM can be used by independent evaluators to compare Russell's results and costs to industry averages for trades of the same currencies at the same time.

C-2D.3: Transaction costs are now significantly lower than BAM's estimated costs with the previous F/X provider. Participation by more NYCRS external managers in the Russell program and lower rates are necessary to move closer to the amount of savings BAM anticipates.

BAM does not know what its previous actual costs for F/X were because they were bundled into the overall costs of custody services. An independent analysis presented in the legal complaint against BNYM indicated that from 2001 to 2009, the Bank earned an average 17.5 basis points on standing instruction F/X orders.[32]

Banks altered their F/X pricing practices as a result of lawsuits and market pressures. A common practice now is for the bank and pension fund to choose the time of day to execute the trade and to agree on the spread that the funds will be charged rather than leave those decisions up to the custodian. This has contributed to a general decline in F/X costs. According to one report, pension funds' F/X costs for trading through custodial banks have fallen to an average five basis points on the dollar volume traded.[33]

BAM estimated that the contract with Russell would save approximately $6.0 million annually. During the RFP evaluation process, BAM assumed its costs at BYNM were ten basis points and they would fall to two basis points with Russell. While ten basis points may be a reasonable ballpark estimate of what NYCRS was paying BNYM at the time, it may be more than NYCRS would pay a custodian for F/X services now, given recent trends.

BAM's costs for Russell's services are determined by a three tiered formula based on net trade volume, with the lowest rate of two basis points applying to net trade volume over $750 million. For the six months ending June 30, 2015, BAM's cost was 2.2 basis points ($600,000) on net trade volume of $2.7 billion ($5.4 billion annualized). Annualized, these costs are close to what BAM projected. However, BAM's projected dollar costs were based on $10 billion of annual net trade volume, which is nearly double the current $5.4 billion annualized amount. The participation of most or all NYCRS' international equities managers appears needed to reach $10 billion, and a reduction in fees to 1.5 basis points would be necessary to limit costs to BAM's projected $1.5 million.

[32] State of New York ex rel. FX Analytics v. The Bank of New York Mellon Corporation

[33] "Suits cause FX trading costs to plummet", Pensions and Investments, November 25, 2013

Russell observed that a number of the international equities managers who use passive or heavily quantitative investment strategies prefer to execute F/X themselves. BAM made a deliberate decision to start the program with just the active managers, optimistically assuming that more managers will choose to participate. The results of the planned independent performance review would enable managers to make a more informed choice.

The contract provides for a renegotiation of rates annually on January 1. A renegotiation did not take place January 1, 2015, after the first full year of Russell's services, as the program continued to ramp up. BAM does plan to renegotiate fees as of January 1, 2016. It would be helpful to have an independent evaluation of the program completed before that renegotiation.

C-2D.4: The contract and Russell's procedures appear to follow leading practices to achieve best execution.

As a fiduciary and agency lender, Russell is required to act in the best interests of the NYCRS and it is contractually committed to using best execution procedures. While there is no uniformly accepted industry definition of best execution, one is "executing a securities transaction in such a manner that the total cost or proceeds is most favorable under the circumstances."[34] The contract defines best execution as:

> "The process that is most likely, in Russell's good faith judgment, to preserve the value of investment decisions within the Client's stated investment objectives and constraints.
>
> Best execution requires evaluation and management of probabilistic factors that cannot be predicted or controlled effectively on a trade-by-trade basis. As such, Russell's process is designed to minimize total expected costs and risks across the distribution of events in an investment cycle."

Russell consolidates and nets the buy and sell orders for all NYCRS funds. For the first six months of 2015, netting reduced the dollar volume traded from $3.1 billion to $2.7 billion. By contract, netting is defined as the net difference between buys and sells of identical currencies executed by Russell either at the same time, or where the there is agreement to accumulate orders for a certain period to identify netting opportunities.

Russell generally trades at five times during the day based on when liquidity is the greatest and trading most practicable in each of the European, Asian and U.S. markets. The value of postponing when netting occurs to reduce trading costs must be weighed against the market risk to the external manager and the pension funds of not settling a particular securities trade expeditiously.

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[34]"Improving Foreign Exchange Transaction Effectiveness", Towers Watson, 2010

Russell uses a Reuters' data feed that shows market bid and offer rates. When executing a currency order, Russell compares the rate (quote) offered by a potential counterparty to the Reuters best bid and offer rates. If the quoted rate is at least as good as those rates, then Russell accepts the rate. If the quote is poor, then Russell seeks improvement.

Trading is generally limited to a list of approved counterparties which is updated periodically based on credit reviews conducted by Russell. The trade report BAM received for the first six months of 2015 confirms that F/X was done only with those firms. More business is directed to counterparties with the highest ratings.

The contract requires that Russell execute trades at actual cost. These costs are included in the monthly report to BAM, and were 0.46 basis points for the first six months of 2015. They appear to be comparatively low but should be benchmarked in the upcoming independent evaluation of BAM's F/X program.

As NYCRS custodian, State Street provides services related to F/X trades, including income repatriation, tax reclaims, and restricted currency trades. Neither Russell, State Street nor BAM identified any significant operational issues in the execution process.

State Street takes instructions from Russell through an automated process. After Russell executes a trade, Russell sends an electronic message to State Street notifying the custodian of the transaction so that on settlement day, State Street knows to wire out the currency sold and receive in the currency purchased.

Capital calls and international repatriation of alternative investments require instruction from BAM. The process requires sign-offs moving through cash management, and large dollar amounts currently require authorization above the cash management group. This will change from a paper to an electronic authorization when State Street's eCFM wire system is in place. Russell indicated that only two to three authorizations a week come through from BAM.

C-2D.5: The monthly performance report from Russell provides data which could be used to benchmark its performance against industry averages. BAM intends to contract for an independent evaluation for this purpose. This could include an assessment of whether the volume of F/X trading could be managed more efficiently.

The monthly performance report provides trade details for every F/X transaction, the gross and net total trade volume and costs for each external manager, a summary breakdown of trading activity by currency type and a summary breakdown of the allocation of trades by counterparty. The information provided appears to meet the requirements of the contract. BAM staff indicate that, to the best of their knowledge, the Office of the Comptroller has not made requests to Russell for additional reporting or other information.

Although several BAM staff look at the monthly report it is not clear who is ultimately responsible for checking for compliance issues or other concerns. No one currently looks at FX activity and costs against any benchmark to confirm best execution. BAM expressed concern that it lacks sufficient junior level staff to conduct such reviews.

The monthly report does not include benchmarks against which Russell's performance is compared. Benchmarking F/X is more challenging than it is for publicly traded securities. A leading practice among large public pension funds is to retain an independent outside evaluator to compare historical time stamped transactions executed by the F/X firm to average market rates for the same currencies at the same times. (In a FAS 2012 survey, five of 15 large public pension funds indicated they had undertaken such a review.) In BAM's case, it might also be helpful also compare F/X costs at Russell to the F/X costs that System managers are incurring at State Street, if that data can be obtained.

BAM observed that over 7,400 F/X transactions were executed by Russell over a three-month period in 2015. BAM is interested in ways to evaluate how efficiently Russell trades are bundled relative to size, timing and netting. That could give BAM additional insight into whether the volume of trading is responsive to its current account structure or if it could be managed more effectively by Russell.

One potential option suggested by BAM is that international managers have access to a larger cash pool to reduce F/X volume, with potential compensating changes in their performance benchmarks. This topic goes beyond the scope of our review, however, it could be incorporated into an independent evaluation of F/X trading that is provided for in BAM's contract and that Russell is to pay for. BAM is working with Russell to have an evaluator in place before the January 1, 2016 fee renegotiation.

BAM may want the evaluator to address whether certain basic benchmark data could be incorporated into Russell's regular monthly performance report. BAM also plans to issue an RFP in early 2016 to select an evaluator before the Russell contract is up for extension in September, 2016.

C-2D.6: Annual meetings with NYCRS funds are provided for in the Russell contract and could be beneficial as the Systems review asset allocation and how foreign currency risk is managed.

The contract provides that Russell meet at least annually with NYCRS' representatives to review program results. Russell is to provide much of the same information contained in the monthly performance report. In addition, Russell is to offer comments about the F/X trading environment, regulatory issues and discussion describing actions taken to address problems or issues.

BAM indicates that there has not yet been an annual meeting with the Systems and the Systems have not requested them. However, BAM indicates that the pension funds' consultants are kept informed and that they would alert the Systems if there were concerns. Meetings with the Systems may be beneficial in conjunction with upcoming asset allocation studies, particularly if there is interest in exploring the way in which foreign currency risk is currently managed by BAM/NYCRS and its external investment managers.

Recommendations

R-2D.1: **Develop written policies and procedures that define and assign BAM's duties for F/X, including who is responsible for monitoring performance and compliance.**

R-2D.2: **Conduct an independent review of Russell's performance and fees before the January 1, 2016 fee renegotiation and before the initial term of the contract expires in September 2016.**

R-2D.3: **In the independent evaluation, address whether certain benchmarks could be incorporated into the regular monthly performance report Russell provides.**

R-2D.4: **Based on the outcome of the evaluation, encourage or require more external managers to move their F/X trading to Russell.**

R-2D.5: **As part of the next asset allocation study, solicit input from Russell in a review of how foreign currency risk is managed.**

2E. Effectiveness of Third-Party Securities Lending Services Provided to BAM

Description

Like most large public pension funds, the five NYCRS funds loan securities to generate additional income. Borrowers are required to pledge cash or approved securities as collateral for loaned securities. Income is generated from the investment of the pledged cash or, if securities are pledged, fees the borrowers pay for the use of the loaned securities.

Since November 2013, lending has been managed by Citibank (Citi) under a contract with BAM. Four of the five NYCRS funds have adopted the same guidelines for Citi's investment of cash collateral. Guidelines adopted by TRS are more conservative.

In addition to its role in contracting for lending services, BAM receives weekly and monthly reports from Citi regarding lending activity and performance. The Assistant Comptroller for Asset Management oversees the relationship with Citi.

Scope of Review

A. Monitoring, Reviewing and Performance of the Services
   i. Negotiation of rebates and/or lending fees with the borrowers
   ii. Collection process of cash, securities or other financial instruments from borrowers
   iii. Relationship with the Master Custodian
   iv. Performance measurement
   v. Interaction between the securities lending provider and BAM staff

Sources of Information

- BAM Self-Assessment Survey conducted by FAS
- System Self-Assessment Survey conducted by FAS
- Document Reviews
  - Lending guidelines for each System
  - Global Securities Lending Agreement with Citibank
  - Weekly lending summary from Citibank (July 6, 2015)
  - Monthly securities lending performance review from Citibank (April, 2015)
  - Citibank and State Street Procedures Manual
  - Comprehensive Annual Financial Reports for fiscal years 2010 through 2014

    - Process for approving eligible borrowers (email)
    - International Securities Lending Association "Securities Lending: A Guide for Policymakers"
- Interviews
    - Citibank (multiple)
    - State Street (multiple)
    - Assistant Comptroller for Asset Management
    - Director of Risk
- FAS leading practices knowledgebase
- Professional opinion of team

Summary

The objectives and methods under which public pension funds lend securities have undergone significant change in recent years in response to industry losses experienced in the 2008-09 credit market collapse, regulatory changes in the banking industry, market shifts and advances in trading technologies. While custodial banks have traditionally been the lending agent for most public pension funds, that practice is evolving to include other arrangements.

By unbundling its securities lending from its custodial services and contracting with Citibank, BAM has taken a leading practice approach. The program has been smoothly implemented and followed conservative guidelines established by the Systems; however, BAM oversight of the securities lending program on a day-to-day basis is limited due to staff departures.

BAM's share of securities lending revenue is determined by an unusually complex formula but is currently very competitive for a large public pension system. Overall securities lending revenue, however, is less than anticipated due to changes in the Systems' guidelines, market conditions, and yet-to-be-implemented expansions into several international markets.

Summary of Conclusions

C-2E.1: **As a leading practice, NYC's process for selecting a third party lending agent unbundled lending from custody services. The lending industry continues to undergo significant change and it would be prudent for BAM and the Systems to reassess the risk/reward tradeoffs of the current lending program before the current contract is extended in 2016**

C-2E-2: **The relationship between the lender and custodian is well defined and appears to be working effectively.**

C-2E.3: **Although the five Systems' have each adopted lending investment guidelines associated with the contract with Citi, there is no overall written policy which delineates the respective responsibilities which BAM and the Systems each have for managing securities lending.**

C-2E.4: **Due to the loss of a staff member who has not yet been replaced, there is insufficient ongoing oversight by BAM of the third party lender.**

C-2E.5: **To reduce risk, the cash collateral investment guidelines adopted by four of the five Systems are more conservative than they were with the previous lender, and the guidelines adopted by TRS even more so. The current guidelines may still be appropriate for the risk tolerance of the Systems, but have contributed to lower lending revenues than were forecast when Citi was awarded the contract.**

C-2E.6: **The contractual formula for determining NYC's share of lending revenue is unusually complex and perhaps subject to different interpretations.**

C-2E.7: **Annual revenue to the Systems is currently well below the $98 million projected by Citi when it was awarded the contract. Revenues have been affected by the Systems' adoption of more conservative collateral investment guidelines, slower expansion into emerging markets and other market factors.**

C- 2E.8: **Citi's monthly performance report would benefit by including benchmark comparisons and more insight as to how performance compares to expectations. BAM does not have a process for systematically reviewing these reports and addressing concerns.**

C-2E.9: **To enhance its lending revenues, a high percentage of BAM's loans are concentrated with one borrower under an exclusive arrangement to lend that borrower U.S. public equities.**

Summary of Recommendations

R-2E.1: **Conduct a thorough review of the status of the program before extending the current contract with Citi in 2016. This should include an assessment of the risk/reward balance of current guidelines in the current market.**

R-2E.2: **Adopt policies defining the respective responsibilities that BAM and the System Boards each have for securities lending.**

R-2E.3: **Designate a BAM staff member to ensure that compliance and performance reports are reviewed, and that issues are identified and addressed in a timely manner.**

R-2E.4: **Review the formula for determining BAM's share of lending revenues to assess whether it is achieving what BAM intended and whether its complexity may impede transparency.**

R-2E.5: **Modify the monthly performance report from Citi to include benchmarks against which Citi's performance is compared. Include additional insight as to how performance compares to expectations. Pursue gaining on-line access to such information.**

R-2E.6: **Reconfirm that the exclusive arrangement for lending U.S. public equities to the current organization that is the largest borrower is still providing the best value compared to other options.**

Leading Practices Expectations

In an organization like BAM we would expect to find:

- Policies which would establish:
  - Lending objectives and acceptable risk
  - Types and maximum market value of securities on loan at any one time
  - Collateral requirements
  - Performance standards
- Lending agents
  - Would be selected through a competitive process that considers alternative arrangements, including unbundling lending from custody
  - Would provide indemnification for non-return of borrowed security or agent negligence. The agent's capital would be adequate to support indemnification.
- Responsibilities of all parties involved in lending process (pension funds, BAM, custodian, external managers, lending agents) would be clearly defined
- Collateral
  - Minimum values required would be defined by contract
  - Cash collateral investment guidelines would be appropriate for risk tolerance of the pension fund
- Transparency
  - The basis for revenue sharing between the lending agent and client would be clearly defined by contract
  - The pension fund would have visibility into the reinvestment risk of securities lending agent
  - User-friendly reports would be provided which monitor collateralization, market values, rebates, fails, security location, and undue concentration with any single borrower.
- Performance Measurement and Monitoring
  - Benchmarking measures would identify whether risk-adjusted revenue meets expectations
  - The pension fund would regularly review reports for performance/compliance
  - The pension fund would examine at least annually the tradeoff between the level of lending risk and expected levels of income in current market environment
  - An independent party would periodically evaluate lending strategy and results

SPECIFIC AREAS OF SCOPE

A. Monitoring, Reviewing and Performance of the Services

Conclusions and Related Findings

C- 2E.1: As a leading practice, NYC's process for selecting a third party lending agent unbundled lending from custody services. The lending industry continues to undergo significant change and it would be prudent for BAM and the Systems to reassess the risk/reward tradeoffs of the current lending program before the current contract is extended in 2016.

Large public pension funds use a number of different arrangements to lend securities. Like the NYCRS funds, many peers have adopted more conservative practices, increased oversight and placed additional emphasis on risk management since the financial market crisis of 2008.

Traditionally, public pension funds used their custodial banks to lend securities at a cost bundled with other custody services. In recent years, more pension funds have unbundled their contract for securities lending from the contract for other custody services to provide greater transparency. Unbundling also makes it easier to change lending service providers without affecting custody services. In 2012 – when BAM last rebid securities lending – a FAS survey of 15 large US public pension funds found that eight unbundled lending from custody, and nine would likely request unbundled bids for custody and lending in their next custody contract.

In 2012, NYC split the bidding for custody services from the bidding for securities lending and foreign currency exchange (see section 2D). Citi was awarded the lending contract because of the greater income BAM expects and stronger indemnifications than those offered by other bidders. The contract is for a three-year term, expiring in November, 2016, with provision for two three-year extensions. Citi may terminate the contract with nine months' notice. BAM may terminate the contract at any time, which is also a leading practice.

The future of the securities lending market is likely to be affected by a number of regulatory changes that are in process to reduce the risk of systemic failure in global banking. They include provisions to reduce counterparty credit risk and increase capital ratios and liquidity. If banks are less willing to lend due to higher capital requirements, that may decrease the amount that can be lent, increase the variability of lending and increase the required return to make it worthwhile. It is likely that banks will require additional compensation to engage in lending, which will decrease return realized from the program in the long run. That expected return might not justify the risk of capital loss even under conservative investment guidelines.

Some anticipate that these forces may result in a contraction of the traditional lending market and a greater role for auctions and direct peer-to-peer lending. For example, CalPERS internally manages an on-line lending auction with the option of managing cash collateral internally or externally and the objective of generating income primarily from fees. Such options would require greater involvement of BAM staff and supporting infrastructure to review borrowers and to execute and monitor loans.

BAM has expressed interest in improving its overall management of cash, including the portion of securities lending cash collateral now invested by Citi in several money market funds. Again, however, for BAM to take on that role itself would require that BAM allocate more staff and other resources to lending than it is currently able to do for basic oversight of the current program.

Industry and market changes may over time make the current lending program less attractive for BAM and the Systems. Before the contract with Citi is extended in 2016, an evaluation by BAM and System consultants should review the current status of the program and BAM should determine where securities lending ranks among its overall priorities for additional resources.

C- 2E.2: The relationship between the lender and custodian is well defined and appears to be working effectively.

Citi's primary contractual responsibilities are fairly typical for lending agents and include:

1. Selecting borrowers from an approved list based on a thorough credit assessment
2. Negotiating rebates and lending fees with borrowers
3. Collecting collateral from borrowers and ensuring that sufficient collateral is maintained
4. Investing cash collateral pursuant to investment guidelines adopted by NYCRS
5. Providing instructions to the custodian relating to transactions entered into by Citi
6. Daily marking to market of the value of loaned securities and collateral
7. Collecting interest, dividends or other payments NYCRS would be entitled to had the securities not been loaned
8. Splitting net revenue from lending with NYCRS according to a contractual formula
9. Indemnifying NYCRS if the borrowers fail to return the securities, if the collateral is inadequate, or if the borrowers fail to pay the Systems for income distributions by the securities' issuers while the securities are on loan

A detailed lending procedures document that BAM agreed to in 2013 governs the responsibilities of State Street and Citi and the processes they are to follow. On a daily basis, Citi takes an electronic feed from State Street to determine what securities are available to loan. Citi informs State Street of loan activity and submits instructions electronically.

The contract provides that Citi is to collect the required amount of collateral concurrently with the delivery of loaned securities to the borrower. The collateral is to be delivered to State Street except that collateral for overnight repurchase agreements may be held by Citi or a third party custodian. If cash collateral is used, the cash gets invested in a Citi account. Citi mostly uses triparty repo arrangements and the collateral is with a large bank like JP Morgan.

Under the agreement, BAM is to communicate all sales to Citi on trade date. Citi determines whether a loaned security must be recalled to satisfy the sell obligations, and provides instructions to State Street.

State Street is to provide Citi with notifications of the income amount due from the borrower and, on a weekly basis, State Street is to report (to Citi and BAM) past due income from securities on loan.

State Street indicates that there is good two-way communication with Citi and that Citi receives timely information. BAM raised no significant issues about State Street's role in lending, but noted that State Street could not initially accommodate additional lending requirements for Taiwan.

C-2E.3: Although the five Systems' have each adopted lending investment guidelines associated with the contract with Citi, there is no overall written policy which delineates the respective responsibilities which BAM and the Systems each have for managing securities lending.

In addition to its role in contracting for lending services, BAM periodically discusses strategic opportunities and operational issues with Citi. A monthly report from Citi to BAM summarizes lending activity and performance. Every loan and related earnings are reported by Citi to BAM weekly to facilitate a review of holdings and reconciliation of Citi's reported earnings with the custodian's records.

Objectives and investment guidelines are in the agreements the five Systems have with Citi, to which BAM is a party. BAM's role in lending is not mentioned in these agreements, whose primary focus is the permissible types of investments in which cash collateral may be invested. This is often considered the biggest area of lending risk, particularly in light of significant losses in such investments which many pension funds experienced in 2008.

It is common practice for pension systems to have lending policies to guide these agreements with their lending agents and to define the responsibilities of the board and staff. Although such policies vary considerably in scope and level of detail, they often include:

- Statutory or other legal authority under which the lending program operates
- Authorization for the fund to lend
- Responsibilities of the System board, board committees and staff
- Types and maximum amount of securities which may be loaned
- Types and frequency of reporting to Systems boards
- Performance objectives and how performance is to be benchmarked
- Provision for an annual assessment of the risk/return profile of the lending program in light of market conditions

As the contract administrator, and a key party in the procurement and management of lending agents, it may be helpful to BAM and to the Systems to have the guidance of such policies apart from what is expressed in the agreements with current lending agents. Such policies could include an explicit description of BAM's responsibilities. An example of a policy adopted by another large public pension fund is provided as Appendix A-2E.1.

C-2E.4: Due to the loss of a staff member who has not yet been replaced, there is insufficient ongoing oversight by BAM of the third party lender.

Leading practice would be for BAM to monitor lending activity on a daily basis for downgrades in ratings, guideline compliance, collateralization levels and other matters. A daily compliance report is available through Citi's information portal, but with the loss of a BAM staff member who has not yet been replaced, no one is conducting a daily compliance review and there is no regular reconciliation by BAM of Citi's reports to the custodian's records.

Citi contacts the Assistant Comptroller for Asset Management if Citi identifies a compliance violation. A leading practice would be for that contact to be made with someone at a lower level in the organization. BAM should also independently review the program activity reported by Citi for other compliance issues that Citi may have been missed.

BAM receives a monthly performance report from Citi describing loans made and income earned. With the loss of a staff member, there is now no one below the Assistant Comptroller who is accountable for regularly reviewing this report. The highest priority for BAM's lending program should be to assign a staff member day-to-day monitoring responsibilities. At several other public pension funds FAS has reviewed, this is done by a fixed income analyst as one of several responsibilities.

C-2E.5: To reduce risk, the cash collateral investment guidelines adopted by four of the five Systems are more conservative than they were with the previous lender, and the guidelines adopted by TRS even more so. The current guidelines may still be appropriate for the risk tolerance of the Systems, but have contributed to lower lending revenues than were forecast when Citi was awarded the contract.

The cash collateral for Systems' loans is pooled for investment and not commingled with that of other pension funds. This is to better ensure that the collateral is invested according to the particular guidelines of the five Systems and provide greater transparency.

Consultants for each of the five Systems worked with them to adopt new guidelines at the time the program was moved to Citi. To reduce risk, the new guidelines are more conservative than the previous lending agent (BNYM) had

In a 2012 FAS survey of 15 large public pension funds, 53 percent reported that they had adopted more conservative securities lending objectives, and 40 percent had adopted more conservative cash collateral policies since 2008. A number of other public pension funds peers have moved toward more conservative 2A-7 type investment guidelines for money market funds. The guidelines adopted by four of the five NYCRS funds are more conservative than that, and the TRS guidelines are more conservative still (basically limiting investments to government money market securities, according to Citi). Citi estimates that as a percentage of assets, TRS' lending revenues are about half of the other Systems'.

The $98 million in annual revenues Citi projected when it was awarded the contract assumed continuation of BNYM guidelines which is cited by Citi as a major reason that actual annualized revenues have been closer to $70 million, as described below. The current guidelines may still be appropriate for the risk tolerance of the Systems, but should be examined periodically by Citi, BAM and the Systems to compare to the risk/return tradeoff of other guideline choices.

C-2E.6: The contractual formula for determining NYC's share of lending revenue is unusually complex and perhaps subject to different interpretations.

In choosing Citi, BAM's objective was to increase lending revenue, improve indemnification and to tie the sharing of revenue to Citi's lending performance, with a minimum revenue floor. The contract provides that beginning with the year that ended March 30, 2015, revenue is being shared at different rates in relation to a break point that is based on the lender's "good faith "revenue estimates for the next 12 months.

Revenue is currently split on a 93.5%/6.5% basis between the Systems and Citi, which is greater than the 90%/10% split the Systems had with their former lender, BNYM. This split is competitive with other bids which BAM received when Citi was selected and is competitive with the splits received by other public funds at which FAS has conducted reviews.

Citi considers the current formula to be unnecessarily complex and would prefer a simpler approach. It is more common for lender and borrower to agree on a split which is fixed throughout the life of the contract. In some cases, the split becomes more favorable to the lender as total lending revenues increases above certain thresholds. Although it is relatively new, Citi and BAM may want to revisit the current formula to assess whether it is achieving what BAM intended and whether its complexity may impede transparency.

C-2E.7: Annual revenue to the Systems is currently well below the $98 million projected by Citi when it was awarded the contract. Revenues have been affected by the Systems' adoption of more conservative collateral investment guidelines, slower expansion into emerging markets and other market factors.

Lending revenues are affected by the countries in which the program participates, changing market conditions, the types and amounts of securities that can be loaned, and collateral investment guidelines.

Net income to the Systems has varied over the last five years due to market conditions and other factors, but has averaged a little over $60 million per year. The average would have been in the $70 million range but the program was unwound to cash in fiscal year 2014 when it was transferred from

BNYM. At the end of April, 2015 Citi had $12.6 billion on loan for NYCRS, which represented 11.7% of net assets.

Net Securities Lending Income *	
Fiscal Year	Amount (in Millions)
2010	$58.5**
2011	65.7
2012	78.2
2013	86.9
2014	24.4***

*Source: City of New York Comprehensive Annual Financial Reports for fiscal years 2010 through 2014

**Excludes $45.9 million in unrealized income in fair value of collateral

***Reflects the unwinding of lending by the previous lending agent for the transfer to the current lending agent

The net income divided between Citi and the Systems is driven by earnings from investment of cash collateral plus other fees paid by borrowers adjusted for rebates. For securities that are widely available to lend, such as those in the S&P 500 Index, the lender may rebate some of the income from the reinvested collateral back to the borrower.

In recent years, the higher demand for certain types of securities has led to "negative rebates" which results in additional revenue to the lender rather than payment to the borrower. Accrued rebates are included in a weekly list Citi provides BAM of each security on loan. Citi considers its interests to be aligned with the Systems because rebates and fees affect Citi's net share of the overall revenue split.

BAM anticipated that Citi's lending would increase annual revenue to the Systems to about $98.5 million. Monthly earnings since inception of Citi's management of the program have been increasing gradually as the program ramped up, but for the 12 months ending March 31, 2015 were $71.5 million, which is above the minimum floor in the contract. Citi cites a number of factors which have limited total earnings, including the Systems' conservative collateral investment guidelines; limited participation in emerging markets; and, narrowing spreads in the market.

The lending of securities issued in emerging countries such as Taiwan and Malaysia is a potential way to increase revenue and it is one of the strategies Citi hoped to include when it took over the program. However, emerging markets present additional risk (such as lack of default protection in some countries) and additional local documentation the lender (BAM) must provide. BAM is currently lending South Korean securities because Citi was able to complete documentation on BAM's behalf. Although

BAM would like Citi to use the same approach in countries like Taiwan, Citi indicates that Taiwan and some other countries do not permit it. BAM has been reluctant to take on the documentation workload itself.

C-2E.8: Citi's monthly performance report would benefit by including benchmark comparisons and more insight as to how performance compares to expectations. BAM does not have a process for systematically reviewing these reports and addressing concerns.

BAM receives a weekly report from Citi listing every security on loan, type, value, credit rating maturity date, required collateral level and other information. The monthly report from Citi shows net Systems revenues for the month and since inception, utilization rates for securities available to loan, total amount on loan to each borrower, collateral investment by investment type, the top 20 earning investments and market commentary. The monthly report content from Citi compares favorably to comparable reports FAS has reviewed at other funds.

A helpful addition to the report would be to include benchmarks comparing the Systems' risk adjusted lending results against the broader lending market. There are several firms which gather trade and inventory data from a large number of securities lending participants, so that performance and risk across can be benchmarked. Citi uses such data to monitor its own performance.

Citi is looking into providing certain benchmark data to its clients through an on-line portal. Citi estimates it is about two months from clients being able to access this information. When it becomes available, BAM should assign responsibility internally for reviewing it.

C-2E.9: To enhance its lending revenues, a high percentage of BAM's loans are concentrated with one borrower under an exclusive arrangement to lend that borrower U.S. public equities.

Most of the earnings for the Systems are driven by an exclusive arrangement to lend U.S. equities to Morgan Stanley. These are mostly passive investments in the Russell 3000 index which are readily available for loan in the marketplace. Over 40% of all loan volume is concentrated with this one borrower. The arrangement with Morgan Stanley carried over from when BNYM administered the program. Citi believes this exclusive agreement is providing good value, but agrees that it would be a good idea to revisit the arrangement, to ensure that it is still providing the best value compared to other options, such as diversifying the group of borrowers.

Recommendations

R-2E.1: Conduct a thorough review of the status of the program before extending the current contract with Citi in 2016. This should include an assessment of the risk/reward balance of current guidelines in the current market.

R-2E.2: Adopt policies defining the respective responsibilities that BAM and the System Boards each have for securities lending.

R-2E.3: Designate a BAM staff member to ensure that compliance and performance reports are reviewed, and that issues are identified and addressed in a timely manner.

R-2E.4: Review the formula for determining BAM's share of lending revenues to assess whether it is achieving what BAM intended and whether its complexity may impede transparency.

R-2E.5: Modify the monthly performance report from Citi to include benchmarks against which Citi's performance is compared. Include additional insight as to how performance compares to expectations. Pursue gaining on-line access to Citi's benchmark information.

R-2E.6: Reconfirm that the exclusive arrangement for lending U.S. public equities to the current organization that is the largest borrower is still providing the best value compared to other options.

2F. Consulting Services provided to BAM

Description

As noted in Section 1A/2B, BAM makes extensive use of both general investment consultants and specialty asset class consultants. As with many aspects of the investment process, the unique structure of New York City's pension system results in a unique set of consultants. Each of the five systems (and related funds such as the variable supplement funds) has a different general investment consultant. The general investment consultants also serve as asset class consultants for the public equity and public fixed income asset classes, assisting in manager searches and manager monitoring in those asset classes.

BAM also employs asset class consultants for real estate, private equity, infrastructure, and hedge funds. There is no specific asset class consultant for opportunistic fixed income. In theory all the general consultants assist BAM on this asset class; in reality Rocaton, the TRS consultant, has taken the lead and Callan also provides significant support.

Scope of Review

A. Review and assess level and quality of investment consulting services BAM staff receives
B. Assessment of BAM's use of the consultant's capabilities
C. Comparison of the fee structure for each consultant versus industry standards for similar deliverables

Sources of Information

- BAM Self-Assessment Survey conducted by FAS
- System Self-Assessment Survey conducted by FAS
- Document Reviews, including all available consultant contracts35 and a sample of the consultant reports presented at various board meetings.
- Interviews with various ISD staff, trustees, general and asset class consultants, external asset managers
- FAS leading practices knowledgebase
- CEM benchmarking study
- Professional opinion of team

[35] The Rocaton and Buck contracts were unavailable for review.

Summary

Virtually all public pension funds utilize investment consultants to assist investment staff in developing asset allocation strategies and selecting and monitoring external managers. They also provide asset class expertise and an independent perspective. Due to staffing limitations at most public funds, many also use their consultants as an extension of their investment staff.

BAM and the Systems similarly utilize investment consultants extensively and generally have engaged top firms. BAM is among the funds which are reliant on consultants for filling in for inadequate internal resources. The consultants are an integral part of the investment planning and manager selection and monitoring processes at BAM. Nearly all operational due diligence is conducted by investment consultants. Having said that, the overall process is adequate as described in Section 1A.

What is very unique about BAM's use of consultants is the sheer number of different consultant used. The large number of general consultants is due to each of the five Systems having their own general consultant. This is driven by the unique governance structure. However, it is also atypical to have two real estate consultants and two private equity consultants.

While BAM's overall use of consultants results in generally high quality services, there are opportunities to improve the utilization of those services.

Summary of Conclusions

C-2F.1: **BAM generally uses industry leading consultants who have a primary focus on advising fiduciaries of pension funds and other investors. General investment consultants (GICs) tend to serve for long tenures. Many firms have their most senior consultants serve BAM.**

C-2F.2: **While BAM is effective in using consultants as extensions of staff, that often means the consultants are focused on lower value-added activities.**

C-2F.3: **The level of services provided by the consultants is at prevailing practice levels or better but there is room for improvement.**

C-2F.4: **Communication with the consultants can and should be improved.**

C-2F.5: **Fees are reasonable both in terms of absolute levels and structure. However, BAM has difficulty tracking fees and there are some inconsistencies in the contracts with the various consultants.**

Summary of Recommendations

R-2F.1: **BAM should endeavor to reduce the amount of time the consultants spend on manager-specific issues, and increase the focus on high value added issues, such as asset allocation, strategy, analysis of results versus annual strategic plans, and board education.**

R-2F.2: **BAM should work with the GICs to create real strategic plans for the public asset classes.**

R-2F.3: **BAM should explore what additional resources (quantitative tools, research reports, etc.) are available from each consultant.**

R-2F.4: **The Executive Director for Pensions should survey the five GICs to ask how they would suggest streamlining investment meeting agendas.**

R-2F.5: **The CIO should schedule short (20-30 minute) calls with each consultant quarterly to discuss agenda items and to brief consultants on medium and long-term projects.**

R-2F.6: **Fixed income should follow the public equity model and schedule monthly calls with the GICs.**

R-2F.7: **All consultant contracts should include most favored nation clauses.**

R-2F.8: **BAM should obtain and keep copies of all consultant contracts, whether let by BAM or the systems.**

R-2F.9: **The OFI staff should analyze under what conditions (assets, managers, new securities, etc.) it would require a specialty manager and identify likely candidates so that, if and when that time comes, it has ready candidates.**

SPECIFIC AREAS OF SCOPE

A. Review and assess level and quality of investment consulting services BAM staff receives

Leading Practice Expectations

At a plan sponsor of the size and prominence of BAM, we would expect the consultants to be industry leaders, experienced in public pension funds of like size and complexity. The consultants should provide expertise across asset classes, independent investment insights, independent manager research, accessibility, tools, and be able to serve both as an extension of staff for BAM and as an independent assurance mechanism for the trustees.

Conclusions and Related Findings

C-2F.1: BAM generally uses industry leading consultants who have a primary focus on advising fiduciaries of pension funds and other investors. General investment consultants (GICs) tend to serve for long tenures. Many firms have their most senior consultants serve BAM.

Many of the General Investment Consultants (GICs) have long-standing relationships with BAM and the System(s). Indeed, with almost ten years of service, NEPC is the shortest tenured GIC.

Another noteworthy fact is that many of the individuals at the firms with responsibility for the BAM relationship are amongst the most senior, including two CEOs, one COO, and five founders. This level of staffing indicates that the consultants treat BAM and the systems with respect and staff accordingly.

The specific consultants are:

General Investment Consultants (GICs)

NCYERS uses Callan Associates. Callan is one of the earliest independent investment shops, having been founded in 1973. Today it advises 375 plan sponsors with a total of $2 trillion in assets under management. The key person on the account is a long-time Callan consultant.

TRS uses Rocaton Associates. Rocaton is a slightly unusual choice for a public pension fund, as it generally advises private sector plan sponsors. However, there is a long history between TRS and Rocaton. Rocaton was a “spin out” of Barra Rogers Casey in 2002. Barra Rogers Casey was also one of the earliest independent investment shops and was TRS’ consultant. Following the spin out, TRS transitioned to Rocaton. The CEO of Rocaton, who is one of its founders, is the long-time lead consultant to TRS. Her tenure dates back to Barra Rogers Casey. While Rocaton now specializes in private sector clients, a number of its senior partners, including the CEO, have extensive public sector experience. Rocaton currently advises on some $440 billion in assets. The fact that the CEO personally advises TRS suggests the value Rocaton places on the relationship.

The Police Fund uses Strategic Investment Solutions (SIS). Like Rocaton, SIS is a spin-out from one of the original independent shops. In this case, a number of consultants left Callan in 2004 and soon gained a reputation as a "pure" investment consultant with no side businesses. Today, SIS advises 25 clients with more than $410 billion in assets under management. As with Rocaton, the fact that one of the firm's founders continues to serve as a key person on the Police account is a positive indicator of the level of attention SIS gives this assignment.

The Fire Fund uses New England Pension Consultants (NEPC). NEPC is a large consultant known for both a diversified client base and expertise in alternative asset classes. Nonetheless, public funds do account for the bulk of its assets under advisement (more than $500 billion of the $850 billion in funds under advisement) for its more than 300 clients. The key person on the account is a partner at NEPC who specializes in public fund clients and has plan sponsor experience from his tenure at Massachusetts Pension Reserves Investment Management (Mass PRIM).

BERS uses Buck Consultants. Buck is a little different from the other four general investment consultants in that it is a subsidiary of Xerox. Also, its investment consulting practice is housed within a broader human resources consulting business. Its clients also tend to be smaller. With 400 clients and only $62 billion in assets under advisement, the average client has assets under management of about $155 million. It appears that BERS is one of the largest clients of Buck, in terms of AUM. The key personnel include the National Leader for Investment Consulting at Buck.

Specialty asset class consultants

Aksia (hedge fund) is one of the two leading hedge fund specialty consulting firms, advising on about $60 billion in hedge fund and private market investments. It has a reputation for robust due diligence. Aksia's due diligence efforts gained prominence when it was revealed that Aksia had correctly warned its clients against investing in the Bernard Madoff Ponzi scheme as a result of its operational due diligence review. The CEO of Aksia, one of the firm's co-founders, is the key person on the BAM account. BAM is the only Aksia client he services personally.

The Townsend Group (real estate) is one of the best known real estate and real assets specialist consultants and has been serving public pension plans since 1986. It advises on about $170 billion in assets for nearly 50 clients (and directly manages more than $12 billion in assets).

Courtland Partners (real estate) advises on more than $70 billion in real assets. As a differentiating factor compared to Townsend, it prides itself on being a stand-alone advisor, whose interests are aligned with its clients and with a special expertise in global real estate. A founder and owner of the firm, who is also Courtland's COO, is the lead consultant for BAM.

StepStone (private equity and infrastructure) is a well-known private markets consultant. It advises on about $50 billion in private market investments and directly manages about $12 billion. StepStone's founder co-leads the BAM account.

Hamilton Lane (private equity) is one of the largest private markets consultants, advising on nearly $200 billion and directly managing about $35 billion in discretionary assets.

As these brief descriptions demonstrate, BAM and the systems boast a roster of well-known, industry-leading investment consultants. In many cases, the industry leaders who founded the firms and/or now lead them are the day-to-day consultants to BAM. The one exception might be Buck Consultants, the general investment consultant to BERS. Buck is the only consultant housed in a broader company not focused on investment consultants, and its clients tend to be smaller. At least one member of BAM also said that Buck was the least responsive of the GICs.

That said, there was satisfaction overall from both BAM and the trustees in the services of the consultants, a conclusion consistent with the long tenure of the GICs. There was, however, a desire to get even more service from the consultants by some BAM staff. Other BAM staff noted that there was no consultant for OFI. At present, services provided by the GICs, particularly Rocaton and Callan, appears sufficient, although this may change as the OFI program grows.

C-2F.2: While BAM is effective in using consultants as extensions of staff, that often means the consultants are focused on lower value-added activities.

As noted in section 1A/2B, the GICs are integrated into the managerial sourcing, due diligence, selection and monitoring processes. Indeed, the "expedited" public asset class manager selection process has codified the GICs into the purchasing process. This is perhaps the starkest example of how integrated the consultants are into BAM's processes.

The services provided to BAM and the systems by the consultants include:

- Manager recommendations to start the expedited process (public asset classes) (see Section 1A/2B)
- Investment due diligence (see Section 1A/2B)
- Operational due diligence (see Section 1A/2B)
- Portfolio construction (see Section 1A/2B)
- Asset allocation (see Section 1A/2B)
- Manager monitoring (see Section 1A/2B)
- Performance reporting
- Risk reporting
- Performance and risk analyses on request
- Board education
- Assisting with manager structure
- Site visits to managers on request
- Annual update of long term capital market outlook
- Assistance with annual strategic plans (private asset classes)

- Pacing plans (private asset classes)
- Pipeline calls (what partnerships are coming to market) (private asset classes)
- Assisting with capital calls and distributions (private asset classes)
- Sector research (real estate)
- Assisting with fee negotiations (real estate)
- Monthly flash reports of holdings and cash flows (private asset classes)
- Legal and commercial reviews of proposed amendments to partnership agreements (private asset classes)
- Ad hoc projects. These can run the gamut of possibilities, from an analysis of manager fees to education about market opportunities to working to create the OFI program. portfolio)

While this is a long list of services, there is a broad consensus amongst the consultants that too much time is spent on manager specific issues, and not enough on big picture issues like asset allocation, strategic planning and board education. As one manager noted, "Manager search work is sporadic, but in total probably is the single largest time use" followed by routine manager monitoring, leaving only about 15-20% of the consultant's time for strategic planning and education. Another agreed there was too much focus on the routine, and that there should be more focus on the "Mack truck" issues that could derail the investment programs. Another asked for more attention to asset allocation. Another would like to see a "real" annual strategic plan for the public equity classes. The chorus of agreement around the need for getting out of the weeds and placing more focus on big picture issues – from both GICs and specialty consultants – was remarkably consistent.

B. Assessment of BAM's use of the consultant's capabilities

Leading Practice Expectations

Consultants should adequately perform the tasks and duties assigned by BAM and/or the systems in a timely fashion. Consultants should contribute to structural reform of the investment program(s) which add value. There should be a free flow of information between BAM and the consultants so that each knows the needs and resources of the other, and so that tasks are efficiently assigned.

C-2F.3: The level of services provided by the consultants is at prevailing practice levels or better but there is room for improvement.

As evidenced by the integration of the consultants into a variety of BAM's processes, the list of services provided by the consultants, and the general satisfaction level with the consultants both at BAM and with the Trustees, BAM receives good service from the consultants. Such service is at least at prevailing practice levels. Indeed, given the recent successful initiation of the OFI program, at least partially as a result of leveraging a GIC's ideas, it might even be a level above that.

However, the size of the assets, the sophistication of its asset class heads, and the complexity of the investment programs it oversees means that BAM's needs are great and there is always the opportunity to improve.

For example, multiple consultants volunteered that, despite BAM's obvious lack of quantitative risk tools, it had not really examined those the consultant had, or used the consultants to help understand which of the available tools in the marketplace could be most helpful to BAM. It should be noted that one asset class consultant said it did provide risk measurement tools, but only to the staff in its asset class. Another said that the asset class consultants, who are used to trying to analyze complex and partially opaque situations, can be a useful resource around any issue which doesn't neatly fit into an existing asset class, such as such as multi-class strategies, strategic partnerships, benchmarking of non-public asset classes, etc.

Interestingly, a number of the consultants mentioned that better coordination with them might improve the flow of the system meetings, by curtailing unnecessary or redundant presentations.

C-2F.4: Communication with the consultants can and should be improved.

To take advantage of consultant resources, BAM has to know what they are. For consultants to maximize their utility to BAM, they have to know what its needs are. For that reason, leading practice is for consultants to have routine, periodic communication with the plan sponsor. Routine communication enables efficient allocation of tasks, sharing of information about markets, managers, regulatory changes and other factors, as well as "blue sky" discussions about desired but amorphous investment changes, best practices, resource needs, etc.

The good news is that communication with the specialty consultants is generally robust. Many have regularly scheduled calls with the relevant asset class staff to discuss market opportunities and challenges. Unfortunately, the same cannot be said of the communication between BAM and the GICs.

One GIC complained that it did not know what was on the system's agenda until it was sent to the trustees, leaving the consultant to scramble to anticipate trustees' questions and research the answers. None of the GICs have regularly scheduled calls with the CIO, though there have been communications related to board meetings and the current asset allocation process. Such communication could allow consultants to understand longer term plans for BAM while they are in development, so that they can assist where they are qualified.

More generally, as is the case with many of the processes at BAM, communication with consultants seems to be person-dependent. One consultant noted that it recently began holding quarterly calls with public equity, only because the senior investment officer for non-US equities suggested it. Another GIC noted that communication with fixed income was more "fragmented" since the retirement of the long-time asset class head.

C. Comparison of the fee structure for each consultant versus industry standards for similar deliverables

Leading Practice Expectations

Absolute levels of fees should be reasonable for the services provided. The structure of the fees should align with the needs of BAM and the systems. BAM should be able to easily track fees.

C-2F.5: Fees are reasonable both in terms of absolute levels and structure. However, BAM has difficulty tracking fees and there are some inconsistencies in the contracts with the various consultants.

Due to the five Systems each having its own GIC, BAM works with more investment consultants than is typical for a public fund (see table below). Although the large number of consultants is unusual, it is not unprecedented. In addition, the use of two real estate consultants is also highly unusual. In fact, the real estate managers we interviewed stated BAM is their only client where they work with two separate consulting firms. Similarly, it is not typical to have two private equity consultants.

How many of each type of consultant did your fund use from January 1, 2011 through December 31, 2011 (if applicable)? If an individual consultant provides services in multiple categories, please include that consultant in the category where the primary duties align. (From a peer group of 12 large U.S. public funds)

	Average	Median	Min	Max	NYCRS
General Consultant	0.8	1	0	2	5
Asset Allocation	0.4	0	0	1	0
Performance Measurement	0.5	0	0	3	0
Manager Selection and Review	0.7	0	0	3	0
Real Estate	0.9	1	0	1	2
Private Equity	0.8	1	0	1	2
Other Assets	0.4	0	0	2	1
Audit	0.7	0.5	0	2	0
Fiduciary	0.2	0	0	1	0
Compensation	0.3	0	0	1	0
Other	0.5	0	0	2	0
Total	6.3	5.5	1	12	10

Source: 2012 FAS benchmark study

As per the CEM study, BAM paid approximately a 0.7 bps equivalent for consulting services for the year ended December 2014. That is about average (51st percentile) for all US comparators, including many smaller funds, but high (86th percentile) compared to its peer group of large funds, about triple the median level of spending on consulting.

This finding is consistent with FAS benchmarks (see table below) which show BAM spending more on consultants in the categories with multiple consultants (General Consultant, Real Estate, and Private Equity), and in total spending twice as much as the next largest in a peer group of nine large funds.

How much did you spend, in US$ thousands, on each type of consultant your fund used from January 1, 2011 through December 31, 2011 (if applicable)? (From a peer group of 9 large U.S. public funds)						
	Number of Responses	Average	Median	Min	Max	NYCRS
General Consultant	6	$490	$551.5	$27.5	$695	$4,159
Asset Allocation	2	$408	$407.5	$165	$650	0
Performance Measurement	2	$79	$79	$60	$98	0
Manager Selection and Review	2	$245	$245	$225	$265	0
Real Estate	8	$297	$265	$175	$570	$1,700
Private Equity	7	$1,294	$1,200	$150	$2,275	$3,750
Other Assets	5	$610	$550	$260	$1,049	$1,102
Audit	3	$125	$110	$83.6	$180	0
Fiduciary	1	$15	$15	$15	$15	0
Compensation	2	$19	$19	$3	$35	0
Other	3	$257	$225	$45	$500	0
Total		$2,231	$1,905	$585	$5,147	$10,710

Source: 2012 FAS benchmark study

Both the CEM and the FAS peer groups consist of other large plan sponsors. However, none of them have the governance structure of BAM, which requires five different general consultants. In consideration of this unique requirement, total spending for consultants appears reasonable.

A review of the available contracts reveals no unusual fee structures.[36] In general, the contracts feature some type of retainer payment (often called a "fixed maximum fee" or FMF). A few other payment structures were noted, including the ability to recover various out-of-pocket due diligence costs initiated at the Comptroller's request; extra fees for doing a full asset liability study; the ability of a consultant to hire a specialist at extra cost, but only with the authorization of the Comptroller. In addition, some contracts featured the ability of the Comptroller to assign special projects to the consultant at a pre-arranged hourly billing rate. All contracts specifically include language in which the consultant acknowledges fiduciary responsibility, a leading practice.

However, the contract review also revealed some inconsistencies. The GIC contracts with Callan, SIS and NEPC included representations by the consultants of a most favored nation (MFN) clause with regard to

[36] The Rocaton and Buck contracts were not available for review.

the FMF, but there is no MFN in the specialty asset consultant contracts. Also, the most recent asset class contract breaks down the FMF to attribute it to the individual systems.

Most importantly, we note that the Rocaton and Buck contracts were unable to be inspected. They were contracted directly by TRS and BERS respectively, and the Comptroller's Office has no copy of them. There was no explanation for why those two contracts were treated differently than the others. Absent a copy of the contracts, BAM has limited ability to know what services are contractually obligated or compare fees against contractual rates.

Recommendations

R-2F.1: **BAM should endeavor to reduce the amount of time the consultants spend on manager-specific issues, and increase the focus on high value added issues, such as asset allocation, strategy, analysis of results versus annual strategic plans, and board education.**

R-2F.2: **BAM should work with the GICs to create real strategic plans for the public asset classes.**

R-2F.3: **BAM should explore what additional resources (quantitative tools, research reports, etc.) are available from each consultant.**

R-2F.4: **The Executive Director for Pensions should survey the five GICs to ask how they would suggest streamlining investment meeting agendas.**

R-2F.5: **The CIO should schedule short (20-30 minute) calls with each consultant quarterly to discuss agenda items and to brief consultants on medium and long-term projects.**

R-2F.6: **Fixed income should follow the public equity model and schedule monthly calls with the GICs.**

R-2F.7: **All consultant contracts should include most favored nation clauses.**

R-2F.8: **BAM should obtain and keep copies of all consultant contracts, whether let by BAM or the systems.**

R-2F.9: **The OFI staff should analyze under what conditions (assets, managers, new securities, etc.) it would require a specialty manager and identify likely candidates so that, if and when that time comes, it has ready candidates.**

2G. Transition Management Performance

Description

A fund manager seeking to restructure a portfolio or asset class will often seek the assistance of an outside firm to perform the transition. Transition managers help in managing exposures and optimizing costs. Transition managers usually are directly connected to multiple markets or liquidity centers, can execute orders using algorithmic trading, and seek to minimize market impact. Since they may be transitioning several different portfolios they can cross orders, which reduce commission and exchange fees. Additionally, they may have specialist traders who handle illiquid securities.

Over the past two years, a number of major firms offering transition management services have exited the business, among them BNY Mellon, Credit Suisse Group, J.P. Morgan Chase and ConvergEx Group; however, a significant number of firms remain which maintains market competitiveness.

BAM in recent years has made portfolio transitions with the assistance of external managers when managers have been terminated and the legacy portfolio has been transitioned to one or more new managers. During FY 2015 BAM utilized transition managers seven times.

Some large funds utilize transition managers to assist in rebalancing; BAM has not used transition managers to support its rebalancing activities.

Scope of Review

A. Selection process of transition managers
B. Transition managers' interaction with the Master Custodian and the target and legacy portfolio managers
C. Transition manager's ability of minimizing tracking errors and maintaining asset class exposure (benchmark) and value
D. Review of the pre-trade, post-trade analysis/reports and daily reports provided to BAM by the transition manager
E. Transition plan and execution of the plan in a timely manner
F. Transition manager's compliance with the discretionary, fiduciary requirements of the transition

Sources of Information

- BAM Self-Assessment Survey conducted by FAS
- System Self-Assessment Survey conducted by FAS

- Document Reviews (list)
  1. Task Order
  2. Work Request & Spreadsheets
  3. Report to Trustees
  4. Emails re notes of meetings
  5. Procedures documents
  6. Transition Manager contracts
  7. Transition reports – pre and post trade
  8. Transition plans – various mgrs.
  9. Fee reports
  10. aiCIO website, Transition Mgt. 2013-15

- Interviews
  1. Contracts Staff
  2. Investment staff
  3. Loop Capital
  4. Russell Investments
  5. Blackrock
  6. Pensarra

- FAS leading practices knowledgebase
- Professional opinion of team

Summary

BAM's transition management program incorporates many of the leading practices used to by sponsors to transition their portfolios. In general, it has been successful in transitioning large portfolios within the pre-costs estimates and with minimal operational problems.

Transition management is coordinated by the Contracts group with significant assistance from the investment staff as well as other affected teams (Cash Mgt., etc.). The process utilizes a pool of six external transition manager specialists (selected via an RFP process) who bid on portfolio restructuring projects, primarily when terminating a manager and hiring a new manager(s), thereby affording BAM the opportunity to identify the lowest cost, most risk efficient option to complete the desired portfolio action. This pool was initially formed in response to an RFP issued in 2006. At one time the pool contained more firms but with the withdrawal of transition managers from the market it has been reduced to six.

All of BAM's transition managers appear in a listing of the top firms (five global, six regional) typically mentioned in Transition Management surveys (Source: aiCIO). Accordingly, it can be said that BAM utilizes the services of the higher ranked firms in the business.

BAM also utilizes a pool of independent evaluators (consultants) to review and assess the success of the process (See section 2H.) Overall, BAM's basic model could serve as a leading practice for large public funds.

While the program has produced favorable results over the past few years, there are several logistical and operational changes that could make the process more efficient. They involve creating more structure, introducing more knowledge/experience into the analysis and permitting use of synthetic securities to control risk.

Summary of Conclusions

C-2G.1: The process for selecting a transition manager appears to be fair and objective, but should incorporate more structure and improved documentation.

C-2G.2: Transition managers appear to perform well in their interaction with the custodian and any target or legacy managers.

C-2G.3: The transition managers generally appear to achieve BAM's targeted goals of minimizing asset class exposure and value as confirmed by independent evaluator post-trade reviews.

C-2G.4: BAM staff performs limited reviews of the pre-trade, post-trade analysis/reports provided by the transition manager.

C-2G.5: Transition plans prepared by the transition manager are well done and executed within the target timeline goals.

C-2G.6: The transition managers appear to fully comply with the discretionary and fiduciary requirements of transition.

Summary of Recommendations

R-2G.1: BAM should seek to add more clarity to the transition portfolio characteristics description to provide bidding managers more opportunity to optimize their pre-bid cost estimates.

R-2G.2: BAM should develop a formal document outlining the transition manager selection process.

R-2G.3: BAM should review its Work Request and spreadsheet to identify opportunities for a more form type structure and /or ability to automate the data gathering process.

R-2G.4: BAM should document the selection team's decision.

R-2G.5: BAM should contact losing bidders following the selection process as professional courtesy and to open a dialogue for future improvements to the bidding process.

R-2G.6: BAM should bring the independent evaluator into the process as early as possible and solicit their knowledge to assist in the decision and operational processes.

R-2G.7: BAM should consider categorizing transition managers according to their specialty skills and asset class.

R-2G.8: The Contracts group should seek to incorporate the option of using futures, etc. into the transition process to better control various risks.

R-2G.9: BAM should require post trade meetings at their office with both the transition manager and the independent evaluator to evaluate the program and identify key learnings.

R-2G.10: BAM should document post trade discussions.

R-2G.11: BAM should review staffing levels to maintain appropriate standards of operational due diligence and back up resources.

R-2G.12: BAM should seek to identify features and formats from each manager's transition plan documents which best meet BAM's needs and create templates to supplement the Task Order's requirements.

R-2G.13: BAM should evaluate the benefits of requiring the manager to reaffirm their actions were done in accordance with their fiduciary duty and other requirement of the transition.

R-2G.14 BAM should periodically (once year) review all control points to determine if they are effectively limiting the potential for a fiduciary breakdown in the transition process.

R-2G.15: BAM should consider redesigning Board presentations regarding transition management projects to improve their utility and educate Trustees.

SPECIFIC AREAS OF SCOPE

A. Selection Process of Transition Managers

Leading Practice Expectations

Transition management is a process to adjust a portfolio or strategy resulting from a change in managers, modifying allocations among asset classes, changing portfolio policy, etc. Such activity creates both costs and risks which require oversight to minimize their impact on overall portfolio values.

Most sponsors employ one of three basic approaches to the transition process;

1. Utilize the services of a custodian bank
2. Utilize the services of the new manager
3. Utilize the services of a third party transition manager or broker

Selection of the appropriate model is dependent on several factors such as:

- Size of portfolio involved
- Type of asset – public, private, non U.S, equity, bond, etc.
- Timing

Historically, sponsors used their custodian bank or newly selected manager (now referred to as the target manager) to assist with this activity. In recent years, however, it has become more common to utilize the services of a transition manager. This trend results from the business evolving into a more professional model, expanding transparency and adopting formalized standards (e.g., T Standard, PBGC Transition Management, etc.) for performance and evaluation. Improvements in securities trading processes and the development of better simulation models (to understand costs and risk) now provide sponsors with better information to implement their transition strategies. As sponsors become more knowledgeable (via consultants and competitive selling), the business is rapidly adapting to a more demanding client base. We note in Appendix items A2G.1 and A2G.2 reference to trends in Transition Management and manager selection criteria.

Recognizing the risks (e.g., operational, currency, timing) and costs (explicit, opportunity, etc.) associated with all transitions, best practice involves employing an effective data gathering process, detailed analysis, operational coordination among the managers affected and the custodian and appropriate post-trade evaluation.

Survey data (Source - aiCIO) indicates larger funds are more likely to use a pre-approved list of providers (1-3 is most common, although large funds tend to have a longer list). Recent trends indicate new fee structures (e.g., flat fees or fees based on percent of assets) are being explored versus the traditional commissions on agency trade model. In short, sponsors are assuming a more thoughtful role with respect to how they conduct their transition management.

Conclusions and Related Findings

C-2G.1: The process for selecting a transition manager appears to be fair and objective, but should incorporate more structure and improved documentation.

Currently, the selection process involves a data gathering process followed by a meeting comprised of staff from the Contracts team, investment staff (those associated with asset class involved) and the Assistant Controller for Asset Management who review the materials and select the winning bid. For simplicity we refer to them as the Transition Team. Risk management staff do not attend the meeting or receive materials related to the selection process. Likewise, Internal Control / record keeping staff are not part of the transition team staffing (see 2G.2). We provide a general template in Appendix A-2G.3.

Generally, all six transition managers are invited to submit bids based on a Work Request letter. The Work Request letter describes the basic type of work to be performed (i.e., the objective), a listing of submission requirements and general characteristics of the portfolios to be transitioned. It also refers to a Work Request spreadsheet which is a formalized excel spreadsheet that seeks to capture the key cost information (implicit and explicit) needed to evaluate each transition manager's bid. In short, the pre-trade estimates.

While the Work Request letter is clear regarding what is needed for BAM to evaluate the transition manager's bid, it provides somewhat limited information (primarily characteristics) of the portfolio to be transitioned to protect against front running or leaks to the market. As a result, it presents several challenges for the bidders who are seeking to effectively define the estimated transition costs. They must use these "characteristics" to try to define what the specific securities could be and program their models accordingly. Consequently, bids submitted are best estimates based on how each manager's modeling process deciphers the characteristics as prepared by BAM's investment team. This is a concern for several of the transition managers. It could also be a key reason why the estimates vary by over 100%.

Ideally, most managers would prefer to have a complete listing of all the securities names, shares, etc., thereby allowing their models to provide a more optimum estimate. While each manager serves in a fiduciary role, we do not recommend that BAM agree to a complete listing except perhaps in very special situations. However, BAM should consider providing additional information (e.g., a more detailed description of the liquidity characteristics of the portfolio, a sampling of names) which would allow managers to produce a more representative set of outcomes. This would permit a more "apples to apples" comparison as well as better estimates of the overall implementation costs. Discussions with the managers, independent evaluators and other sponsors would help define what portfolio data could be communicated and yet not jeopardize other elements of the process. Here again we would look to the independent evaluator as a key resource in helping to develop an optimal strategy as each asset transition will typically be a unique event (Dollars involved, legacy manager, market conditions, asset class, etc.)

Managers submit their responses to the Work Request letter to the Contracts group who organizes the materials into spreadsheets, etc. for comparison purposes. The BAM internal transition team then meets to review and discuss the data to determine the "most optimal solution" presented. They appear to effectively review all data, question variances and seek to identify the best bid. Ultimately, it will be a judgment call based on the lowest implementation shortfall estimate (i.e., the costs), prior experience with the manager, timing, etc.

The Contracts team then informs the winning firm and initiates a Task Order, a letter describing in more detail the objective, dates, responsibilities of the manager and time of transition. In short, the Task Order is a mini agreement. With regard to the losing bids, no action is taken. Managers must assume they did not "make the cut". In that regard, we would recommend that the losing bidders also be informed they were not selected and discuss with them some of the reasons (e.g., costs, skills, etc.) their bid was not competitive. This not only serves as professional courtesy, but opens a dialogue for improving their future bids, a key benefit for BAM.

Following selection, the investment staff assumes a more active role in overseeing the actual transition process. It is at this point that decisions regarding agency versus principal trade process are discussed and agreed with the manager. Unless there are unique conditions, BAM prefers doing transitions on an agency basis. Additionally, the Internal Control staff and Cash Management participate in the process as it relates to their roles and responsibilities.

In summary, the process is quite thorough, capturing the necessary data and bringing together many internal skills and knowledge to create an informed selection decision. However, there are opportunities for modest refinements which could help add structure, transparency, knowledge sharing, training and regular fine tuning over time.

BAM should develop a formal document outlining/detailing the overall process, who does what, when, documents to be used, etc. It should answer the question "What is our transition manager selection and oversight process?" Currently, a document called Transition Management (dated 7/23/15) describes many elements of the process (i.e., procedures) and would be a good reference for creating a more comprehensive framework.

It does identify various tasks and contracting issues but has limited clarity re the Transition Team's role Pre and Post trade, investment staff role or any other staff that may be involved in completing the transition, the independent evaluator and so on. Perhaps a short summary of each step in the process and the materials / analyses that are involved. It may also lead to a more detailed version associated with each group's specific area of responsibility in the process.

The data collection process, namely the Work Request and Spreadsheet, should be reviewed to determine if it can be restructured to better capture data in a common format and/or be automated to create processing efficiencies.

There should be documented minutes or a summary of the internal Transition team meeting to select the winning bid. It should include a summary of the discussions and the specific rationale for selection. This would help provide a documented history (useful if questions are raised) as well as serving as a learning tool to accommodate staff turnover.

BAM should consider incorporating one or more of their independent evaluators into the selection process given their significant knowledge and experience regarding this specialty activity. Current and future firms could play an important role supplementing staff re data gathering, process improvements, documentation, training, etc. In that regard, it would also be advantageous for BAM to seek out other large plan sponsors to understand how their techniques may serve to improve BAM's processes.

BAM should consider categorizing their transition managers by asset class to better assess who may possess the best skill set for each transition (e.g., who's good at bonds, equities, international, etc.) One transition did result in implementation costs well in excess of the pre-trade estimates (the REIT transition). Another experienced several challenging issues (the Citibank non-US equity), incurring costs near the high end estimate. While there were rational answers for these variance levels, they may be indicative of changing skill sets. Hence discussions with the independent evaluators and other funds may yield insights into a rating of each manager's skills as they change over time (adding staff, losing staff, better model, etc.)

Recommendations

R-2G.1: BAM should seek to add more clarity to the transition portfolio characteristics description to provide bidding managers more opportunity to optimize their pre-bid cost estimates.

R-2G.2: BAM should develop a formal document outlining the transition manager selection process.

R-2G.3: BAM should review its Work Request and spreadsheet to identify opportunities for a more form type structure and /or ability to automate the data gathering process.

R-2G.4: BAM should document the selection team's decision.

R-2G.5: BAM should contact losing bidders following the selection process as professional courtesy and to open a dialogue for future improvements to the bidding process.

R-2G.6: BAM should bring the independent evaluator into the process as early as possible and solicit their knowledge to assist in the decision and operational processes.

R-2G.7: BAM should consider categorizing transition managers according to their specialty skills and asset class.

B. Transition managers' interaction with the Master Custodian and the target and legacy portfolio managers

Conclusions and Related Findings

C-2G.2: Transition managers appear to perform well in their interaction with the custodian and any target or legacy managers.

In interviews with the Contracts team, investment staff and four of the transition managers, there was no indication of any gaps in the communication or interaction with the custodian or other managers involved in the process. There were some challenges associated with transitions that occurred during the time of the changeover to State Street as custodian (2014) but these appeared to be the result of that change versus weaknesses with the transition manager.

Since much of the transition activity is coordinated or "managed" by the investment staff, with one exception in 2013 (which involved a program phased over many months), there were no significant issues regarding transition manager interaction with all affected parties during the process.

We did not interview any of the target or legacy managers but relied on the insights of the transition manager and internal staff who did not indicate any problems in this regard.

Operational risk (paperwork, trade lists, security delivery, etc.) appears to have been contained by all parties involved, suggesting coordination is somehow occurring at a high level. Bringing more talent (internal control, risk team, independent evaluator) to the table on Day 1 could help minimize these risks in future transitions.

C. Transition manager's ability of minimizing tracking errors and maintaining asset class exposure (benchmark) and value

Conclusions and Related Findings

C-2G.3: The transition managers generally appear to achieve BAM's targeted goals of minimizing asset class exposure and value as confirmed by the independent evaluator post-trade reviews.

A review of several reports covering transitions in 2014 - 15 suggests the transition managers generally performed their duties within the cost expectations as defined in the pre trade estimates. With two exceptions (a REIT transition during a weak market and a non US equity trade), implementation shortfall has been well within expected levels (1 std. deviation) as defined by the manager and the independent evaluators.

However, some of the managers did note that allowing them to use futures or other derivative securities would be helpful in minimizing tracking errors and maintaining asset class exposure. In effect, these tools serve as risk controls in the process. Unlike other funds, this may be a basket clause issue for BAM. Limiting the tools to control risk puts the fund assets at risk of loss. Discussion of this issue with other funds, consultants and transition managers may offer insights into the challenges and solutions as to when and how this could be improved.

Recommendations

R 2G.8: The Transition team (primarily Contracts and Investment staff) should seek to incorporate the use of futures, derivative securities, etc. into the transition process to better control portfolio risks.

D. Review of the pre-trade, post-trade analysis/reports and daily reports provided to BAM by the transition manager

Conclusions and Related Findings

C-2G.4: BAM staff performs varying levels of review of the pre-trade, post-trade analysis/reports and daily reports provided by the transition manager.

The Contracts and investment teams perform fairly in depth analysis of the information provided in the pre-trade reports discussed in Conclusion 2G.1 – manager selection). As such, the pre trade report clearly receives priority in terms of review among several staff. However, we believe they would benefit from including "more eyes at the table" (e.g., independent evaluator, risk team member, operations team member)

It is not clear that the same level of scrutiny is given to post trade reports. Should the transition be accomplished within targets (generally the case), there appears to be less interest in performing significant analysis as to why or what could be learned and documented for the next transition. The managers indicate there is little discussion with them following the completion of the transition, typically a phone call. Internal staff confirms they do have a telephone call to go over key areas of the manager's report. Generally, this was limited to the investment team but has recently included Contracts staff. BAM also receives a report from the independent evaluator shared on a selective basis. There are no formal meetings at BAM offices to review the post trade findings with either the manager or the independent evaluator. There does not appear to be a process for identifying and documenting key learnings from either the manager or independent evaluator. Ironically, post trade reviews do not include all members of the transition team.

We should note that our interviews with staff indicated an understanding to expand/refine various work efforts but that there "just wasn't time". This suggests a growing workload (or stress events) and /or a staffing shortage. In that regard, we would recommend serious review of the group's responsibilities to assess if there are sufficient bodies for the current level of work and to identify back up scenarios. Significantly expanding the role of the independent evaluators (full time role) may be one solution to respond to stress periods or staff shortages. More specialty staff may also be appropriate.

There were two difficult transitions, one that significantly exceeded the pre trade estimate (a REIT transition) and one that was near the high end of the estimate (a non US equity). In the case of the non US equity trade, we understand the manager requested a meeting to explain the variance and excess costs. In regard to the REIT trade, BAM held a phone conversation with the transition manager to discuss factors contributing to the significant opportunity costs ($4.0 mil).

We recommend that all post trade reviews be face to face meetings held at BAM with appropriate personnel including the independent evaluator (unless reasonable reason for not allowing). In addition, we would recommend further training for all involved regarding the data involved in the post trade reports (by the manager and independent evaluator). This is a unique, evolving specialty activity, randomly utilized and hence likely to be less well known by technical staff and one more reason to seek to document meetings for future review or Monday morning quarterbacking.

We are not aware of any weaknesses in the daily reports to the investment staff from the transition manager. However, we do suggest that this activity be reviewed to determine if the circulation list should be expanded to other internal staff.

Recommendations

R-2G.9: BAM should require post trade meetings at their office with both the transition manager and the independent evaluator to evaluate the program and identify key learnings.

R-2G.10: BAM should document post trade discussions.

R-2G.11: BAM should review staffing levels to maintain appropriate standards of operational due diligence and back up resources.

E. Transition plan and execution of the plan in a timely manner

Conclusions and Related Findings

C-2G.5: Transition plans prepared by the transition manager are well done and executed within the target timeline goals.

BAM's Task Order requires the winning bid transition manager to prepare a Transition Plan detailing the basic steps to be performed to accomplish the transition. This serves as key reference point for the investment staff to assess the transition before and during the process. Minor adjustments are generally agreed to in advance via a call with the manager, custodian and independent evaluator and documented via email to all parties. Note: The Transition Plan does become part of the permanent files associated with the transition.

In general, each manager's version of a transition plan includes the relevant information per the Task

Order guidelines. Some are more detailed and better organized than others. We would recommend BAM seek to identify from its pool of managers (and independent evaluator) those features and formats most useful to its needs to create a template for each manager to follow as closely as possible.

We also note that the post trade analysis and accompanying meeting (phone call) do include a discussion comparing the pre trade plan with the post trade results. Since all transitions were completed in accordance with the target timeline, we conclude that the transition plans to date are well done and properly used to assess compliance with the agreements.

R-2G.12: BAM should seek to identify features and formats from each manager's transition plan documents which best meet BAM's needs and create templates to supplement the Task Order's requirements.

F. Transition manager's compliance with the discretionary, fiduciary requirements of the transition

Conclusions and Related Findings

C-2G.6: The transition managers appear to fully comply with the discretionary and fiduciary requirements of transition.

We did not find any evidence that the managers did not comply with their fiduciary duty as defined in their primary contract and any related requirements defined by other documents (Task order, etc.). None of the interviews in any way suggested there are weaknesses in this component of the transition management program.

Any breach of fiduciary duty or failure to comply with the terms of contract clearly would appear to constitute grounds for legal action.

To reinforce the manager's role as a fiduciary, it may be useful to consider asking the manager to provide a signed confirmation in their post trade review indicating that all activity was done in accordance with the terms of their contract and related materials.

Recognizing there are several parties to any transition (the custodian, the legacy manager, target manager, BAM staff, independent evaluator), it would appear there are many "points of control" to identify potential weaknesses related to non-compliance with the rules. Hiring quality managers, doing on site periodic meetings, etc. all contribute to a culture of high standards and thus lower the risk of a fiduciary error.

Recommendations

R-2G.13: BAM should evaluate the benefits of requiring the manager to reaffirm their actions were done in accordance with their fiduciary duty and other requirement of the transition.

R-2G.14 BAM should periodically (once a year) review all "control points" to determine if they are effectively limiting the potential for a fiduciary breakdown in the transition process.

Conclusions and Related Findings

C-2G.7: BAM's reports to the Trustee Boards regarding transition management provide both technical and summary information in a format which may be challenging to understand for the non-investment specialist.

BAM provides reports to the Trustee Boards which summarize the transition program results, various analytical data and comments by the independent evaluator. In general, the report does provide a basic overview of the transition results. However, if we put ourselves in the role of a typical Board member, the report is somewhat challenging to understand without more in-depth study or assistance from a skilled advisor, not unlike some of the reports BAM staff reviews from the transition managers.

BAM should revisit the report format with a mindset geared toward a non- investment audience to help design a more focused presentation, i.e. more user friendly. The goal would be to both educate and inform. Answering questions such as:

1. What did we do well? Or "Not so well"
2. What's important to know?
3. What's nice to know?
4. Should we present information using an Executive summary, Supplemental data and Education structure?
5. Does this page of information stand on its own i.e., is it intuitive?

We would recommend staff review the materials to create standardized formats and wording to focus attention on and clarify the key elements of the transition. This could be done by utilizing a three-part format---Executive summary pages, supplemental detail materials (e.g., tables and charts) and an Education section (the process, readings, etc.) For example:

1. What was the assignment?
2. Who was selected? Why?
3. What were the forecasted costs? Actual? Why is there a difference?

4. BAM summary of event (now referred to as Performance). Was it successful? How defined?

5. Comments from the independent evaluator in bullet summary form followed by detail e.g., headline, then narrative.

6. Supplemental tables with brief commentary

7. Headings that define information on page e.g., Teachers Transition - Executive Summary, Teachers Transition – Pre Trade / Post Trade Data

8. General Summary of BAM transition process

9. Recommended readings or other educational material

Presentation materials are an important part of the communication process with the Boards. As such, they significantly affect the image and assessment of BAM's work requirements, achievements and recommendations. It may be helpful to identify staff members or an outside resource skilled in communication to re-evaluate various Board reports with a goal to simplify, refine and educate.

Recommendations

R-2G.15: BAM should consider redesigning Board presentations regarding transition management projects to improve their utility and educate Trustees.

2H. Independent Evaluators Analysis of Transition Management Services

Description

Transition managers move marketable securities from one investment portfolio to another with the goal of controlling costs and limiting market risk. Transition management is often used in the investment industry in the termination and hiring of investment managers, rebalancing between asset classes and to implement strategy changes. BAM currently has arrangements with six transition management firms (see section 2G). When a transition is complete, the manager provides its own assessment of the results to BAM.

Independent evaluators are used to assess the performance of a transition manager in executing a particular transition. They may also be a source of impartial advice before and during the transition process. BAM currently has contracts with three firms to provide evaluation services: Abel Noser, Zeno Consulting Group and Global Trading Analytics. Oversight is provided by the Contracts group, with assistance from the investment teams.

Scope of Review

A. Post-trade report of the transition executed by the transition manager
B. Cost analysis reports
C. Written transition report submitted to BAM
D. Independent evaluator's documents review procedures

Sources of Information

- BAM Self-Assessment Survey conducted by FAS
- System Self-Assessment Survey conducted by FAS
- Document Reviews
    - Transition managers' post-trade reports
    - Independent evaluations
    - Contracts with the evaluation firms
- Interviews
    - Abel Noser
    - Zeno Consulting Group
    - Assistant Comptroller for Asset Management
    - Director of Contracts and staff
- FAS leading practices knowledgebase / Professional opinion of team

Summary

BAM's use of independent evaluators in the transition process is a leading practice, and relatively new. BAM's use of more than one firm to conduct such evaluations is unusual, particularly given the small number of transitions the Systems have undertaken in recent years.

The three firms BAM uses have strong credentials and they are assigned transitions on a rotating basis. The evaluation of transitions includes certain principles and measures that are fairly common across the industry. However, each firm also uses its own proprietary methodologies and presents findings differently. This makes it more difficult to get a consistent interpretation of results across transitions.

BAM's perspective is that there are only a limited number of firms that do such work. BAM is concerned that if it had only one evaluation firm, and the firm left the business, there could be a lengthy disruption in services while a search process was conducted to find a replacement. BAM also wants to be well prepared in case several of the Systems are conducting transitions at the same, each requiring evaluation services.

An RFP issued in April, 2015 to potentially enlarge the number of evaluation firms to six drew only three responses and BAM did not move forward with it. The current term of the contracts with the three firms expires December 31, 2015. BAM plans to issue another RFP in early 2016.

Independent evaluation reports for fiscal year 2015 generally confirmed that transition managers performed to expectations, based on implementation shortfall and other measures. The process for BAM's review of the reports and follow-up is relatively informal and not documented. There would be additional costs, but the evaluators may be able to provide additional value by having a role in pre-transition planning.

Summary of Conclusions

C-2H.1: **BAM's use of independent evaluators in the transition management process is a leading practice to provide reassurance. BAM may be unique in using more than one firm to conduct evaluations. If all firms are not held to the same standard, or if they use different methodologies and reporting approaches, it is more difficult to achieve consistent and comparable evaluations.**

C-2H.2: **The particular methodologies used by each evaluation firm focus on the actual costs of the transition in comparison to pre-trade estimates. With one exception, they have tended to confirm that the pre-trade estimates were reasonable.**

C-2H.3: **The written transition reports submitted to BAM by each firm vary in format, content and in the amount of commentary offered. They generally provide an adequate presentation of the results, but would add more value if organized in a similar format with sufficient explanation of the data.**

C-2H.4: **BAM's process for reviewing the independent evaluator's report and reconciling with the transition manager's own post-trade report is relatively informal and not documented.**

C-2H.5: **In addition to post-trade analysis, the evaluation firms also offer pre-trade planning advice which could be helpful to BAM.**

Summary of Recommendations

R-2H.1: **If BAM continues to use multiple evaluation firms they should all be subject to a fiduciary standard of care and similar contractual obligations in conducting evaluations.**

R-2H.2: **As part of their report, evaluators should attest that they have examined each aspect of the transition that is required by contract.**

R-2H.3: **More comparability of evaluators' reports could be helpful if BAM continues to use multiple firms. For example, BAM could require that all managers provide a cover memo in the same, standard format that summarizes certain key data and conclusions.**

R-2H.4: **BAM should formalize the process for reviewing evaluation reports and implementing changes that would improve future transitions.**

R-2H.5: **BAM could bring the independent evaluator into the transition process earlier and solicit the evaluator's advice regarding the strategy and process for the transition.**

Leading Practice Expectations

In an organization such as BAM, we would expect to find:

- The evaluator's objective would be to help the Systems improve transition performance and lower costs.
- The selection of an evaluator would be through a competitive process.
- The evaluator would have significant experience and analytical skill across markets.
- Evaluation services providers would be fiduciaries.
- Evaluation services providers would have the capacity to advise throughout the transition.
- The same analytics would be used for every transition, regardless of which firm executes the transition.
- The evaluator's findings would be presented in a clear and consistent way, measuring whether the transition results met pre-trade expectations. The evaluator would also provide insight into what caused the outcome the transition manager achieved.

SPECIFIC AREAS OF SCOPE

A. Post-trade report of the transition executed by the transition manager

B. Cost analysis reports

C. Written transition report submitted to BAM

D. Independent evaluator's documents review procedures

Conclusions and Related Findings

CH-2H.1: BAM's use of independent evaluators in the transition management process is a leading practice to provide reassurance. BAM may be unique in using more than one firm to conduct evaluations. If all firms are not held to the same standard, or if they use different methodologies and reporting approaches, it is more difficult to achieve consistent and comparable evaluations.

BAM's use of independent evaluations in the transition process is a leading practice. Although transition managers each conduct their own post trade evaluation of each transition, a review by an independent firm provides reassurance and can offer additional insight into why the results – favorable or not – were achieved.

Although BAM's contracts with evaluation firms were signed in 2010, the first evaluations were not conducted until 2014. Because of the small number of transitions, BAM's experience is relatively limited. There are reports for five evaluations completed to date.

There is a relatively small, but seemingly sufficient, number of firms that offer post- trade evaluation services. BAM may be unique in using multiple firms for this purpose. For example, Mass PRIM has contracted with Harbor Analytics to perform all its transition management evaluations. The three firms BAM uses are experienced and well regarded in the industry. BAM considers all three to be capable of evaluating any transition, so it assigns transitions on a rotating basis rather than based on special skills a particular firm has in a particular type of transition.

BAM is concerned about a lengthy disruption in services if it had only one evaluation firm and the firm were to leave the business. BAM also wants to be prepared in case presentations need to be made to several Systems who are involved in the same transition, or if several of the Systems are conducting different transitions at the same time.

Two of the firms – Zeno and Global Trading Analytics (GTA) – are only in the business of transactional analysis, while Abel Noser also offers transition management and other trading services. BAM's contracts with Zeno and Abel Noser are essentially the same and hold both firms to a fiduciary standard of care. The agreement with GTA does not and is also less specific about what services GTA is to provide for post-trade evaluations beyond access to its data. BAM indicates that all contracts that result from the next RFP will follow the same format and will hold all firms to the same fiduciary standard.

The current term of the agreements expires December 31, 2015. An RFP issued in April, 2015 to potentially enlarge the number of evaluation firms to as many as six drew only three responses (Zeno, GTA and Harbor Analytics) and BAM did not move forward with it. BAM intends to issue another RFP in 2016. Abel Noser has indicated an interest in being a transition manager and may drop out of the evaluator pool in the future.

Perhaps there would be a larger response to the next RFP if BAM selected only one firm to evaluate all of the relatively few transitions it has tended to do. Since the compensation for each transition is relatively small ($5,000 - $10,000) and each of the current three firms has done only one to two evaluations over the last year, some firms may question whether it is financially attractive to go through a lengthy RFP process to be part of an even larger pool.

If BAM continues to use multiple evaluation firms it should hold them to the same fiduciary standard of care and comparable methodologies and reporting requirements, as discussed below.

C-2H.2: The particular methodologies used by each evaluation firm are explained in their reports and focus on the actual costs of the transition in comparison to pre-trade estimates. With one exception, they have tended to confirm that the pre-trade estimates were reasonable.

The contracts with Abel Noser and Zeno specify that they are to identify the overall effectiveness of each transition, including explicit costs (such as brokerage fees) and opportunity costs, which is the effect on performance attributable to the overall movement of the market. These items were addressed in the reports we reviewed from Abel Noser and Zeno. Reports from both firms explain the particular metrics they used to conduct their evaluations.

The contracts further provide that "implementation shortfall" is the measure upon which their evaluations are to be based unless otherwise directed by the Comptroller. According to a recent survey, implementation shortfall remains the leading evaluation measure in the industry and is used by over two-thirds of respondents.[37]

Implementation shortfall refers to the difference in asset value between when the transition begins and the value after execution of the transition is complete, taking into account explicit and implicit costs. With a notable exception (that involved the liquidation of a large REIT portfolio to cash) the evaluations have so far tended to confirm that the costs of the transition were in line with pre-trade estimates. In determining the shortfall, the evaluators compare their own pre-trade estimate of costs to their own post-trade analysis.

In the course of their document review, the evaluators are to examine the transition work request, pre-trade analysis plan, and transition task order and transition plan. The evaluator is also to review several other types of information from the transition manager, including a disclosure of all revenue sources received by the manager and its affiliates as part of the transition, any reports attesting to best execution of trades and other reports or disclosures detailing the manager's trading performance. This is intended to ensure that all costs of the transition have been accounted for and best execution achieved.

BAM is uncertain as to whether all of these items are being reviewed in all cases (in particular, the disclosure of all revenue sources received by the manager). It would provide added reassurance for the evaluator to formally attest to that in each report, and for BAM to confirm that they have.

C-2H.3: The written transition reports submitted to BAM by each firm vary in format, content and in the amount of commentary offered. They generally provide an adequate presentation of the results, but would add more value if organized in a similar format with sufficient explanation of the data.

The evaluator's report should enable the user to readily compare the actual cost of the transition to pre-trade estimates and to understand how manager's execution decisions affected the outcome under the market conditions that prevailed at the time.

[37] aiCIO Chief Investment Officer Transition Management Survey, September 19, 2014

Each of the items which the contract requires to be included in the evaluation should be readily identified. When applicable, the report should offer observations that could be used to improve the outcome of future transitions, such as operations or communications enhancements. Specific items to discuss could include:

a. An analysis of liquidity. Did the transition provider accurately assess liquidity, identify potential difficult names to trade, and project and deliver on a reasonable transition trading horizon?

b. Was there a coherent exposure management strategy? Were initial and regional exposure mismatches identified and incorporated into the trading? Was an efficient dollar neutral trading approach developed and implemented?

c. Were there individual name outliers in terms of shortfall performance and were reasonable explanations provided for the specific unexpected performance?

d. Can the transition provider produce time and sales data for each security should an in-depth analysis of transition implementation strategy be required?

e. Were operational issues identified and addressed with appropriate solutions and recommendations – such as securities lending, non-deliverable securities, non-standard settlements, unique custodial requirements?

f. Were the custody and target manager teams involved satisfied with the communication and thoroughness of the transition team?

g. Can the transition manager provide a written attestation as to compensation generated for both itself and any affiliate?

In differing ways, a number of these elements tend to be covered in the reports, including actual costs compared to pre-trade estimates, market conditions and liquidity, a list of each security traded and trade date, and the share of assets transitioned in-kind. However, there are differences in report content and presentation format among the five reports submitted to date. Some of the difference can be attributed to the type of transition and asset classes involved. Because so few evaluations have been done to date, it is not possible to effectively compare the format and content of reports from the three evaluation firms for transitions involving the same asset classes.

Where the reports perhaps differ the most is in the amount of narrative explanation provided. Although BAM finds the GTA data helpful, the report from GTA included quantitative analysis but little or no written discussion. The Abel Noser reports included commentary alongside the data, while Zeno provided a separate memo which included a more extensive explanation of the transition and conclusions drawn from the accompanying data. Again, more comparability in content and format could be helpful if BAM continues to use multiple firms. For example, BAM could require that all managers provide a cover memo in the same, standard format that summarizes certain key data and conclusions.

If BAM cannot identify one transition management evaluation firm which it believes can perform equally in all asset classes, it could consider assigning the two or three providers in their existing pool by asset class or type of transition, rather than on a rotational basis, to get more consistent reporting for similar transitions.

C-2H.4: BAM's process for reviewing the independent evaluator's report and reconciling with the transition manager's own post-trade report is relatively informal and not documented.

Each transition manager provides a report comparing its own pre-trade estimates to its own post-trade assessment of the results. When there are several Systems involved in the transition, the transition manager produces a separate report for each System. The independent evaluators' reports tend to focus on the aggregate results for all Systems.

The transition managers' post-trade reports address the same basic elements as the evaluators' reports: explicit and implicit costs, a list of securities traded and implementation shortfall. The formats vary among the transition managers and vary from those used by each of the independent evaluators. BAM indicates that it initially had some difficulty comparing the post-trade report of the transition manager to the independent evaluation, but made changes that improved the situation.

The independent evaluators' cost calculations have in some instances differed from those that the transition manager included in its post trade analysis. Specifically, BAM noted at least one instance in which trading commission costs differed because there were different start dates used in each firm's calculation. That issue was resolved through further discussion between manager and evaluator.

For each transition, the evaluator is part of a kick-off meeting with the transition manager and staff from BAM's investment team and contracts group. This is to establish an understanding of the trade details that the transition manager will provide to the evaluator for post-trade evaluation.

BAM's investment staff review the post-trade evaluations. If there are large discrepancies between the evaluator's report and the transition manager's own analysis, BAM will follow-up with a phone call to the manager. This process should be formalized and documented, particularly with respect to the resolution of significant differences between the manager and evaluator in data or conclusions drawn. A potential template for this process is provided as Appendix A-2H.4.

Although differences of opinion between transition manager and evaluator have sometimes arisen, there have not been concerns raised in the evaluators' reports sufficient to lead BAM to reduce or discontinue using a particular transition manager. In general, BAM doesn't think that there is enough history with the managers yet.

One of BAM's objectives is to use the evaluations to help some of the newer transition managers continue to improve their performance. BAM indicates that if it contacts the evaluator, they tend to be willing to share their actual report with the manager.

C-2H.5: In addition, to post-trade analysis, the evaluation firms also offer pre-trade planning advice which could be helpful to BAM.

As noted in section 2G, there are other ways that the evaluation firms could potentially be helpful to BAM earlier in the transition management process, by providing impartial planning advice and monitoring the transition while it is in progress. The current contracts permit the three firms to have larger roles, but at added cost.

The RFP issued earlier this year stated that the evaluators may be called upon to work with BAM in the future to develop and provide recommendations of optimal transition strategies, assist in the evaluation criteria for selecting transition managers, and assist in the preparation of work requests to the managers.

Some of the evaluators also have their own tools for defining portfolio characteristics in more detail without disclosing individual securities. Based upon feedback from the transition managers, BAM may want to consider if this assistance could result in better bids from the transition managers.

Recommendations

R-2H.1: If BAM continues to use multiple evaluation firms they should all be subject to a fiduciary standard of care and similar contractual obligations in conducting evaluations.

R-2H.2: As part of their report, evaluators should attest that they have examined each aspect of the transition that is required by contract.

R-2H 3: More comparability of evaluators' reports could be helpful if BAM continues to use multiple firms. For example, BAM could require that all managers provide a cover memo in the same, standard format that summarizes certain key data and conclusions.

R-2H.: BAM should formalize the process for reviewing evaluation reports and implementing changes that would improve future transitions.

R-2H.5: BAM could bring the independent evaluator into the transition process earlier and solicit the evaluator's advice regarding the strategy and process.

2I. BAM Interaction with the Systems

Scope of Review

A. **BAM interaction with the Systems' representatives**

B. **Evaluation of BAM's interaction with each of the Systems' accounting groups**

C. **Establish and maintain Board of Trustee relationships**

D. **Comptroller representation at Board of Trustee meetings**

Summary

With the exception of B. below, the entirety of 2I is merged with section 1G.

SPECIFIC AREAS OF SCOPE

B. Evaluation of BAM's interaction with each of the System's accounting groups

BAM interacts with the System's accounting groups through the Investment Control Division. While it is not a part of BAM, the Bureau of Accountancy (BOA) also interacts with the System's accounting groups concerning BAM data for financial statements. The two sets of interactions and the interaction between BAM and the BOA are integrally related. A complete picture of issues of substance and associated recommendations is found in section **1B. Investment Control** and section **1J. Bureau of Accountancy (only the BOA units that interact with BAM)** and that material is not repeated here.

There are a number of significant substantive issues described in those sections that impact the System's accounting groups adversely. Interviews with staff at the Systems confirmed those adverse effects. Nonetheless, it is worth noting here that the staff members at the System's accounting groups consistently recognized the effort of BAM staff to meet the needs of the Systems in the face of the significant challenges.

2J. Information Systems Performance

Description

All of BAM's current application and technology support is enabled by the Bureau of Information Systems (BIST). BIST provides support across all of the Comptroller's Office operating bureaus. BIST has a resource dedicated to BAM who seeks to understand BAM's needs, assist in the development of systems plans, facilitate and lead project initiatives and act as a liaison in addressing issues and concerns.

Within BIST are teams which provide application development services, operations and network services and technology support/business continuity services. A major part of the underlying infrastructure used by BAM (including network services) are provided by the citywide Department of Information Technology & Telecommunications (DoITT). BIST acts as the liaison to the DoITT organization.

The primary application components in place for use by BAM include:

- my.statestreet.com - Online client information delivery portal providing access to the State Street's market data, tools and reporting services
- Bloomberg – Short term trading and market data support
- General ledger system – Shadow record keeping, general ledger and reporting
- ProxyEdge - Management and reporting surrounding domestic proxy voting
- Investor Analytics – Market risk and analysis service
- Excel Spreadsheet – most teams use excel spreadsheets/applications to support their operations

Scope of Review

The scope of the review, as requested in the RFP, included the following areas:

A. Evaluate the efficiency, effectiveness and the internal environment surrounding the existing technology and automated systems
    - General ledger system
    - my.statestreet.com
    - ProxyEdge
    - Investor Analytics
B. Identify opportunities for using enhanced technologies to speed cycle times, reduce costs, and improve services for the benefit of the Comptroller's Office.
C. Provide an evaluation of current plans to enhance and expand systems

The scope of the information systems performance review included an evaluation of the efficiency and effectiveness of BAM's current business applications as well as the underlying technology infrastructure and facilities used to support its business operations. The review also examined the technology support model for information systems, current application projects and overall project and technology governance and practices.

Sources of Information

- BAM Self-Assessment Survey conducted by FAS
- System Self-Assessment Survey conducted by FAS
- Document Reviews
  - BIST Organization Chart
  - Asset Management System Landscape
  - BAM Portfolio Management Plan
  - BAM Dashboard 072215
  - BAM Dashboard 073015
  - Information Technology Strategic Plan (2015-2017)
  - IT Governance Program Management
  - Project Management Life Cycle
  - Project Management Information Repository Form
  - Project Status Sample for BAM Data Warehouse
  - BAM Analytic Warehouse Project Plan Task Report – 24 Aug 2015
  - New York City Retirement Systems Fee Calculation Requirements
    - Requirements Specification for SSB Project
  - Solution Analysis 22515
    - Assessment of projected costs general ledger extension vs. SSB
  - Operations and Procedures Guide Table of Content
  - BIST Monthly Operations Report June 2015 (agency-wide)
  - 2015 Executive Overview (BC&DR)
  - Cyber Security Landscape package 1
- Interviews
  - All BAM team interviews included questions about their information system and technology usage, issues and opportunities for improvement.
  - BIST Interviewees included:
    - Michael Bott – Assistant Comptroller Information Technology & Chief Information Officer
    - Tom Molloy – Director, Asset Management Systems
    - Ed Sokolowski - Executive Director Systems Development, Program Management Office
    - Dorian Fulvio - Deputy CIO, Operations & Network Services

- FAS leading practices knowledgebase
- Cutter Member Systems List
    - Member supplied applications in use list for 100+ investment managers, including 11 other public funds
- Professional opinion of team

Leading Practice Expectations

Our standard for the information systems review was based on BAM's current operating model, which involves almost a complete reliance on external managers. Further, the standard for review was based on an organization managing $160+ billion assets under management and investing across an extremely broad, diverse number and types of underlying investment and using a large number of consultants and external managers. If BAM was to consider developing an internal capability for managing portions of its portfolio, the standard for comparison would be much higher as relates to application systems and technology.

We would expect organizations similar to BAM's operating model, structure and size to have a robust suite of business applications that full support for the organization's risk management, investment management, investment operations/accounting, financial reporting and compliance processes. It would be logical, and practical, for most of these application to be provided by external vendors and most to be hosted on the vendor's hardware, where available.

The use of excel spreadsheets or localized database applications would be the exception and only be used to fill specific, niche needs. End User Infrastructure services would be robust and reliable, providing all associates with local and remote email access, network file/printer services, document management, internet access to business required sites and full suite of desktop applications

Data Center and Network Services would provide a backbone of support on which the business can reliably operate including support for secure, reliable file transmissions and both data center and business center recovery scenarios.

Sound Project Governance practices would be in place to ensure the right projects are commissioned and the delivery of the benefits for those projects is actively managed and reported.

The relationship between the asset management business teams and information systems teams would follow a partnership model and be based on open and honest communication channels, shared understanding of the business's goals and information systems capabilities, and a commitment to ensuring the business teams are able to meet their objectives.

Finally, both business teams and their technology support staff would regularly assess changing investment management and technology enabling trends, new regulations affecting public asset management firms and evolving vendor/product offerings as inputs to the annual Information System planning process.

Summary

In most cases, the Bureau of Asset Management's information systems application platform is providing just a minimal base of business process support. Across the organization, there is a high reliance on excel spreadsheets and the manual gathering of information. While the migration from BNY to State Street provided an improved platform for investment accounting and reporting, the platform is not being fully leveraged.

A platform to provide consolidated and investment strategy level risk and exposure analysis is not in place and many investment teams are relying on consultant tools or spreadsheet applications to monitor their overall portfolio and manage their external investments. Performance and risk attribution reporting is lacking.

In our discussion with many BAM teams, as well the System Trustees and other external entities (managers, consultants), many references to missing or inadequate automation capabilities were mentioned. These are highlighted later in this section.

Related to underlying technology and facilities, many teams voiced frustration with the availability and reliability of baseline capabilities that any operating business would expect (network printing, email and network availability, document management). The 'denial of service' attack on the city's network infrastructure was one of several outages that have framed the negative perception of the technology team's ability to provide a sound, reliable underlying technology platform.

While the relationship between BAM teams and the BIST organization was mentioned by a few teams as improving, most teams voiced great frustration in both the level of systems support they have received and in terms of clarity of communications and responsiveness when issues arise

Our review of the BIST organizations processes and procedures (in support of BAM only) did not highlight any significant shortcomings in terms of what we would expect to find. BIST has documented processes for I/T strategic planning, project governance, project management, status reporting, software development, business continuity/disaster recovery and network security.

This type of disconnect between very frustrated business teams and a technology organization that has the underlying processes in place, is usually indicative of issues with execution and/or expectations management. Further, such execution shortfalls are usually shared between the business that seeks information systems improvement and the technology teams that deliver those capabilities.

Finally, several BAM teams mentioned the strong need for additional subject matter expertise on two fronts, business analysts who know investment management processes and technical resources that can write SQL and do ad-hoc report development. We'll speak to additional resourcing later in this section.

Summary of Conclusions

C-2J.1: Despite being rolled out roughly two years ago, there are many examples where BAM is not taking advantage of State Street's custodial Services or the MyStateStreet application

C-2J.2: A high reliance on excel spreadsheets contributes to operational risk

C-2J.3: While no stability or technology shortcomings were noted with the general ledger system, the migration to State Street for general ledger, reconciliation and select investment activity reporting is a positive step for BAM to take as it refocuses the Investment Control team on exception-based processes and more value added services.

C-2J.4: Investor Analytics Tool would likely provide value to the Risk and Investment Strategy teams, but its availability is not known by most teams and there seems to be little real use of it.

C-2J.5.: Proxy Edge system appears to fully support BAM's domestic proxy management and reporting process. No issues were uncovered.

C-2J.6: Key application systems are missing or inadequately deployed

C-2J.7: Most BAM teams have voiced frustration and disappointment with the level of application and technology support they receive from BIST.

C-2J.8: Several active projects have charters that appear confusing or too narrowly focused.

C-2J.9: BAM's Business Continuity/Disaster Recovery processes require a more structured and rigorous process.

Summary of Recommendations

R-2J.1: **Engage SSB to do a Process Review and Assessment, minimally related to the original RFP, to determine areas for improved platform usage. Manage as a project similar to a full implementation. Ensure messaging to teams that the goal is to migrate spreadsheet based applications to SSB functionality.**

R-2J.2: **Risk management, in conjunction with the asset class heads, ought to evaluate Investor Analytics to determine if it can be used effectively by BAM and if there is additional functionality resident in IA that should be pursued. If so, a training program for IA should commence immediately. If not, risk management should, in conjunction with the asset management heads, begin the RFP process for a quantitative risk tool immediately (see R-1A.8)**

R-2J.3: **BAM should do a review and reset of its 2015-2017 strategic systems plan based on this review**

R-2J.4: **Information systems planning, management and reporting processes need a reset. Foundational processes are in place but either execution is lacking or management-level communication between organizations is not dealing with the issues that BAM front-line staff are feeling.**

R-2J.5: **Guided by a business systems plan for the whole organization, BAM should work with BIST to add the number and types of additional IT staff needed to adequately support its operations and facilitate the additional system capabilities that are required**

R-2J.6: **Any additional information technology staff hired to support BAM full time should sit on the 8th floor and fully act and be viewed as "part of the BAM organization", whether organizationally part of BAM or BIST.**

R-2J.7: **Project resets should be implemented for both the general ledger decommissioning and the Risk Analytics warehouse.**

R-2J.8: **BAM management needs to strongly reinforce the importance of each business team ensuring their team has fully analyzed its business continuity requirements and have documented them. Full complete participation in all business continuity drills must be an absolute requirement for all BAM teams.**

R-2J.9: **BAM should work with BIST to schedule and hold a true Business Continuity weekend event for all core (day 0 and Day 1) business processes and associated teams, including recovery to the backup site.**

SPECIFIC AREAS OF SCOPE

A. Evaluate the efficiency, effectiveness and the internal environment surrounding the existing technology and automated systems

Conclusions and Related Findings

C-2J.1: Despite being rolled out roughly two years ago, there are many examples where BAM is not taking advantage of State Street's custodial Services or the MyStateStreet application

C-2J.2: A high reliance on excel spreadsheets contributes to operational risk

While all organizations have a fair number of excel spreadsheet that assist business teams in running the business, the number and type of spreadsheets in use by BAM are much more than what we would have expected. Further, while the migration from BNY to SSB was a positive step in improving the level of accounting and reporting services available, the MyStateStreet platform is not being fully leveraged by BAM teams. Reasons vary, but include:

- Teams did not have time to engage in the migration to MyStateSteet due to their focus on "running the business";
- Teams were not made aware of what tools where available from SSB; and,
- Teams did not know what to ask for (i.e. migration did not include a full analysis of what processes were currently being performed in spreadsheets).

Several efforts are currently underway or planned to leverage additional SSB functionality, these include:

- Adoption of State Street's eCFM module [redacted]
- Migration of BAM's general ledger platform to State Street, and
- Movement to rely on State Street for reconciliation with external managers.

C-2J.3: While no stability or technology shortcomings were noted with the general ledger system, the migration to State Street for general ledger, reconciliation and select investment activity reporting is a positive step for BAM to take as it refocuses the Investment Control team on exception-based processes and more value added services.

In our review of the general ledger system and operating environment, no technology shortcomings were highlighted and, in general, the teams that used the general ledger system seemed content with the functionality that it provided. While the head of the Investment Control team was surprised the project to decommission the general ledger system was underway, the movement to leverage State Street's functionality for general ledger processing seems a very positive step for the organization to take. See details in Conclusion C-2J.8 and Recommendation R-2J.7 for more insight on the general ledger system Decommissioning project.

Recommendations

R-2J.1: Engage SSB to do a Process Review and Assessment, minimally related to the original RFP, to determine areas for improved platform usage. Manage as a project similar to a full implementation. Ensure messaging to teams that the goal is to migrate spreadsheet based applications to SSB functionality.

Two years into the contract, the transition to full and effective use of State Street's services is far from complete. Discontent among BAM staff is widespread. BAM is a large enough client to leverage more of State Street's capabilities and push for better support. State Street offers an ability to do a business process assessment. Off of this review, a prioritized list of change initiatives can be developed.

As an input to this process, State Street should provide a comprehensive list of reports that can be generated to assess, monitor and detect anomalies associated with operational divisions and data sources.

Conclusions and Related Findings

C-2J.4.: Investor Analytics Tool would likely provide value to the Risk and Investment Strategy teams, but its availability is not known by most teams and there seems to be little real use of it.

Although Risk Management does subscribe to the Investor Analytics (IA) tool, which can generate a number of risk analysis and modeling reports, these reports are not prepared or distributed to either senior management or the Board of Trustees. IA is best known in the pension world for providing a holistic view of fund risk (often called "risk aggregation"). In addition to the position-based analysis available for custodied public securities, non-public assets can be proxied, or managerial returns can be used for returns-based analysis.

Recommendations

R-2J.2: Risk management, in conjunction with the asset class heads, ought to evaluate Investor Analytics to determine if it can be used effectively by BAM and if there is additional functionality resident in IA that should be pursued.

If so, a training program for IA should commence immediately. If not, risk management should, in conjunction with the asset management heads, begin the RFP process for a quantitative risk tool immediately (see R-1A.8).

Conclusions and Related Findings

C-2J.5.: Proxy Edge system appears to fully support BAM's domestic proxy management and reporting process. No issues were uncovered.

In our review of BAM Corporate Governance, the Proxy Edge application was viewed as an enabler in providing support for BAM's domestic proxy management processes. No issues were noted, either from a functional or stability standpoint. See 1f: Corporate Governance for additional insight on Global Proxy voting.

B. Identify opportunities for using enhanced technologies to speed cycle times, reduce costs, and improve services for the benefit of the Comptroller's Office.

Conclusions and Related Findings

C-2J.6: Key application systems are missing or inadequately deployed

As documented throughout the other sections of this assessment, BAM staff, trustees and external entities (consultants, managers) have all expressed concerns about the weaknesses in BAM's information systems. While there has been a recent focus to address some of the gaps (analytics data warehouse, implementation of Bloomberg AIM, further leveraging of SSB functionality), much work remains.

A sample application systems schematic for a typical investment management firm is included in the appendix (A-2J.8.3 Application Architecture – Investment Management Template). It provides a general guide that we use to assess the completeness of a firm's application platform.

The required applications for any Public Fund Investment Management firm vary depending on a number of factors. The two most important are:

1. the degree to which investment management is performed by external managers vs. in-house teams, and
2. whether the firm outsources its investment operations and accounting capability to a third party firm.

Given the high degree to which BAM uses external managers for investment management most of the portfolio management and trading services functions are not required as part of BAM's internal application capability stack. This would change depending on the extent to which active management and trading is brought in-house.

In addition, the outsourcing of the investment operations, accounting and reporting services to State Street covers many of the functions (grey grouping boxes) that would otherwise need to be provided internally. The large breadth of functions that State Street is responsible for is one of the reasons why we have highlighted the need to ensure BAM is getting the full benefits across all of these functions from their managed service offering.

Some functions, such as compliance appear in multiple locations within a firm's application stack as compliance is it is needed for external manager activity, when orders are raised for internally managed assets, when trading is being done and even when select operational activity (such as corporate actions) are executed.

Application components such as Data Warehouses, ETL (Extract/Transform/Load) Platforms, Transaction Processing Hubs (e.g. Trade Routers with Dashboards) and Business Intelligence Reporting Platforms do not appear in this type of application schematic. They are not business function oriented directly. They are, however, often useful components to help consolidate information, ensure information flows in a controlled manner between applications or to facilitate access to data.

Many vendors provide applications and managed services platforms for investment management firms. Evaluating and comparing these vendors is beyond the scope of this assessment. We have, however, provided a list as Appendix A-2J.8.3.1 of typical categories of investment management applications, the vendors and a brief description of the solutions they offer. These include, for example:

- Enterprise and Portfolio Risk and Exposure;
- Performance and Performance Attribution, Performance Analytics;
- Credit Research;
- Portfolio Management, Trade Order Management, Compliance;
- Alternative Assets and Specialty Platforms;
- Investment Operations, Accounting and Support Services;
- Board Portal Management;
- Contract Management;
- Personal Trading/Certification; and,
- Document Management/ Workflow Services

Based on our understanding of the application platforms in use and from the interviews we conducted across all BAM teams, the following application gaps were raised:

BAM Internal Website	In many conversations with BAM associates, the discussion led to a need for improved information sharing across the BAM teams. One method to deliver multiple types of information is via an intranet portal. Information categories and samples of data include: • policies and procedures (email policy, document mgmt. and records retention requirements, personal trading restrictions, compliance policies with associated annual compliance forms and letters) • referential links (links to procedural documents, upcoming training information, BIST help desk procedure/off-house support, forms and sample letters), and • announcements (upcoming new investment products, inform of I/T initiatives – planned upgrades, outages, personal achievements). This internal website could be used to provide links to both City and BIST websites for additional information.
Board Portal	Internet-based, secure application platform to facilitate management of board meetings with tools that reduce the time and cost of producing and managing board materials and scheduling of board work. Board portals offer a way to streamline cross-board communications and related work processes.
Contact Management	Platform to store, manage and leverage all external contacts (trustees, board members, consultants, managers), including upcoming/history of meetings, meetings notes, calendaring integration and links to key reference documents. A meetings database is planned for delivery by BIST this year. This would usually be one component of a broader contact management platform.
Contract Management	Platform to facilitate the end-to-end contract management process with links to current and prior contract versions, workflow management with email integration and standard template components to facilitate reuse.
Enterprise Risk Management System	The lack of quantitative tools to monitor and manage risk has a limiting effect on the techniques BAM can employ in structuring the investment portfolios. Leading practice techniques, such as directly managing active share (in addition to using tracking error

	measures or style indices) are just not feasible without a risk management tool. Enterprise risk management platforms can provide position level transparency as well as market risk and performance analytics across the total portfolio.
Private Markets Management	Asset Management platform(s) for private investments that provides historical information on partnerships, has general partner information available, looks at vintage years, provides IRRs from inception, provides net of fees and other expenses as well as performance fees/carried interest, unfunded commitments, temporary return of capital. Note: We were informed BAM previously had standalone versions of Private Edge and Private i prior to the SSB migration and the migration to MyStateStreet led to the decommission of these platforms as the SSB was to replace them with alternative tools. It appears there is still confusion as to which tools that are available and how they can be leveraged.
Personal Compliance/Certification and Regulatory Compliance	BAM leverages the NYC Comptroller's Office employee Conflicts of Interest certification process. In discussion with the compliance officer, there are likely some improvements needed in reporting back to the BAM compliance function. BAM should establish a compliance tracking database in order to ensure that all BAM personnel have taken all relevant compliance training courses as well as achieving the training objectives. This database would be the foundation for exception reporting and following up procedures by divisional leaders on employees who are out of compliance.

Recommendations

R-2J.3: BAM should do a review and reset of its 2015-2017 strategic systems plan based on this review.

The three year forward rolling strategic systems plan is an appropriate mechanism to shape what is important to an organization and to ensure it is properly directing both its information technology and supportive business resources. Given the findings of the study, BAM should revisit the priorities that were set, the resources that were allocated and the projects that have been commissioned. The effort will likely take longer than what the planning process has included in prior years. As highlighted in other sections, all business team leads should provide input to the tools and technologies that will help them be successful.

There is a counterbalancing input that will need to be considered. As we have seen from the migration from BNY to State Street, the BAM organization likely will only be able to absorb a certain amount of new systems change. This will need to be taken into account.

C. Provide an evaluation of current plans to enhance and expand systems

Conclusions and Related Findings

C-2J.7: Most BAM teams have voiced frustration and disappointment with the level of application and technology support they receive from BIST.

In the Staff survey, “The Bureau of Information Systems and Technology’s performance in supporting BAM” received the fifth lowest aggregate score of the 25 topical areas in which survey responses were grouped. The negative sentiment was shared by many of the BAM business teams that we met with.

On positive side, we examined BIST’s project governance, management and reporting practices and procedures and did not see any significant systemic issues. Further, based on resource allocations, BIST has increased the level of support it provides to BAM since the new BAM CIO and Risk Manager have arrived.

There are, however, a number of factors that have soured the BAM business teams, including:

1. Several email and network (denial of service) outages have shaped the negative view of BIST support, even though they were due to support provided by the City DoITT agency.
2. There is only one dedicated resource for BAM and he wears multiple hats including overall liaison for issues, project management/coordination of all application initiatives and subject matter expertise for certain initiatives.
3. The historical lack of application support has led to many teams not asking for additional applications or technology services. Few teams include application and technology initiatives in their annual planning process.

Recommendations

R-2J.4: Information systems planning, management and reporting processes need a reset. Foundational processes are in place but either execution is lacking or management-level communication between organizations is not dealing with the issues that BAM front-line staff are feeling.

While bi-weekly meetings are held between BAM and BIST management team representatives, communication does not seem to get to the BAM staff regarding planned application and technology initiatives, off-hour support processes, training opportunities and feedback as to the reasons why outages occurred.   The BIST team was surprised with some of the comments they heard from the BAM trenches.

Meetings need to include a review of issues, open tickets, hotspots and status of communication efforts from both BAM management and BIST support team members.

R-2J.5: Guided by a business systems plan for the whole organization, BAM should work with BIST to add the number and types of additional IT staff needed to adequately support its operations and facilitate the additional system capabilities that are required.

From our own analysis, as well as discussions with BAM business teams, several types of resources would seem to be appropriate as Information Systems oriented staff adds. We believe these should be strongly considered. These include:

- Senior information systems resource to represent BAM in assessing systems opportunities, developing information systems strategy and implementing commissioned projects. The degree of change that will be required over the next several years will be greater than the one currently dedicated BIST resource would be able to cover.
- Business systems analysts who know the investment management business and have a base set of technical skills (SQL, Report Writing). At least one resource should have a risk/quantitative background and another should have a middle/back office operational background. These resources help flush out requirements, evaluate technology alternatives, write specifications and procedural documentation, provide quality assurance testing and facilitate business process deployment.

R-2J.6: Any additional information technology staff hired to support BAM full time should sit on the 8th floor and fully act and be viewed as “part of the BAM organization”, whether organizationally part of BAM or BIST.

Most public fund investment management teams have a small number of information technology/liaison team members who represent their needs and act as part of the team. Currently BIST allocates one person full-time to BAM. This individual spends time each week on the BAM floor and makes his way around to check in on the different teams.

While organizational location (BIST vs. BAM) is an important consideration, and we recognize the desire of certain BAM senior managers to have any new resources report directly to BAM, reporting lines are not as important as ensuring any resources are 100% dedicated and are viewed as part of the fabric of the BAM business. Further, they should sit full time on the newly staged 8th floor and be viewed by all BAM associates as member of their team.

Conclusions and Related Findings

C-2J.8 Several active projects have charters that appear confusing or too narrowly focused.

During our business reviews, several project efforts were mentioned that raised some potential concern.

Decommissioning of the general ledger system: While the migration of the business functions performed on the general ledger system to SSB seem like an appropriate goal for BAM, the cursory review of this project has raised several questions:

- As mentioned in the Investment Control section, the Head of Investment Control was unaware that the effort to migrate the general ledger and reporting processes to SSB had started. As a key team in the use of the general ledger system and the one most familiar with the core processes performed on the platform, we would have expected backfill resources would have been provided to the team so they could provide input to the transition.
- Investment Control feels the general ledger system has enabled them to uncover errors in the processing of activity performed by SSB relative to reconciling manager positions. It does not appear this input has been considered.
- Integration touchpoints for the movement of the general ledger to SSB do not seem to have been fully considered.
- Reporting provided out of the general ledger system has not been fully inventoried to ensure a smooth migration.

Risk Analytics Warehouse: A discussion of this project with the Risk team, followed by a cursory review of key project artifacts raised questions regarding the scope, goal and approach to this project.

Originally, we were thinking this had the merits of a skunk works project, initiative by the Risk business team, that would provide some immediate value, but also flush out a full suite of requirements for a more robust, long lasting Risk platform. On further review, it appears the database is being targeted as a significant foundational warehouse used to support a number of disparate, yet critical risk and operational business functions. Some insights gleaned from our review.

- Risk manager/team is providing input into the design although focus appears to be more around investment operational activity. This may be due to the Risk Manager's initial mandate by the CIO to focus on operational risk. While database solutions can certainly serve multiple master (i.e. business functions), there is a risk that the underlying design will not be flexible enough to support the functions it must accommodate long-term.
- Development is following an agile software development life cycle which appears appropriate, but requires business teams to understand and accept incremental delivery framework; already there appears to be a disconnect regarding availability of SQL resources to develop reports
- Database design closely aligns with format of files received from SSB which may not support the long term flexible type of reporting or expansion that is required. While this is provided a quick

starting point, it may limit future flexibility. An upfront scoping effort to ensure a full logical design it developed would have been the norm.

Recommendations

R-2J.7: Project resets should be implemented for both the general ledger system decommissioning and the Risk Analytics warehouse.

BAM should take a step back, ensure the goal, scope, approach and timeline of these are clear and the right people are engaged. Projects such as these two require a combination of managers who can deliver the expected transformational change as well as team members in the trenches who know the details surrounding how the work is performed today (e.g. business processes, controls, exception processes).

Conclusions and Related Findings

C-2J.9: BAM's Business Continuity/Disaster Recovery processes require a more structured and rigorous process.

BIST provides a framework (process and structure) for all of the Bureau's it supports in terms of data center recovery and business resumption processes. For the most part, the framework is sound and touches on all of the testing and validation components one would expect.

A key tenet of the approach is to provide the framework but put the onus on each bureau (and each business team within a bureau) to clearly understand what it requires if there is a data center event (disaster recovery) or building access event (business continuity) and then to develop and document the appropriate plans for each category of outage. This approach is not uncommon and is a prevailing practice.

BAM teams are at different levels of maturity in terms of their readiness. The Short Term trading team was one group that was able to speak to their business continuity plans and how they are tested. A recent classroom simulation event conducted by BIST, was graded as a "C" by the Compliance Manager, BIST and others. Some teams did not have represented and others were not able to speak to the specifics of how they would recover their part of the business to ensure key business processes can be resumed in the timetable required.

In talking with BIST, they do initiate both low level tests, such as validating the call tree, as well as various levels of actual business recovery scenarios. These tests have not been executed since the arrival of the current CIO. Testing of BAM's recovery plan, given the criticalness of its role in managing the assets of the five systems, should be done minimally on an annual basis.

We have provided in the appendix two documents that might be of use to BAM as they go forward and continue to develop their level of BCP capability. The first (Appendix 2J.8.1) is an extract from the

FFIEC (Federal Financial Institution Examiners Council) Information Technology Examination Handbook. This provides a very comprehensive set of criteria against which institutions can gauge their overall preparedness. While a detailed BCP deep dive study was beyond the scope of the BAM operational assessment, we thought this would be a useful reference. The second (Appendix 2J.8.2) is a more focused list of criteria that we felt BAM may be able to use to start down a path of BCP continuous improvement. While this criteria leverages some of the work of the FFIEC, it is structured in such a way that it could help BAM educate its team on what factors are most important to address and test as it relates to BCP preparedness.

Recommendations

R-2J.8: **BAM management needs to strongly reinforce the importance of each business team ensuring their team has fully analyzed its business continuity requirements and have documented them. Full complete participation in all business continuity drills must be an absolute requirement for all BAM teams.**

R-2J.9: **BAM should work with BIST to schedule and hold a true Business Continuity weekend event for all core (day 0 and Day 1) business processes and associated teams, including recovery to the backup site.**

MAIN APPENDICES

Appendix 1: FAS Overview and Project Team Member Biographies

Overview of Funston Advisory Services LLC

Funston Advisory Services LLC (FAS) was formed in 2010. The principals have been providing governance, strategy and risk advisory services since at least 1980. FAS works with a network of public pension retirement system experts who operate as independent subcontractors to FAS, including specialized firms, such as Cutter Associates. Each team member is a highly-experienced professional, with decades of consulting, legal and/or pension industry experience. Our team has worked together on a series of high-profile governance assignments:

- California Public Employees' Retirement System (CalPERS) – Board Governance and Effectiveness Project
- Oregon Investment Council – Fiduciary Governance Review
- New York State Common Retirement Fund – Fiduciary and Conflict of Interest Review
- Trust Fund for the People of the Federated States of Micronesia – Governance Review
- School Employees Retirement System (SERS) of Ohio – Fiduciary Audit
- South Carolina Retirement System Investment Commission (RSIC) – Fiduciary Performance Audit
- South Carolina Public Employee Benefit Authority (PEBA) – Fiduciary Performance Audit

These engagements were unique assignments which required a customized approach and involved an in-depth understanding and review of governance structures and fiduciary responsibilities, critical decision-making processes, delegations of authority, investment operations, and accountabilities. The reviews frequently involved extensive benchmarking and original research to identify and describe leading and prevailing practices in a range of governance and operational areas.

The biographies of each team member involved in the NYC BAM review are included below in alphabetical order.

Keith Bozarth

Keith S. Bozarth retired as Executive Director of the State of Wisconsin Investment Board (SWIB) in June 2012. He was a senior advisor on the FAS team for our New York State CRF, SERS of Ohio, and South Carolina RSIC fiduciary review engagements. During his tenure at SWIB, he successfully led a number of key initiatives:

- Modernization of Wisconsin law governing SWIB investments, providing full “prudent investor” authority;
- Changes in Wisconsin law to provide trustees with full control of SWIB budget and staff positions;
- Thirty percent increase in staffing at SWIB, which facilitated as increase in internal management from 20% of assets to over 50%, resulting in net cost savings;
- Review of the actuarial assumptions used for investment return and wage growth, resulting in significant adjustment to both;
- Implementation of a cost attribution system, assigning cost to individual portfolios, and a revised incentive program to reflect full “net return” calculation;
- Revised incentive program to reflect market for comparable operations; and
- Implementation of an enterprise risk management function for SWIB.

Before joining SWIB, Keith was CEO of the Orange County Employees Retirement System in California. His experience working with public pension funds began in 1992 and also includes the Teachers’ Retirement System of Illinois and both the State Employees’ and Public School Retirement systems in Missouri. He has served 11 years in a CEO role with oversight of investment, benefit and actuarial funding plans. In addition, he spent five years providing counsel to the Missouri section 457 deferred compensation plan and served one term as a member of the oversight board for the plan. In total, he has nearly 25 years involved in deferred compensation or pension issues. He has overseen asset-liability studies at four different public funds, working with a range of consultants and actuaries. Keith is a well-known figure among the pension fund community and has regularly published and presented.

Keith holds a bachelor’s degree and a J.D. degree, both from the University of Missouri-Columbia. He also was awarded the Retirement Plans Associate designation from the International Foundation of Employee Benefit Plans (joint program with the Wharton School).

Virginia Brizendine

Virginia S. Brizendine led the review of New York State CRF's and South Carolina RSIC's investment accounting processes. She served as Chief Financial Officer for the School Employees Retirement System (SERS) of Ohio from 1999 to 2010. Prior to SERS Ohio, she was employed by the Public School Retirement System of Missouri (PSRS) and Public Educational Employee Retirement System of Missouri (PEERS) from 1981 until 1999. During that time, she served as Chief Financial Officer of PRSR/PEERS from 1994 to 1999, as PSRS Administrator from 1986 to 1994, and as PEERS Administrator from 1981 to 1986.

Virginia is a Certified Public Accountant (Missouri Certificate No. 7773, retired) and a Certified Government Financial Manager (CGFM) (Certificate No. 4). She also holds a Missouri Permanent Teaching Certificate.

Virginia is an instructor for the Association of Government Accounts on the topics of "Government Environment" and "Government Financial Management and Control." She has made presentations throughout the United States on "Dealing with Change in the Workplace," "GAAP for Public Pension Plans," "Internal Control Issues," "Fraud in Public Retirement Systems," and "Ethics in Government."

She has served as chairman of the GFOA Committee on Retirement and Benefit Administration, was the national president of the Association of Government Accountants and was a co-founder and president of the Public Pension Financial Forum.

Virginia earned an M.S. in Accountancy from in 1981, an M.M.Ed. in 1977, and a B.S.Ed. (magna cum laude), all from the University of Missouri.

Peter C. Clapman

Peter Clapman was the Senior Vice President & Chief Investment Counsel for TIAA-CREF for 32 years until his retirement in 2005. He also headed its corporate governance program. *Business Week* cited TIAA-CREF as having, at the time of his leadership, the most influential investor corporate governance program in the United States and globally. Peter assisted the FAS teams during their fiduciary reviews of CalPERS, the Oregon Investment Council, and the New York State Common Retirement Fund.

Peter is currently active in many organizations concerned with corporate governance. He is a member of the Stanford Law School Institutional Investor Forum, and is a speaker at its Directors and Fiduciary Colleges. The Stanford Forum published the "Clapman Report" and the "Clapman 2.0 Report," recommending best practices for governance of institutional investors. He is on the advisory boards of the Columbia Millstein Center and the University of Delaware governance center. He is also Senior Advisor of CamberView, an organization that advises managements and boards of public companies on how to better their relationships with institutional investors in the context of shareholder meetings and proxy contests.

Peter has been appointed to the Standing Advisory Committee of the Public Company Accounting Oversight Board for a three-year term (2013-2015). He was on the Board of iPass, a NASDAQ-listed company, where he chaired the Governance Committee and served on its Audit and Strategies Committees. He served previously on committees of the NYSE, NASDAQ and the London Stock Exchange. He was the Independent Chairman of the AARP Mutual Funds Board of Trustees.

Peter completed three three-year terms on the Board of the National Association of Corporate Directors, which provides director education for independent directors and issues "best practice" reports on key corporate governance issues. He was a partner of Governance for Owners LLP, a UK based investment organization, offering global investment and governance services, and its former Chairman in the US.

The International Corporate Governance Network (ICGN) gave Peter the ICGN 2005 Award for his significant achievements in improving global corporate governance standards. He was described as a "trusted thought leader to members of corporate management and boards of directors as well as institutional investors", because of his balanced approach. He was the Chairman of the ICGN from 1999-2002 and led the organization through its major expansion. He has been cited in Smart Money and by The Financial Times for his influential role in global corporate governance.

Corporate Secretary Magazine in 2010 profiled him in conferring its Lifetime Achievement Award for Corporate Governance, stating that his “thoughtful and balanced approach to governance and investing issues” enabled him to be “equally well regarded by both the investor and corporate communities”.

Peter is a graduate of Princeton University, and Harvard Law School.

Marv Damsma

Marv Damsma has worked for several private and public pension funds as chief investment officer, including The Kellogg Company and the New York City Retirement Systems. He served BP America Inc. for twenty-one years, most recently as the Director of Trust Investments, where he oversaw assets of over $19 billion. For twelve years he managed the in-house investment team. Marv served as an investment operations expert on the FAS team which conducted the Fiduciary Performance Audit of the South Carolina Retirement System Investment Commission.

Marv has been intimately involved in investment policy, strategy, control, risk management, operations, internal management, actuarial issues, cash management and information systems. He has been a leader in overseeing the funds of such large organizations as BP America, Amoco, the City of New York, and the Kellogg Company. He was a pioneer in developing unique information systems regarding risk management and governance of funds and was one of the early adopters of the concept of portable alpha. He currently sits on various corporate pension and foundation investment committees and is the Chair of the International Electrical and Electronics Engineers (IEEE) Pension and Endowment Fund.

Marv is a graduate of Babson College (1967), and he served in the U.S. Army (1969-71).

Rick Funston

Frederick (Rick) Funston is the Managing Partner of Funston Advisory Services LLC, focusing on the interrelationship between governance, strategy and risk. In 2001, he created the concept of risk intelligence for both value creation and value protection. He is a frequent public speaker both domestically and internationally and he is the principal author of Surviving and Thriving in Uncertainty: Creating The Risk Intelligent Enterprise™, published by John Wiley & Sons in April, 2010. This book is specifically targeted at the governance and risk oversight needs of boards and executives in both public and private sectors.

Rick recently led the fiduciary performance audit of the South Carolina Retirement System Investment Commission. He previously led the Fiduciary Audit for the School Employees Retirement System (SERS) of Ohio, where the emphasis was on governance, policies and procedures in the investment operations and identifying improvement opportunities. He recently led a Fiduciary and Conflict of Interest Review for the New York State Common Retirement Fund, a review of governance structure alternatives for the Oregon Investment Council, and a Board Governance Project and Enterprise Risk Management projects at CalPERS. He has provided board and executive education for the Washington State and the State of Wisconsin Investment Boards.

Rick left Deloitte & Touche LLP in May 2010 and formed Funston Advisory Services LLC. Prior to his departure, he was the National Practice leader for Deloitte's Governance and Risk Oversight Services. In that capacity, he served many of Deloitte's largest domestic and global clients and was responsible for the thought leadership that currently underpins Deloitte's globally pre-eminent position in risk intelligence. Over the past 14 years, Rick has been in high demand as a thought leader and public speaker ranging from public and private sector boards and professional organizations such as the National Association of Public Pension Attorneys, the Public Pension Financial Forum, Institutional Investors and the Institute of Internal Auditors to the FBI, the Department of Defense, the University of California Berkeley, Stanford Law School, Yale and Princeton. He was the first to introduce the concept of velocity in risk assessments that has recently been officially adopted by COSO, the Committee of Sponsoring Organizations of the Treadway Commission.

He has over forty years' experience in both not-for-profit and for-profit sectors. Before joining Deloitte, Rick was the CEO of Continuous Improvement Services Inc. He began his career in the public sector consulting on strategy and operations, organization and leadership development, performance management, program evaluation and survey research.

Rick has been a guest lecturer at the Yale School of Business and at Princeton University. He also served on the Board of Visitors for the Oakland University School of Business Administration from 2009-2011 and is an Adjunct Professor for the executive MBA program. He was awarded a B.A. from York University in Ontario and an M.S.W. from Tulane University.

Lance Ihinger

Lance Ihinger is a Principal with Cutter Associates and their Practice Leader – Public Pension Funds. He is an experienced, progressive, and innovative Information Systems professional with over 32 years of broad-based management experience in application design and development, strategic planning, budgeting, client support services and large-scale project and program management. Lance has proven leadership strengths in-personnel development, team building, systems management, vendor negotiations, technology innovations and client relations and support, as well as the ability to quickly understand and handle complex technical and operational issues. He provides clients results-oriented, cost effective business. He has managed several large, complex, multi-year projects from their inception to their successful completion.

As practice leader for Cutter's Public Pension Clients, Lance has a deep understanding of the unique needs and challenges faced by public funds. He has worked successfully to deliver a number of strategic initiatives including system implementations, upgrades, business process reengineering, and project management projects, ensuring consistent, high quality results.

Prior to joining Cutter Associates, Lance served as President of Stenos Consulting Group. He also held positions as Vice President of Technology at Capital Professionals Advisors and Director at PriceWaterhouseCoopers. Lance began his career as a Principal at Cytrol Incorporated. He holds a B.A. in Physics from Carleton College and an M.B.A. for the Carlson School of Business, University of Minnesota.

Ken Johnson

Kenneth (Ken) W. Johnson retired from the State of Wisconsin Investment Board (SWIB) in 2010. He has worked with FAS since 2012 and led the review of investment-related operations and use of external managers and consultants on our assignments with the South Carolina RSIC, SERS of Ohio and the NYS CRF, and he also assisted with our Oregon Investment Council engagement. He became Administrator for Global Investor Collaboration Services, LLC after retiring at the end of 2010 as Chief Operating Officer and Chief Financial Officer for SWIB.

As COO/CFO for over 10 years, Ken had oversight of SWIB support services including financial operations, information technology, communications with the public, and cost-effectiveness benchmarking. He previously served as a team leader and analyst for the nonpartisan Wisconsin Legislative Fiscal Bureau and as Executive Assistant to the Secretary of the Wisconsin Department of Veterans Affairs.

Ken was a board member and treasurer for Summit Credit Union, one of the largest credit unions in Wisconsin, for six years. He is currently an outside director for Bankers' Bank, which supports community banking services in the Midwest. He continues to serve as a board member and investment committee chair for the Wisconsin College Savings Program (EdVest). Ken holds a bachelor's degree from Northwestern University and a master's degree in public policy administration from the University of Wisconsin-Madison. He also holds the Claritas Investment Certificate from the CFA Institute.

Jon Lukomnik

Jon Lukomnik led the evaluation of hiring and firing of external managers and consultants and due diligence and monitoring procedures during the SERS of Ohio, NYS CRF and South Carolina RSIC reviews. Jon is managing partner of Sinclair Capital L.L.C., a strategic consultancy to corporations, institutional investors and the investment management industry. He has provided risk management, product development, due diligence, fund selection and portfolio construction services to various institutional investors. Clients have included Nikko Asset Management, Legg Mason, SBLI Mutual Life Insurance Company, and NS Capital. He currently serves on two investment committees. Jon is a trustee for the Van Eck mutual fund complex. He has also been a director for various public companies, private companies, not-for-profit corporations and litigation trusts.

Jon was deputy comptroller for pensions for the City of New York in the mid-1990's, where he was the designated investment advisor for the City's five defined benefit pension funds and was investment advisor for defined benefit plans totaling $80 billion in assets, as well as the City's own treasury. In total, he has served as investment advisor or trustee for more than $100 billion in assets under management for various trusts, pension funds, endowments and asset management companies.

Over the course of his career, he has conducted more than 1,000 due diligence and external asset manager monitoring meetings. Jon was named by the National Association of Corporate Directors as one of the 100 Most Influential People in America for Corporate Governance in 2011 and 2012. He was the International Corporate Governance Network's 2013 honoree for "excellence in corporate governance." He was recently appointed to the Standing Advisory Group of the Public Company Accounting Oversight Board (PCAOB) for a three-year term beginning in 2015.

A frequent contributor to both academic and practitioner publications, Jon co-authored the award-winning book, The New Capitalists: How Citizen Investors Are Reshaping the Corporate Agenda (Harvard Business School Press, October 2006) and writes a monthly column for Compliance Week.

Susan Mangiero

Susan is a managing director with Fiduciary Leadership, LLC. She provides compliance, fiduciary training, dispute and litigation support to asset managers, banks, companies, institutional investors (pensions, endowments, foundations, etc.) and their counsel.

Susan is a CFA® charter holder, a certified Financial Risk Manager®, an Accredited Investment Fiduciary Analyst® and Professional Plan Consultant™. She has taught investment, performance reporting, risk management and valuation courses to legal and financial professionals, graduate students, auditors and regulators. She is a former tenured Associate Professor of Finance. Susan has recently developed an online graduate course on risk management oversight by board members for the University of Connecticut.

Having been trained as an appraiser, Susan has rendered opinions of value or reviewed third party valuations of stock, fixed income, options, swaps and other financial instruments for executive compensation, investment, hedging, trust and estate planning and corporate finance purposes. She has worked on multiple trading desks, including foreign exchange, futures, options, swaps and other over-the-counter derivatives, fixed income securities and money market instruments, and served in two global treasury departments.

As a forensic economist, Susan has testified and provided behind-the-scenes analyses about issues that include service provider due diligence, financial fraud, investment governance, investment performance, portfolio construction, benchmarking, derivatives, asset-liability management, reasonableness of fees, hedge funds, private equity funds, trading costs, liquidity, hedging, modeling, model reviews, fiduciary best practices and risk management. She was selected as the risk management expert to serve on a World Bank team that consulted with the Chilean pension regulator on matters relating to oversight and internal controls.

Formerly, Susan served as CEO and founder of an educational online start-up company known as Investment Governance, Inc. She is the lead contributor to the award-winning retirement plan blog at www.pensionriskmatters.com. A prolific writer, Susan is the author of Risk Management for Pensions, Endowments and Foundations and has contributed to publications such as Risk Magazine, Bloomberg BNA Pension & Benefits Daily, Private Equity Investor, Hedge Fund Review, Journal of Indexes and Journal of Compensation and Benefits. She has presented to groups that include the Government Finance Officers Association, Association of Public Pension Fund Auditors, Pension Bridge and the Florida Public Pension Trustees Association.

Todd McGowan

Todd McGowan has broad experience in leading teams involved with governance, risk management, business process, information technology and internal control audits. He is a senior leader with demonstrated ability to identify cost savings and implement process improvements. His industry experience in serving clients includes manufacturing, financial services, energy and healthcare/ insurance.

Most recently, Todd was Executive Vice-President and Managing Director, Regulatory Affairs and Operational Risk for Flagstar Bank in Troy, Michigan. In this role, his duties included preparing and presenting remediation status updates to the Bank's Board of Directors and its Compliance, Audit and Risk Committees. He developed action plans based on the findings and recommendations arising from supervisory letters and regulatory examinations. He also managed the bank's ERM Operational Risk functions which included SOX financial compliance, vendor risk management, commercial appraisal group, model risk management, data and record retention, and business continuity management. In his prior role as Executive Vice-President and Chief Risk Officer for four years, his responsibilities included ensuring the institution was in substantial compliance with internal operating policies and procedures as well as regulatory requirements. He also reorganized and centralized ERM and Compliance functions previously maintained within the bank's operational business units. This included hiring a Chief Credit Risk Officer, Chief Compliance Officer, Chief Audit Executive and head of Business Continuity Management. He also co-sourced certain functional ERM activities until internal capabilities were developed and matured, including Internal Audit (technical audits), Commercial Loan Review, and Data and Records Management.

Prior to Flagstar Bank, Todd was a partner with Deloitte & Touche where his roles included Regional Quality Risk Management Partner, Regional Internal Audit Practice Leader, Regional Enterprise Risk Services Leader, and Regional Controls Assurance Leader. He led engagement teams in delivering cross functional services within the Enterprise Risk Services group as well as teamed with subject matter specialists from the Audit and Consulting functions of Deloitte.

Todd received his B.S. in Accounting and MBA from the University of Detroit.

Randy Miller

Randall (Randy) W. Miller, a Principal with Funston Advisory Services LLC, has co-led governance reviews at South Carolina PEBA and RSIC, the New York State Common Retirement Fund, SERS of Ohio, the Oregon Investment Council and the Office of the Oregon State Treasurer, and CalPERS. At CalPERS he also assisted in developing their enterprise risk management program. He has led six FAS governance benchmarking studies, a critical part of the FAS governance reviews. He has provided executive education workshops with the Boards of the Ohio Police & Fire Pension Fund and the Oregon College Savings Plan and has presented testimony to the South Carolina Senate Finance Special Subcommittee to Review the Investment of State Retirement Funds. He has extensive experience in operations analysis and planning, developing and directing large-scale improvement programs.

Randy retired from Deloitte Consulting LLP in February 2010 after 27 years of service, where he most recently led Mergers & Acquisitions Integration Services to manufacturing industry clients. He has significant international consulting experience, led Deloitte's global automotive industry consulting practice, and was based in Germany with Deloitte from 1997-2003, where he led Deloitte Consulting DACH (Germany, Austria, Switzerland) for two years. He specialized in planning and implementation of mergers, acquisitions and divestitures; market and supply chain strategy; and cost reduction/ operations improvements.

Randy has led a variety of benchmarking studies, including board governance, investment operations, overhead cost structure, information technology strategies, and business transformation strategies. Randy received an A.B. degree from Dartmouth College with a major in Engineering Sciences. He also received a B.E. from the Thayer School of Engineering and an M.B.A. from the Amos Tuck School of Business, both also at Dartmouth. Prior to Deloitte, Randy was a car product planner at Ford Motor Company.

David Mills

Dave Mills has nearly thirty years of experience in the management of public pension plans and investments, and an additional twelve years of years of experience in governance and investment of large non-profit organizations and foundations. He left public service in 2007 as Executive Director of the State of Wisconsin Investment Board (SWIB), the independent state agency that managed $95 billion on behalf of the Wisconsin Retirement System and state and local governments. Subsequently, Dave joined the Board of Trustees at Casey Family Programs, a $2.2 billion private operating foundation headquartered in Seattle, where he chairs the Investment and Compensation Committees and serves as the Board's Governance Officer.

Additionally, Dave's experience includes ten years as Deputy Secretary and Chief Operating Officer for the Wisconsin Department of Employee Trust Funds, the agency which manages health, retirement and other benefit programs for the state and local governments in Wisconsin. His career also includes ten years of administration in higher education at the University of Wisconsin-Madison and as Assistant Dean at Cornell University. Related experience includes five years as a Board member and Chair of Summit Credit Union, with assets at the time in excess of $150 million.

Dave's affiliations have included the Council of Institutional Investors (CII), the Government Finance Officers of America (GFOA), the International Foundation of Employee Benefit Plans (IFEBP), and the National Council on Teacher Retirement (NCTR) for which he served as national President in 2002. He has been a frequent speaker at seminars and conferences held by those organizations on topics involving governance, investment compensation design and organizational development, and cost effective benefit plan design.

Dave has served as a member of the Hewitt EnnisKnupp Investment Client Advisory Committee, advisor to the Aspen Institute Business and Society Program's capital market Long Term Value Creation project, a member of the review panel for the National Public Budgeting Awards Program sponsored by GFOA, and Board member of the Madison Children's Museum. His international engagements have included leading World Bank-sponsored investment compensation design workshops for sovereign wealth funds and as one of thirty world leaders invited to advise the Chinese National Council for Social Security Fund on worldwide best practices for pension investment organizations.

Dave holds a B.A. degree in political science and M.A. degree in public policy from the University of Wisconsin-Madison, where he has also completed 31 post-graduate credits in law.

Rich Ronan

Richard ("Rich") Ronan is a Managing Director with Cutter Associates where he leads the Execution Services Practice. He has over 25 years of experience in the investment management industry. He provides a strong blend of business investment and operational understanding as well as an extensive background in strategic application assessments, system selection/ implementation processes and program/project management practices. Rich has delivered numerous transformational projects across front to back office investment processes including projects in the research, portfolio management, trading, performance management, compliance, reference data, investment data warehouse and middle office spaces.

Prior to joining Cutter Associates, Rich was a Managing Director at BlackRock Solutions where he co-led the implementation of Aladdin for Merrill Lynch's Fixed Income and Equity Investment Management business. Rich also served as Director, Investment Systems at Merrill Lynch Investment Management where he managed the firm's suite of Front Office applications including research, risk, performance and PM/Trading applications.

In a prior role at AllianceBernstein, Rich both managed all of the firm's research, risk, portfolio management and trading systems as well as led the firm's implementation of project management practices and cost allocation framework. He was also the firm's Chief Architect.

In earlier experience, Rich was Vice President, Investment Systems at Prudential Investments. In that role, Rich was responsible for the firm's Global Fixed Income technology function as well as cash management and funding and liability management systems.

Rich holds the Chartered Financial Analyst ® designation and is a Certified Basel iii Professional (CBiiiPro). While at AllianceBernstein he was nominated as a Computerworld Premier 100 I/T Leader. Rich received his B.S., Management Information Systems from Southern New Hampshire University. He was a member of the FIX Americas Working Group.

Christopher W. Waddell

Chris Waddell joined Olson Hagel & Fishburn, LLP as a Senior Attorney in December 2008, where he heads the firm's Public Retirement Law practice. He previously served as General Counsel for two California public retirement systems; first at the California State Teachers' Retirement System (CalSTRS), the second largest public pension fund in the country, and later at the San Diego City Employees' Retirement System (SDCERS). He has extensive experience in advising public pension trustees and staff on fiduciary obligations, plan funding and administration, and governance best practices.

Chris currently serves as the outside General Counsel to the San Luis Obispo County Pension Trust, fiduciary counsel to SDCERS, and advises CalSTRS and several other California public pension systems as outside counsel on pension and fiduciary law issues involving benefits administration and/or interpretation as well as plan funding and governance questions. He also provides training in these areas as well as on open meeting and public records laws.

Prior to joining CalSTRS, Chris was the Chief Counsel for the California Department of Finance and before that was the Chief Counsel for the California Department of Personnel Administration. During a portion of his tenure at Finance, he served as the Department's representative on the CalSTRS Board. At both departments, he worked on a number of significant pension issues affecting CalSTRS and CalPERS.

Chris is the author of a study released in 2009 by the American Federation of State, County and Municipal Employees entitled "Enhancing Public Retiree Plan Security: Best Practice Policies for Trustees and Pension Systems." He has served as a Corporate Governance Fellow at the Stanford Law School and was a Co-Director of the Stanford Fiduciary College. Chris was the lead author for the Clapman 2.0 Report, an update and expansion of the original 2007 Clapman report on pension fund governance best practices, issued by the Committee on Fund Governance of the Stanford Institutional Investors' Forum. He also authored a chapter entitled "Fulfilling Fiduciary Duties in an Imperfect World—Governance Recommendations from the Stanford Institutional Forum" for the Cambridge Handbook of Institutional Investment and Fiduciary Duty, published in 2014 by Cambridge Press.

Chris is a member of the National Association of Public Pension Plan Attorneys (NAPPA) and has served as the Chair of the Investment Section and Co-Chair of the Fiduciary Section. He has spoken frequently on pension governance, fiduciary law, conflicts of interest, and securities litigation issues before the National Council on Teacher Retirement, NAPPA, the California Association of Public Retirement

Systems, and the Stanford Fiduciary College. He has also testified before on pension issues before the California Legislature, the San Diego City Council, and the San Diego Charter Revision Commission.

Chris earned his Bachelor's degree in Political Science/Public Service from the University of California at Davis and his law degree from the McGeorge School of Law, where he was a writer and editor for the Pacific Law Journal. He is a member of the State Bar of California.

Appendix 2: Results of BAM Self-Assessment Survey

Preliminary Analysis of Results

NYC Bureau of Asset Management
Best Practices Review
Self-Assessment Survey

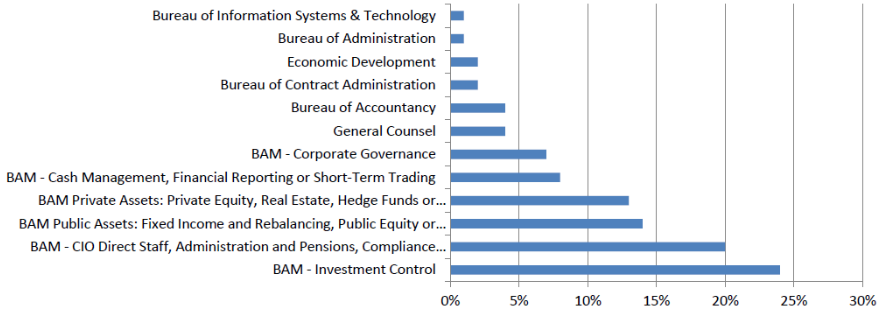
Conducted from June 29 – July 8, 2015

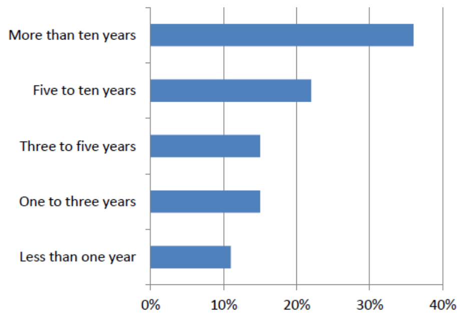
Funston Advisory Services LLC

Background

- Funston Advisory Services (FAS) conducted a self-assessment survey with BAM staff and selected staff from other Comptroller's Office Bureaus that support BAM as part of our Best Practices Review
- The survey included:
  - Several general questions about improvement opportunities and priorities for BAM and adequacy of its resources
  - 184 specific questions in 25 topical areas which generally reflect the areas described in the Scope of Services for the BAM Management and Operations Study and Best Practice Review
  - Opportunities to provide comments for needed improvements in response to each detailed question
- Responses were collected from June 29 –July 8 using an online survey tool
- This document presents a preliminary summary of the survey results
- The self-assessment survey is one input into our review process and provides helpful background for our interviews and analysis and input into the eventual formulation of our independent assessment and recommendations

Survey Respondents



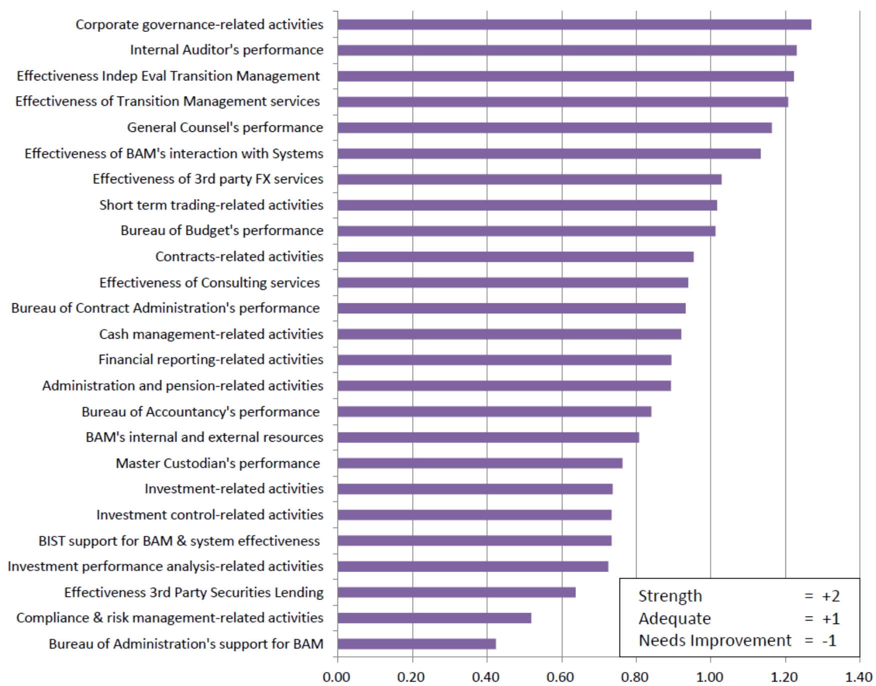


- Of the 121 staff in BAM and other Comptroller's Office functions invited to participate, 86 employees, or 71%, responded
- 58% of respondents have worked in the Comptroller's Office for at least five years

Funston Advisory Services LLC
Preliminary BAM Self-Assessment Survey Results

3

Summary Level



Funston Advisory Services LLC
Preliminary BAM Self-Assessment Survey Results

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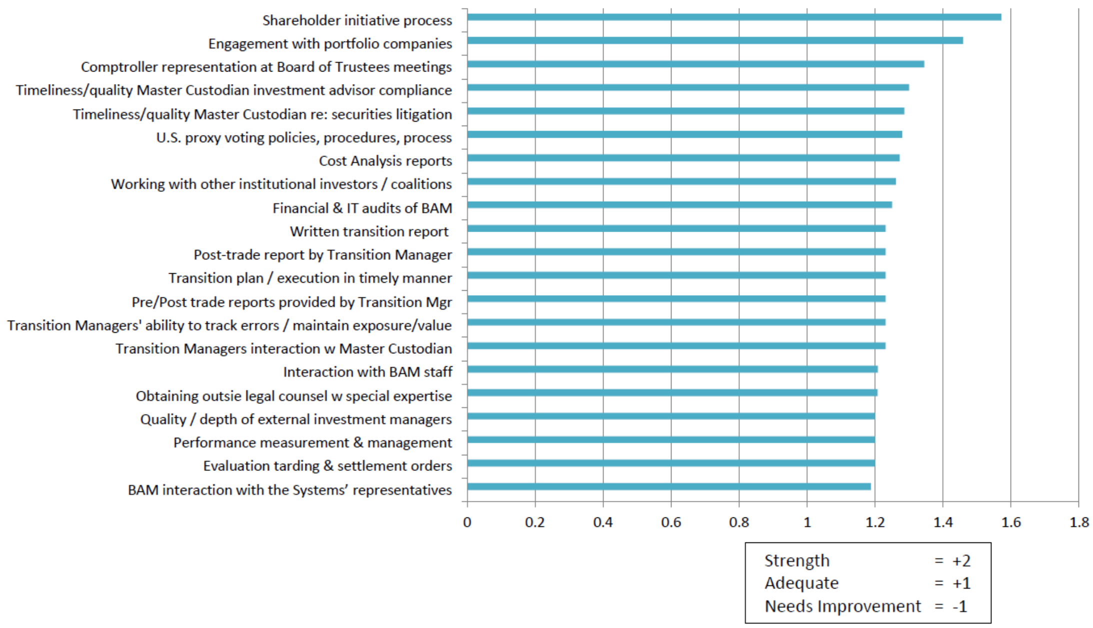
Example Detail Level (20 Highest Ranked)



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Preliminary BAM Self-Assessment Survey Results
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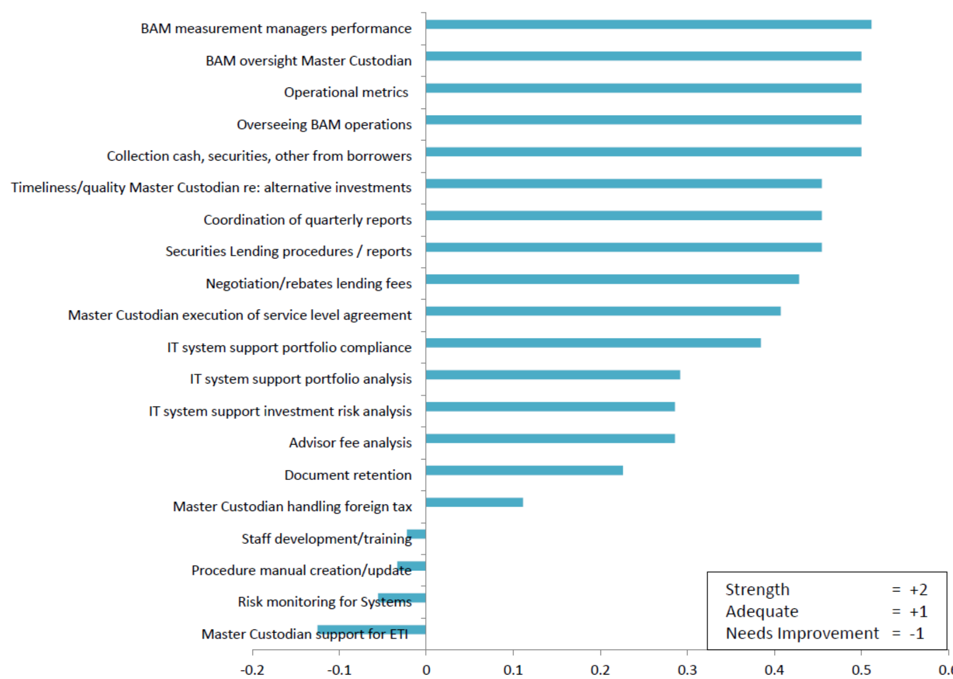
Example Detail Level (20 Lowest Ranked)



Funston Advisory Services LLC
Preliminary BAM Self-Assessment Survey Results
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Staff Comments on Areas Needing Improvement

- We received almost 900 comments across all the areas in the survey
- We have synthesized the verbatim feedback on needed improvements and organized it into five thematic areas:
  - People and organization
  - Policies and processes
  - Systems and information for decision-making
  - Relationships with the Systems
  - Factors external to BAM
- Comments within each area are not listed in any priority order
- Comments were selected based on frequency and / or perceived pertinence
- Comments are subject to verification and corroboration as part of our continuing document review and interview process

Staff Comments on Areas Needing Improvement

People and organization:

Training and Development

- Lack of training / continuing education must be paid by employee
- Poor onboarding / non-responsiveness to basic HR / benefit questions
- Unclear career paths

Organization / Compensation / Working Conditions

- Unclear organization structure
- Resentment over compensation disparities / low morale
- Poor working conditions

Management Oversight

- Quality of management oversight of BAM's operations is weak / many bottlenecks
- Key person dependencies / lack of delegation

Staffing

- Understaffing in most, if not all, areas = lack of ability to conduct proper due diligence and on-going monitoring
- Asset class staffing inconsistent
- Turnover rates / lengthy time to fill vacancies / loss of institutional knowledge

Communications

- Communications improving but still poor

Staff Comments on Areas Needing Improvement

Policies and processes:

Documentation

- Lack of policy and process documentation / centralized policy repository
- Poor document retention / management
- Lack of standardization of processes

Due diligence

- Lack of a consistent and robust external manager due diligence selection process
- Lack of a consistent external manager monitoring program
- Over-reliance on consultants for due diligence/monitoring

Inefficiencies

- Inefficiencies caused by lack of automated systems / disruptions /delays caused by equipment breakdowns

Risk and Control

- Lack of controls in critical areas
- Nascent risk and compliance programs
- Inadequate understanding of portfolio risk
- Onerous bureaucracy / multiple approvals within and outside of BAM
- Some opportunities to circumvent ethics policies and front-running investment manager recommendations

Staff Comments on Areas Needing Improvement

Systems and information for decision-making:

IT Support for BAM

- Minimal IT support – one person assigned to BAM part-time

Systems

- Manual information gathering and reporting processes increase likelihood of error
- Lack of systems / uniformity

Information for decision-making

- Difficulty in timely sharing / accessing information

Monitoring

- No overall portfolio risk monitoring system
- Difficulty in monitoring 3rd party providers

Reporting

- Reporting cumbersome, complex, time consuming, redundant
- Many reporting issues since switching Master Custodian

Record Retention / Retrieval

- Poor document management
- Lack of access to historical records
- No central repository for records or standardized filing system/folder structure
- Litigation holds are problematic / difficult to enforce

Staff Comments on Areas Needing Improvement

Relationships with the Systems:

Support for trustees / Time Required / Number of Board Meetings

- Time spent in care and feeding of Boards of Trustees / too many meetings
- BAM under-resourced for level of support required
- Support to Trustees can be improved but not clear what they really want
- Lack of delegation from Trustees, especially manager selection

Investment focus / knowledge / continuing education

- Boards and Comptroller have largely non-investment focus / potential for politicization of BAM
- Lack of investment knowledge amongst trustees
- Need Trustee education

Communication / Reporting with Systems

- Trustee designee needs better info to avoid surprises from System Boards
- Ineffective communication with systems
- Need for improved / streamlined reporting to Systems

Staff Comments on Areas Needing Improvement

Factors external to BAM:

- Master Custodian may be non-responsive in certain areas / Inconsistent
- Inconsistent relationships with other Bureaus within Comptroller's Office
- Inconsistent quality across consultants and inconsistent use of consultants

Appendix 3: Recommended Priorities and Related Appendices

	Recommendation	Critical vs Important vs Leading Practice	Difficult vs Medium vs Easy to Accomplish	Resources Required: Low / Medium / High	Comptroller Support Needed	System Support Needed	Enabling Legislation Needed	Template Provided	Examples	Appendix No.
Systemic Recommendations										
Organization and Administration										
R.1:	BAM should be reorganized to create manageable spans of control and needed capabilities which do not exist today.	Critical	Medium	High	Yes	Yes	No	No	Target Organization	7
R.2:	BAM should create an internal Investment Committee	Important	Easy	Low	No	No	No	Yes	Sample Charter	8
R.3:	BAM should create an Operational Risk Committee	Critical	Easy	Low	No	No	No	Yes	Sample Charter	8
R.4:	The position of Chief Administrative Officer (CAO) responsibilities would include budgeting, financial reporting, human resources, contracting, IT and strategic planning. See example job descriptions.	Important	Medium	Low	Yes	No	No	Yes	Sample Job description	10, A.1.1.4 to 1.1.7
R.5:	The Head of Strategic Initiatives should be responsible for the development and oversight of the strategic plan and supporting change management.	Important	Medium	Low	Yes	Yes	No	No		
R.6:	As part of the reorganization, the goals should be to shift from largely repetitive clerical tasks in support areas to high value-added analysis; provide oversight and the development of a true back- and middle-office; and create an internal BAM financial reporting and control function.	Critical	Difficult	High	Yes	No	No	No		
R.7:	BAM should develop a comprehensive staffing plan to provide effective day-to-day oversight of service providers and perform essential functions.	Critical	Medium	Easy	Yes	No	No	Yes	Target Organization	7
R.8:	Assuming the Systems confirm the current asset allocation or some similarly complex investment program as a result of the current, ongoing asset allocation study, and that BAM develops a supporting business case and budget, the Systems should fund the incremental costs required for BAM to implement the recommendations of this report. The costs of the investment operations should be borne by the Systems in proportion to their share of the assets managed by BAM.	Critical	Difficult	High	Yes	Yes	No	Yes	Target Organization	7
Training and Development										
R.9:	The CIO (working in conjunction with the Deputy Comptroller for Administration where necessary) should institute an urgent human resources initiative within the Bureau of Asset Management.	Critical	Difficult	High	No	No	No	No		
R.10:	The position of Head of Human Resources should be created, under the CAO, to address this recruiting and staff development priority. See proposed job description attached.	Critical	Difficult	High	Yes	Yes	No	Yes	HR Job description	11
R.11:	The Head of Human Resources should identify key positions and ensure succession plans are developed.	Important	Medium	Low	No	No	No	No		
R.12:	There should be a comprehensive training and development program, led by the Head of Human Resources, for all BAM employees in addition to mandatory ethics and fiduciary training. Such programs should be developed and conducted in-house.	Important	Medium	Medium	No	No	No	No		
R.13:	Training and development programs should be linked to the development of individualized career paths.	Important	Medium	Medium	No	No	No	No		
R.14:	BAM should create the position of Head of Information Technology Planning, reporting to the COO. The Head of Information Technology Planning would coordinate with BIST and be responsible for the development, oversight and implementation of a comprehensive BAM IT strategic plan, including new application requirements, and to fully leverage the capabilities of its Custodian. This plan should also include a budget for productivity aids such as printers, screens, terminals etc.	Important	Medium	Low	Yes	Yes	No	Yes	IT job description	A.1.1.7
R.15:	Cross-functional communications should be improved through cross-functional committees, cross-training and formal internal communications.	Leading	Low	Low	No	No	No	No		
Investment Management										

	Recommendation	Critical vs Important vs Leading Practice	Difficult vs Medium vs Easy to Accomplish	Resources Required: Low / Medium / High	Comptroller Support Needed	System Support Needed	Enabling Legislation Needed	Template Provided	Examples	Appendix No.
R.16:	Risk management, working with the Investment Strategy asset class heads, should identify appropriate quantitative tools for each asset class.	Important	Medium	High	Yes	Yes	No	Yes	Examples of most commonly used tools	A.14
R.17:	Due diligence and monitoring strategies should be codified, in a cooperative and coordinated effort between Compliance and Investment Strategy.	Important	Easy	Low	No	No	No	No		
R.18:	BAM should review its performance benchmarks.	Important	Medium	Low	No	Yes	No	No		
Strategic Plan and Budget										
R.19:	BAM should develop a long-term strategic plan and budget to enable it to transform its current operations.	Critical	Difficult	Medium	Yes	Yes	No	No		
R.20:	In the absence of additional resources, significantly reduce and simplify BAM's current portfolio.	Critical	Difficult	High	Yes	Yes	No	No		
Risk and Compliance										
R.21:	Portfolio risk should be systematically monitored with formal risk identification, assessment and management processes, quantitative analytical tools, and training.	Critical	Medium	Medium	No	No	No	Yes	See Framework / Tools	A.14
R.22:	BAM executives and System trustees should receive regular and timely risk reports to provide a line of sight into portfolio risk.	Important	Medium	Medium	No	No	No	Yes	Example Reports	A.20.1 A.20.2 A.20.3
R.23:	Risk and Compliance functions should work with the asset classes to develop a common understanding and prioritization of risks.	Important	Easy	Low	No	No	No	No		
R.24:	Risk and Compliance policies should be properly documented.	Important	Medium	Low	No	No	No	Yes	Example Policies	A.22
R.25:	Operational risk should be regularly monitored and progress reported to the CIO and the System Trustees by the BAM Head of Risk Oversight using an accepted framework such as those provided by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) or the International Standards Organization (ISO). See the appendices for a description of each framework.	Critical	Easy	Low	No	No	No	Yes	Basel Framework	A.23
Policies, Procedures and Record Management										
R.26:	Policies should be updated, documented, and approved, and a schedule for periodic review and updating should be established.	Critical	Difficult	High	Yes	No	No	No		
R.27:	There should be a central, electronic policy repository to enable easy access to such policies.	Critical	Difficult	High	Yes	No	No	No		
R.28:	Procedures should be reviewed, streamlined and simplified as part of a comprehensive automation and technology plan.	Critical	Difficult	High	Yes	No	No	No		
R.29:	Procedures should be well documented to reduce reliance on the knowledge of key individuals.	Critical	Difficult							
R.30:	A standardized filing and document management system should be developed to enable ready access to historical records. Litigation holds should be enforced. A document retention and classification policy and process should be developed.	Critical	Difficult	High	Yes	No	No	Yes	Example systems	A.22
Scope Specific Recommendations										
1A. Investment Strategy Division and 2B. Investment Team Performance										
R-1A.1:	BAM and the Comptroller's Office generally should accelerate their efforts to fill vacancies though a coordinated recruitment campaign that advertises the new compensation levels and uses social media targeted to the specific job functions now vacant. Use of recruitment firms specializing in asset management should be considered. The vacancies are so severe that the recruitment effort deserves weekly tracking by a special internal task force of the CIO and the Deputy Comptroller for Administration or their key staff.	Critical	Medium	Low	No	No	No	No		

	Recommendation	Critical vs Important vs Leading Practice	Difficult vs Medium vs Easy to Accomplish	Resources Required: Low / Medium / High	Comptroller Support Needed	System Support Needed	Enabling Legislation Needed	Template Provided	Examples	Appendix No.
R-1A.2:	BAM should develop staff development plans for all ISD staff. This should include, in addition to the annual performance reviews, individualized programs for education, skills development (such as training on my.statestreet.com, risk management, and sector-specific tools).	Leading Practice	Medium	Low	No	No	No	Yes	Example Staff Development Policy	A-1A.2
R-1A.3:	BAM should establish a rule that there will never be a single person in any asset class, so as to mitigate key person risk. Should such a situation occur, the CIO should work with the other asset class heads to find an investment professional to step in on a temporary basis into the understaffed unit.	Important	Easy	Low	No	No	No	No		
R-1A.4:	BAM should benchmark ISD staff compensation against peers on a periodic basis. We suggest every three years, which should balance timeliness against costs.	Important	Easy	Medium	No	No	No	No		
R-1A.5:	Given the prohibition against City reimbursement for professional training and/or certification programs taken off City premises which are not available to all employees, BAM ought to consider several options as to how to better improve staff skills. Options could be to sponsor in-house Certified Financial Analyst preparation open to all BAM or Comptroller's employees and creating compensation increments for CFA charter holders, other relevant certifications or relevant advanced degrees. There is ample precedent for this in various other City agencies, which increase compensation with increased expertise and education.	Important	Medium	Medium	No	No	No	No		
R-1A.6:	Asset class heads now produce an annual strategic plan for the Boards, but such plans are focused on investments, not on the conditions necessary to invest well. In conjunction with the annual strategic plans, asset class heads should create an internal strategic plan which should include asset class education, hiring, training, succession planning and other internal functions. Such plans should be approved by the CIO formally and shared across BAM.	Critical	Medium	Low	No	No	No	No		
R-1A.7:	As part of that strategic plan, asset class heads should identify any analytical tools and/or databases needed. See also R-1A.9, below (unit budgeting).	Critical	Medium	Low	No	No	No	Yes	example analytical tools / databases	A.1A.7 also A.14
R-1A.8:	Risk management, in conjunction with the asset class heads, ought to continue its evaluation of FactSet as well Investor Analytics and other potential risk management engines to determine if one can be used effectively by BAM. If Investor Analytics is chosen, a training program for IA should commence immediately. If another risk system is desired risk management should, in conjunction with the asset management heads, begin the procurement process for a quantitative risk tool immediately. A list of commonly used risk management systems is included as part of Appendix A-2J.8.3.1 Applications and Vendors.	Critical	Medium	Medium	No	No	No	Yes	list of such tools	
R-1A.9:	To empower ISD staff, each unit's strategic plan (see R-A1.6) should include a budget request. That request should include both headcount and Other than Personal Services (OTPS) budget, which would include the cost of unit-specific analytical tools, databases, subscriptions, travel, and other tools necessary. Devolving budgetary authority should improve accountability and eliminate the overwhelming feeling of being dis-empowered. The CIO should work with the unit budgets as well as the Deputy Comptroller for Administration to create the overall BAM budget.	Important	Medium	Medium	No	No	No	No		
R-1A.10:	The CIO should create a written, multi-faceted travel policy.	Important	Easy	Medium	No	No	No	No		
	It should be coordinated with the due diligence and monitoring policies (see R-A1.20 below). Failure to travel to meet the diligence and monitoring requirements, not the request to travel, should be considered the exception needing CIO approval.									
	It should conform to NYC travel policies.									

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	Compliance with the travel policy (as should compliance generally) should be considered in each senior staff member's performance review.									
R-1A.11:	In addition to the weekly senior staff meetings that serve as due diligence and managerial progress meetings, the CIO should create the following information sharing mechanisms:	Important	Easy	Low	No	No	No	No		
	A monthly investment meeting. While the content and format of the meeting will evolve over time, and it should be flexible enough to include interesting "one-off" topics. We suggest the following to begin:									
	o A short market overview by the CIO or an asset class head, with follow on discussion from the other asset class heads as to what they are seeing and what, if anything, those market developments mean for their asset classes.									
	o A sharing of noteworthy developments in each asset class, if any.									
	o Reporting on any industry trends or developments which would be interesting. Such industry trends could range from the asset allocation decisions (and rationales) for other pension plans to what structural or regulatory changes in the markets mean for NYC's investment program.									
	A quarterly "lunch and learn" featuring speakers from the industry. To make sure these happen, the CIO should appoint a specific staff member to coordinate them.									
	o Continuation of the quarterly "deep dive" discussion between the CIO and each specific asset class staff.									
R-1A.12:	Compliance, Risk Management, and each asset class ought to understand the policies and processes of one or two public pension fund peers considered "best in class" as they create compliance and due diligence checklists. While a number of due diligence documents are included in the appendices for BAM to use as templates, no one else's total approach is perfect for BAM. The documents are provided to allow BAM to pick and choose portions of each that it believes applicable and to allow BAM to understand the range of approaches. While the peers' processes should not be adapted wholesale given BAM's specific needs, they should inform the new policies now being put into place. In the future, each asset class head should create an informal network of best practice peers which he/she can contact regarding market, manager, and leading practice information so as to stay informed over time as markets and market practices change. BAM can also use its New York City location to its advantage, by inviting respected peers to come to BAM for information exchange sessions as those funds come to New York to visit their managers or for other reasons.	Leading Practice	Medium	Low	No	No	No	Yes	Initial On-going Operational Compliance Technology Due Diligence	A-1A.12
R-1A.13:	Institute a formal "on-boarding" process for all new hires. That process should include adequate time with every division in BAM (both inside and outside ISD) so that every ISD staff understands the philosophies, processes, roles and constraints of all of BAM, at least at the level necessary for him/her to appreciate how their functions operate within the overall investment program. In addition, each asset class within ISD should create a formal onboarding package. While the exact contents should be tailored to the asset class, we would suggest the asset classes seriously consider including, at a minimum, the written asset class operational overview, the latest annual strategic plan, a copy of the latest due diligence and monitoring memoranda and supporting documents, a copy of the latest quarterly performance report, and an organizational chart for BAM as a whole, with annotations about the role of the people in that asset class.	Important	Medium	Low	No	No	No	Yes	Example On-boarding process	A-1A.13

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R-1A.14:	Every asset class must "own" all three aspects of due diligence: investment due diligence, operational due diligence, and portfolio fit. While investment due diligence is generally at prevailing or leading practice levels, operational due diligence and investment fit often lag industry practice. Therefore:	Critical	Medium	Low	No	No	No	Yes	Due diligence checklists	A-1A.14.1 A-1A.14.2 A-1A.14.3 A-1A.14.4 A-1A.14.5
	All asset classes should have a written operational due diligence policy. It should include an indicative check list of operational concerns specific to that asset class. That written ODD policy should be reviewed by compliance.									
	Asset class heads must state explicitly, in writing, if ODD will be performed by them, by an identified consultant, or shared. That statement should include the rationale for such a decision and should be reviewed and approved annually by the CIO.									
	Asset class heads should understand that delegation to a consultant does not resolve the asset class head of responsibility for operational due diligence. He/she must understand what the consultant did and affirmatively aver that the ODD was sufficient.									
R-1A.15:	The CIO should consider, in conjunction with the potential creation of a true investment operations group, whether to use some of the investment operations staff to supplement either ISD or ODD. Such a hybrid model is being used by some investors because some investment staff do not have an operational due diligence mindset, as it relates to minimization of risk and routine processes, rather than to getting paid for risk and seizing opportunities. Also, it allows for increased focus specifically on issues of interest to that investor. As a side benefit, having the investment operations staff accompany ISD staff on due diligences would improve communication and understanding between the two divisions.	Important	Medium	Depends on CIO Decision	No	No	No	No		
R-1A.16:	Consistent with R-A1.9, which calls for each asset class to propose a unit budget, each asset class should determine immediately what tools (databases, quantitative tools and others) it needs to fulfill its sourcing, due diligence and monitoring needs and propose a budget for obtaining them. Each asset class should, annually, affirm to the CIO that it has the necessary tools or, if it does not, it should identify those tools along with the business case for them.	Critical	Medium	Medium	No	No	No	No		
R-1A.17:	Assuming the asset classes receive the quantitative tools they need (R-A1.16), those tools will need to be populated. Data entry is often overlooked, but important. Given the thin staffing of ISD, we recommend that BAM start an internship program with local colleges. IT, finance and other appropriate students could, on a part time basis, and either for credit or as part of a paid internship, do the data entry, freeing more senior BAM staff for more substantive analysis. Such an internship program may also result in a pool of potential entry-level talent for BAM.	Important	Medium	Medium	No	No	No			
R-1A.18:	All due diligence efforts should be documented in a simple, electronic log format, in as contemporaneous a manner as possible. The entries in those logs need not be voluminous; rather they should be a sentence or two. More extensive analyses and documents can be incorporated by reference. Off-the-shelf customer relationship management systems or research management systems can accommodate that task. A description of the research management systems is included in the appendices.	Critical	Medium	Low	No	No	No	Yes	Example log	A-1A.18 See also A-1A.14.1 to 14.4 above
R-1A.19:	The CIO should ask the General Counsel for a written advice memorandum on the issue of whether pre-decisional, intra-Comptroller's office due diligence memoranda are subject to Freedom of Information Law disclosure.	Important	Easy	Low	Yes	No	No	No		

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R-1A.20:	The CIO should mandate on-site monitoring for all existing managers. While annual on-site monitoring is leading practice, FAS understands both the public scrutiny associated with travel and the resource drain such a requirement would create for ISD. Therefore, we propose:	Important	Easy	Medium	No	No	No	No		
	An annual in-person meeting with each existing manager. Managers whose primary office is located domestically should be visited on-site a minimum of every two years. Managers whose primary offices are located internationally be visited a minimum of every three years.	Important	Easy	Medium	No	No	No	No		
	Visits should be grouped geographically so as to maximize efficiency.									
	Meetings for LPAC and other such meetings should count towards the on-site monitoring requirements, assuming that ISD staff has the opportunity to perform such monitoring as it would do normally.									
	Exceptions to the in-person and on-site requirements should be kept in an aging schedule, and reported monthly by each asset class to the CIO.									
R-1A.21:	Real estate ought to consider whether it should assign one consultant to review potential investments, rather than having both consultants diligence each potential partnership	Important	Easy	Low	No	Yes	No	No		
R-1A.22:	BAM should provide ISD with the tools to analyze manager performance and risk through attribution analysis. See R-A1.8, above.	Critical	Medium	um, potentiall	No	No	No	Yes	example list of such tools	A.1A.22.1 A-1A.22.2
R-1A.23:	Once ISD has the required quantitative tools, the CIO, in conjunction with the individual asset class heads, should develop a standard performance measurement, performance attribution and risk attribution procedure, including specific analyses and "due by" dates.	Important	Medium	Low	No	No	No	Yes	see examples	A-1A.23.1 A-1A.23.2 A-1A.23.3
R-1A.24:	The CIO should assign responsibility for implementing rebalancing to a specific group in BAM.	Important	Easy	Low	No	No	No	No		
R-1A.25:	Given BAM's success in using transition managers, consideration should be given to using them for routine rebalancing. A first step should be to use the transition evaluation managers to evaluate a few current rebalances to understand the effectiveness of the current staff-directed process.	Important	Medium	Medium	No	No	No	No		
R-1A.26:	The CIO should fine-tune re-examine BAM's policy of using the rebalancing ranges for tactical tilts. BAM should adopt a policy, and share it with the Systems, which states that an intentional tilt should be disclosed to each affected Board the month after it is implemented. Tilts should be used sparingly, and reserved for unique market periods. Tilts should not be designed to last more than a year. Longer-term asset allocation changes should be Desired changes in benchmarks or allocations should be made explicit and presented to the Boards for approval. That approval should be explicit as to whether it is a temporary tile, in which case the conditions for ending it should be specified, or if it is a permanent change in benchmark or allocation.	Important	Easy	Low	No	Depends on CIO decision	No	No		
R-1A.27:	Regarding the current asset allocation study:									
	ISD ought to work with the Systems' general investment consultants to hold educational sessions on the differences between asset liability studies and asset allocation studies and the practical import of those differences.	Important	Easy	Low	No	Yes	No	No		
	ISD ought to understand the capital market assumptions which are the inputs into each general investment consultants' models and develop its own analysis as to the reasonableness of those assumptions.	Critical	Easy	Low	No	No	No	No		
	ISD ought to understand each system's general investment consultant plans asset allocation modeling methodology, including any constraints.	Critical	Easy	Low	No	No	No	No		
R-1A.28:	ISD should reduce the number of private equity funds as planned.	Important	Medium	Low	No	Yes	No	No		
R-1A.29:	ISD should examine the number of managers in all asset classes to determine if there are other opportunities for simplification and focus through reducing the number of managers.	Important	Medium	Low	No	Yes	No	No		

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R-1A.30:	ISD should determine if the strategic partnership structure can be more widely used, either in asset classes other than OFI, or across asset classes.	Important	Medium	Low	No	Yes	No	No		
	Should ISD desire to explore strategic partnerships further, it should widely canvas its peer investors to understand what investment and governance attributes have contributed to the success or failure of their strategic partnership efforts beyond the specific recommendations already included in this report.	Critical	Medium	Medium	No	No	No	No		
R-1A.31:	ISD should explore whether it wants to initiate a co-investment program for infrastructure. If it does, we recommend:	Important	Medium	High	No	Yes	No	No		
	The asset class head prepare a memorandum for the CIO detailing not just the process and limitations on co-investments (such memoranda exist for some asset classes), but also the needed resources and approval time frames.	Important	Easy	Low	No	No	No			
	That BAM approach a System or Systems to ask for permission for either a demonstration program with expedited approvals, or for discretionary authority for co-investments with previously approved GPs up to a reasonable amount, so as to meet the short time frames generally required.	Important	Medium	High	No	Yes	No			
R-1A.32:	ISD should consider whether to convert group trusts to separate accounts if and when the tax and regulatory issues are resolved.	Important	Medium	Medium	No	Yes	No	No		
1B. Investment Control Division										
R-1B.1:	Eliminate redundant reconciliations by decommissioning the general ledger system as quickly as possible.	Critical	Mediium	Low	No	No	No	No		
R-1B.2:	Once the general ledger system is decommissioned, reevaluate all processes and procedures to move to a more automated, straight-through-processing environment.	Critical	Mediium	Medium	No	No	No	Yes	BPR Chart suggested evaluation criteria	A-1B.2.1 A-1B.2.2 A-1B.2.3
R-1B.3:	Reorganize BAM divisions into a more standard middle- and back-office configuration.	Critical	Difficult	Medium	No	No	No	No		
R-1B.4:	Develop a succession plan to prepare for experienced staff departures.	Critical	Easy	Low	No	No	No	Yes	Example Tool Kit	A.1B.4
1C. Cash Management Division										
R-1C.1:	Utilize State Street's cash forecasting capabilities for investment activities.	Important	Easy	Low	No	No	No	No		
R-1C.2:	Continue with the planned rollout of State Street's eCFM and implement as soon as possible. Make it an organizational goal to eliminate all faxed wire transfer requests by the end of the year.	Critical	Easy	Low	No	No	No	No		
R-1C.3:	Create a user's guide with up-to-date detailed documentation for all policies and procedures carried out by Cash Management.	Important	Easy	Medium	No	No	No	Yes	Example Cash Management	A-1C.3
R-1C.4:	After the G/L is moved to State Street, take advantage of the inherent data export capabilities to augment the financial reporting process.	Important	Medium	Medium	No	No	No	No		
R-1C.5:	Automated reconciliation of cash transactions and balances should be part of the automated recon process as recommended in 1B.	Critical	Medium	Medium	No	No	No	No		
R-1C.6:	Consider creating an asset class head for cash.	Leading Practice	Medium	Low	Yes	No	No	No		
R-1C.7:	Develop a service level agreement between BAM and the Cash Management group within BOA to ensure current and future needs are met.	Critical	Medium	Low	No	No	No	No		
1D. Short-Term Trading Division										
R-1D.1:	Develop succession plans for the Short-term Trading Team.	Leading Practice	Medium	Low	No	No	No	Yes	See Example Toolkit	see A.1B.4
R-1D.2:	Refine guideline documents to incorporate policy and investment objectives.	Leading Practice	Easy	Low	No	No	No			
R-1D.3:	Assist in the preparation of separate "standardized" documents to define tactical investment activities.	Important	Medium	Medium	No	No	No	No		
R-1D.4:	ST Trading should visit other large fund short term teams (public and private) to identify opportunities for self-improvement.	Leading Practice	Medium	Low	No	No	No	No		
R-1D.5:	Share the Short term trading policy, objectives and guidelines with authorized suppliers.	Leading Practice	Easy	Low	No	No	No	No		

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R-1D.6:	Incorporate improvements into the revised BC plan design process.	Leading Practice	Medium	Low	No	Yes	No	No		
R-1D.7:	ST Trading should explore portfolio structure options that could offer more efficiencies and ability to exploit their investment skills.	Leading Practice	Medium	High	Possibly	Yes	No	No		
R-1D.8:	BAM should seek to minimize "cash drag" on returns other than as a tactical strategy.	Critical	Difficult	High	Yes	Probably	(Basket claus	No		
R-1D.9:	BAM should explore the merits of combining the Fixed Income and ST Trading teams.	Important	Medium	Medium	Possibly	Possibly	No	No		
1E.1 Compliance Division										
R-1E1.1	BAM should establish a compliance communication plan for information that should be communicated to the Bureau and how it should be provided.	Important	Medium	Medium	No	No	No			
R-1E1.2	BAM should establish an internal website to help communicate and educate BAM personnel in matters of compliance.	Leading Practice	Medium	Medium	No	No	No			
R-1E1.3	BAM should establish a compliance tracking database in order to ensure that all BAM personnel have taken all relevant compliance training courses as well as achieving the training objectives.	Important	Medium	Medium	No	No	No			
R-1E1.4	BAM should develop a Compliance Division charter that specifically describes their roles and responsibilities to both internal and external stakeholders.	Leading Practice	Medium	Medium	No	No	No	Yes		A-1E.1.4.6
R-1E1.5	The Compliance division should document their policies, procedures and job aides including business process workflows and narratives.	Important	Medium	Medium	No	No	No	Yes		A-1E1.4.4 A-1E1.4.5 A-1E1.4.6 A-1E1.4.7
R-1E1.6	BAM should develop or obtain relevant training courses to ensure that all BAM employees are being provided with the most up-to-date understanding of regulatory compliance and ethics training.	Important	Medium	Medium	No	No	No			
R-1E1.7	BAM should assess the reporting capabilities of the State Street system to maximize the value associated with the reconciliation processes used for end of day and month trading activity.	Important	Medium	Medium	No	No	No			
R-1E1.8	BAM should develop an inventory of existing compliance exception reporting capabilities, spreadsheets and third-party reports to determine what gaps can be quickly identified and closed until more systemic processes and reporting can be rolled-out.	Important	Medium	Medium	No	No	No			
R-1E1.9	BAM should implement and update existing policies to include currently available compliance monitoring techniques as well as ensure that procedures for identifying, reconciling and communicating with other stakeholders such as Legal, Internal Audit, and Risk Management.	Important	Medium	Medium	No	No	No			
R-1E1.10	The Chief Compliance Officer, working with the Chief Risk Officer, should provide input into the Chief Risk Officer's report to the Board of Trustees on compliance related matters.	Important	Medium	Medium	No	No	No			
R-1E1.11	BAM should develop robust investment policy procedures to ensure the Systems' investment policies are being implemented and that there are adequate internal controls in place to monitor and detect out of compliance situations. (See Appendix A-1E.1.4.3)	Important	Medium	Medium	No	No	No			A-1E.1.4.3
R-1E1.12	BAM-specific record retention policies and procedures should be developed along with corresponding training programs for management and staff.	Important	Medium	Medium	No	No	No			
R-1E1.13	The COO (not Compliance) should document their existing divisional processes using standardized templates and update these on at least an annual basis or more frequently depending on the rate of change to regulations or business process and system improvements. (See Appendix A-1B.2)	Important	Medium	Medium	No	No	No			

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R-1E1.14	The COO (not Compliance) should implement a procedural database to store and allow web-based access to divisional managers and staff to access pertinent policies and procedural manuals. This database structure should also be governed through appropriate change control processes to ensure that only approved changes to procedures are performed.	Important	Medium	Medium	No	Yes	No			
1E.2 Risk Management Division										
R-1E2.1:	The Risk Management Division (RMD) should adopt and implement a recognized enterprise-wide risk management framework to establish processes and tools to help identify and manage risks within BAM. (See the Appendices A-1E2.1 and 1E2.2)	Critical	Medium	Medium	No	No	No	Yes	ISO / COSO	A-1E.2.1 A-1E.2.2
R-1E2.2:	RMD should develop a Risk Management Division Charter which clearly outlines the roles and responsibilities of the Division (operations risk support and independent reassurance) and its relationships with operating management and the Boards of Trustees.	Important	Medium	Medium	No	No	No	Yes		see A.1.1.2
R-1E2.3:	RMD should design and implement a bureau-wide risk assessment to assess the most significant risks and related exposures taking into account the inherent risk, the residual risk after controls and the potential velocity of risks. (See Appendix A-1E2.3)	Critical	Difficult	Medium	No	No	No	Yes	Risk Assessment Template	A-1E.2.3
R-1E2.4:	RMD should develop an Operational Risk Appetite policy statement to assist in the prioritization of identified operational risks, i.e. how much performance variability is acceptable. (See Appendix A-1E2.4.1)	Important	Medium	Medium	No	No	No	Yes	Risk Appetite Policy	A-1E2.4.1 A-1E2.4.2
R-1E2.5:	RMD should continue their efforts to fill their two open positions as well as to identify its overall short and long-term staffing needs.	Important	Medium	Medium	No	No	No			
R-1E2.6:	BAM should arrange or provide in-house training in specific areas of risk so individuals can retain or acquire professional certifications.	Important	Medium	Medium	No	No	No			
R-1E2.7:	RMD, in coordination with the Compliance Division and Internal Audit, should prepare a streamlined report to the Board of Trustees covering key areas of Strategic, Operational, Financial, and Compliance Risks. It should include a status report on progress being achieved in mitigating existing risks and deficiencies noted by Risk, Compliance, Internal Audit and others. (See Appendix A-1E2.7.1 TO A-1E2.7.3)	Critical	Medium	Medium	No	No	No	Yes	Example Dashboards	A-1E.2.7.1 A-1E.2.7.2 A-1E.2.7.3
R-1E2.8:	BAM should develop or obtain relevant Risk Management training courses to ensure that all BAM employees are being provided with the most up-to-date understanding of their role in risk management activities.	Leading Practice	Medium	Medium	No	No	No			
R-1E2.9:	Develop and implement standard risk reports which can be used by management in identifying and communicating risk issues and anomalies. (See Appendix A-1E2.9.1 TO A-1E.2.9.4)	Important	Medium	Medium	No	No	No	Yes	See Example Dashboards	A-1E.2.9.1 A-1E.2.9.2 A-1E.2.9.3 A-1E.2.9.4
R-1E2.10:	Create an Operational Risk Committee made up of the CIO's direct reports who would meet on a regular basis to review risk reports and coordinate bureau-wide and divisional responses to accelerate the reduction of operational risk. (See Appendix A.1.1.2)	Important	Medium	Medium	No	No	No	Yes	see Example Charter	A.1.1.2
R-1E2.11:	RMD together with Internal Audit should provide independent reassurance on the effectiveness of the BCP plan. (See recommendations re: BCP in 2J. Information Systems Performance)	Important	Medium	Medium	No	No	No	No		
1F. Corporate Governance Division										
R-1F.1:	The Corporate Governance Division should continue its efforts to develop new U.S. proxy voting guidelines for all five Systems which incorporate philosophy and guidelines which enable the Division to respond to new issues it may not have seen before in a manner consistent with the expressed desire of the Trustees.	Important	Medium	Medium	Yes	Yes	No	No		

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R-1F.2:	The Corporate Governance Division should continue its efforts, either through enhancing the current voting platform or moving to a different platform, to enable staff to organize and optimize workflow, facilitate productivity and improve the ability to ensure that proxy votes are cast consistently with guidelines.	Important	Medium	Medium	No	No	No	No		
R-1F.3:	The Corporate Governance Division should develop and add a statement of philosophy and purpose to the global proxy voting guidelines, as well as a statement regarding problematic jurisdictions.	Important	Medium	Medium	Yes	Yes	No	No		
R-1F.4:	The Corporate Governance Division should continue its efforts towards centralizing all global proxy voting through the implementation of an enhanced voting platform with the capability to integrate custom proxy voting guidelines.	Important	Medium	Medium	No	No	No	No		
R-1F.5:	In conjunction with the five System boards, BAM's Corporate Governance Division should develop a written overall statement of program purpose and strategy for its shareholder initiative program.	Important	Medium	Medium	Yes	Yes	No	No		
R-1F.6:	The Corporate Governance Division should develop more working relationships with non-U.S. institutional investors in order to further enhance the effectiveness of the program.	Leading Prct.	Easy	Low	Probably	Probably	No	No		
R-1F.7:	The Corporate Governance and Public Equity divisions should strive to develop a strategic relationship with respect to the corporate governance activities on behalf of the five systems.	Leading Prct.	Easy	Low	No	No	No	No		
R-1F.8:	The Corporate Governance Division and OGC should strive to develop a strategic relationship with respect to the incorporation of corporate governance provisions in securities litigation settlement agreements.	Leading Prct.	Medium	Low	Yes	Yes	No	No		
R-1F.9:	The Corporate Governance Division should keep a log of all in person or electronic engagement communications, particularly in contested or controversial situations. Also, the Division should have a formal, written "fairness" policy of being willing to meet with all sides in a given situation (though it should not have the affirmative obligation to reach out to all sides should one advocate see to engage with it).	Critical	Easy	Low	Yes	Yes	No	No		
1G. Administration and Pensions[1] and 2I. BAM Interaction with the Systems										
R-1G.1:	Any future fiduciary training at BAM should include discussion of responsibilities of the Pensions Division.	Important	Easy	Low	yes	no	no			
R-1G.2:	BAM should develop a written description of the role of the Pensions Division.	Leading	Easy	Low	no	no	No	No		
R-1G.3:	BAM should work with the systems' boards to create a BAM orientation program and make that program available to new trustees and initially to any currently serving trustees.	Important	Easy	Low	no	yes	no	Yes	example Board programs	A-1G.4.1 A-1G.4.2 A-1G.4.3 A-1G.4.4
R-1G.4:	The Comptroller and the Systems should explore ways to stabilize leadership (see Appendix A-1.1. Proposed BAM Target Organization.)	Critical	Medium	Low	yes	yes	no	no		
R-1G.5:	BAM should work with each board to determine whether some common issues can be addressed in a concurrent meeting of the boards.	Critical	Difficult	Low	no	yes	no	No		
R-1G.6:	BAM should explore with each board the idea of a limited level of delegated authority to BAM for manager hiring, subject to appropriate oversight and reporting, and independent reassurance.	Important	Difficult	Low	no	yes	no			
R-1G.7:	Rather than providing multiple presentations on the same issue, BAM should provide a single presentation accompanied by an opportunity for the board to ask questions of other sources.	Important	Medium	Low	no	yes	no			
R-1G.8:	BAM should use exception reporting in providing performance reports.	Leading	Easy	Low	no	no	no	Yes		
R-1G.9:	BAM should use executive summaries to focus presentations and discussions at board meetings.	Leading	Easy	Low	no	no	no	Yes	example	A-1G.9

	Recommendation	Critical vs Important vs Leading Practice	Difficult vs Medium vs Easy to Accomplish	Resources Required: Low / Medium / High	Comptroller Support Needed	System Support Needed	Enabling Legislation Needed	Template Provided	Examples	Appendix No.
R-1G.10:	BAM should provide reports to the boards periodically about staffing levels, vacancies and turnover. (See also, Recommendations 1A.1, 3 and 4.)	Important	Easy	Low	no	no	no			
R-1G.11:	BAM should provide periodic reports to the boards concerning the expenditure of corpus funds.	Important	Easy	Low	no	no	no			
R-1G.12:	BAM should annually share information about BAM's strategic plans with the boards. (See also, Recommendation 1A.6)	Important	Easy	Low	no	no	no			
R-1G.13:	BAM should share periodic reports on implementation of Recommendation 1A.9 with the boards.	Leading	Easy	Low	no	no	no			
R-1G.14:	BAM should devote a portion of board meetings on a regular periodic basis to investment strategy issues and reviewing where the funds stand in execution of strategy.	Important	Easy	Low	no	no	no			
R-1G.15:	BAM should provide the boards regular risk reports with both asset class and a portfolio-wide focus. (See also, Recommendations 1A.8 and Recommendations in 1E. Risk Management Division)	Important	Medium	Low	no	no	no	Yes	See Example Dashboards	A-1E.2.7.1 A-1E.2.7.2 A-1E.2.7.3 A-1E.2.7.4
R-1G.16:	BAM should consider reviewing the succeeding meeting's agenda with the board at each meeting and use the opportunity to vet possible issues and better plan schedules.	Leading	Easy	Low	no	no	no			
R-1G.17:	BAM should develop annual agenda plans and review them with the boards.	Leading	Easy	Low	no	no	no			
R-1G.18:	BAM should work with the boards to establish a consent agenda process for routine and non-controversial agenda items. BAM should explore what types of manager approvals could be shifted to the consent agenda.	Leading	Medium	Low	no	yes	no	Yes	Example Consent Agenda	A.1G.18
R-1G.19:	BAM should make permanent the practice of regular educational sessions with each board on timely topics, using either BAM staff or outside resources.	Leading	Medium	Low	no	yes	no			
R-1G.20:	BAM should develop a process for annually soliciting feedback from the boards about educational needs of the trustees.	Leading	Easy	Low	no	yes	no	No		
R-1G.21:	BAM should establish a board portal for delivering and storing board meeting and other board materials.	Leading	Medium	Medium	no	yes	no			
R-1G.22:	Executive summaries should be used for each agenda item identifying critical points and actions requested.	Leading	Easy	Low	no	no	no	Yes	Example	A-1G.9
R-1G.23:	BAM should use performance overviews and exception reporting for board meetings with further detail available through the portal.	Leading	Medium	Low (once portal established)	no	yes	no	Yes	example	A.1G.23
R-1G.24:	BAM should work with all providers of board materials to decrease redundancy where possible, and BAM should summarize multiple reports in a single document for the board.	Leading	Easy	Low	no	no	no			
R-1G.25:	BAM should create a "manager book" for managers common to multiple systems and publish information periodically, using the board portal.	Leading	Medium	Low (once portal established)	no	no	no	No		
R-1G.26:	The Pensions Division should memorialize the review process used for disability cases to ensure a smooth transition for employees in the future.	Leading	Easy	Low	No	No	No	No		
1H. Financial Reporting Division										
R-1H.1:	Establish a Financial Reporting Division Charter to specifically identify the roles and responsibilities.	Leading Practice	Easy	Low	No	No	No			
R-1H.2:	Consider establishing a Chief Financial and Administrative Officer role to implement all the capabilities of a mid-office function which will not only bring value through independent assurance, but can also provide more analytical analyses and governance to the operational areas. (See Appendices A-1H.1, A-1H.2 & A-1H.3)	Critical	Difficult	Medium	Yes	No	No	Yes	Job descriptions / organization chart	See A.1.1.3, A-1H.1, A-H.2 & A-H.3

	Recommendation	Critical vs Important vs Leading Practice	Difficult vs Medium vs Easy to Accomplish	Resources Required: Low / Medium / High	Comptroller Support Needed	System Support Needed	Enabling Legislation Needed	Template Provided	Examples	Appendix No.
	· This role would have overall financial management responsibility including the review and approval of monthly, quarterly and annual financial reporting materials and metrics for the CIO and Board of Trustees.	Critical	Difficult	Medium	Yes	No	No			
	· Coordinate and lead the annual CAFR audit process, liaise with external auditors, other divisional leaders and the Board.	Critical	Difficult	Medium	Yes	No	No			
	· Oversee and lead annual budgeting and planning process in conjunction with the CIO; administer and review all financial plans and budgets; monitor progress and keep senior leadership team abreast of the Bureau's financial status.	Critical	Difficult	Medium	Yes	No	No			
	· Implement a robust financial management and reporting system and ensure that financial data and information supports operational requirements.	Critical	Difficult	Medium	No	No	No			
	· Update an implement all necessary Bureau policies and accounting practices; improve the financial reporting division's overall policy and procedural manual.	Critical	Easy	Medium	No	No	No	No		
R-1H.3:	Enhance the division's capabilities through identifying additional accounting, finance and trust fund expertise.	Important	Medium	Low	No	No	No			
R-1H.4:	Develop and update formal policies, procedures and job aides to document the activities of the function and act as source materials for training and education.	Important	Easy	Low	No	No	No			
R-1H.5:	Develop a comprehensive list of State Street Reports that can be generated on a regular basis to assess, monitor and detect anomalies associated with operational divisions and data sources.	Important	Easy	Low	No	No	No			
R-1H.6:	BAM should develop detailed procedural guidelines for constructing the Board Reporting packages as well as continue to cross train staff for succession planning and out of office events.	Important	Easy	Low	No	No	No			
R-1H.7:	BAM should also establish Board Reporting package quality assurance procedures to ensure that each division contributing materials or information to the Board has approved the final deliverables and/or data. There should also be a formal sign-off to ensure that all materials are included and that all content is accounted for.	Important	Easy	Low	No	No	No			
R-1H.8:	BAM should ensure that Board of Trustee Reports contain an appropriate balance between charts/graphs, data tables and analysis. Striking the right balance between these three elements help to ensure that the reader is going to understand the issues and trends contained within the report.	Important	Easy	Low	No	No	No			
R-1H.9:	Perform independent reconciliations and analyses of data inputs.	Important	Medium	Low	No	No	No			
R-1H.10:	Provide more analyses and summary descriptions to each section of the Monthly Performance Reports.	Important	Medium	Low	No	No	No			
R-1H.11:	Conduct meetings and critically review content relating to management's discussion within the CAFR. Such review should assess the reasonableness of assumptions, accounting practices in relation to the investment policies and current accounting pronouncements.	Important	Easy	Low	No	No	No			
R-1H.12:	Develop CAFR content quality review checklist and approval processes. (See Appendices A-1H.5 & A-1H.6)	Important	Easy	Low	No	No	No	Yes	Example checklists	A-1H.5 A-1H.6
R-1H.13:	Develop formal procedures for receiving, fulfilling and ensuring completeness of FOIL requests and provide departmental training to key individuals who have a role in performing information gathering activities.	Important	Easy	Low	No	No	No			
R-1H.14:	Develop a job aid to log requests, FOIL Ref Number, date in, date responded and who performed the procedures.	Leading Practice	Easy	Low	No	No	No			
R-1H.15:	Develop formal fee estimate reporting procedures.	Important	Easy	Low	No	No	No			
R-1H.16:	Evaluate tools to automate the fee estimate report preparation process. Consideration should be given to exception and variance reports which may highlight out of balance, fee range exceptions or other anomalies which can be followed up by the respective financial and operational divisions.	Important	Medium	Medium	No	No	No			

	Recommendation	Critical vs Important vs Leading Practice	Difficult vs Medium vs Easy to Accomplish	Resources Required: Low / Medium / High	Comptroller Support Needed	System Support Needed	Enabling Legislation Needed	Template Provided	Examples	Appendix No.
1I. Contracts Division										
R-1I.1:	Create and fill an executive-level position to serve as "second-in-charge" to the Director of Contracts who can think strategically and take some of the existing administrative and special project workload from the Director, and determine if an additional staff position at the junior or mid-level is required to meet workload resulting from the recommendations of our report as a whole.	Critical	Medium	Low	No	No	No	No		
R-1I.2:	The Contracts Division needs to create a comprehensive information technology management system for all BAM procurements that accounts for all steps in the contracting process, provides automated reminders for key milestone dates, and allows monitoring of the end-to-end process from inception of the procurement, whether by RFP or otherwise, through the end of the contract.	Critical	Difficult	High	No	No	No	No		
R-1I.3:	Following the conclusion of every operationally and/or financially significant procurement, there should be a debriefing meeting including representatives from BAM's Contracts Division, the BAM end-user, and OGC (including assigned staff counsel and the ACCO) to identify what went well with the procurement, what did not, and whether there are any lessons that can be learned that can be applied to future procurements.	Important	Easy	Low	Yes	No	No	No		
R-1I.4:	The current every-six week meetings between the Director of Contracts, the ACCO, and the Special Counsel should be continued, and on a semi-annual basis should be expanded to include the CIO and the General Counsel for the purpose of discussing high-level issues or concerns.	Important	Easy	Low	Yes	No	No	No		
R-1I.5:	BAM should establish a task force with representatives from the Contracts Division, BAM administration, the investment groups, and OGC to engage in a comprehensive review of existing procurement processes and to make recommendations to the Comptroller and system Boards with respect to their optimization/simplification, including revisions to PPB rules and/or City law.	Important	Medium	Medium	Yes	No	Potentially	No		
R-1I.6:	Consistent with our recommendations R1E1.12 and R1E1.13, the Contracts Division should work with the rest of BAM in developing revised document retention policies and procedures that focus on the secure and efficient retention of documents in electronic form, making it unnecessary to retain hard copies.	Critical	Difficult	Medium	Probably	No	No	No	Example policy	A-II.7.1
R-1I.7:	The fee calculations maintenance process and the identification of maximum fees in public asset class investment management contracts should be reexamined and either modified in a way that better balances its costs and benefits or refocused towards the sole purpose of satisfying the requirement of the contract registration process.	Leading Practice	Medium	Medium	Probably	Probably	Potentially	No		
1J. Bureau of Accountancy (only the units that interact with BAM)										
R-1J.1:	It remains essential that communications between BOA and the corresponding unit at BAM continue to be collaborative. See R-1J.4 below.	critical	easy	low	no	no	no	No		
R-1J.2:	Responsibility for subsidiary accounting for private equity investments should be transferred to State Street.	critical	medium	medium	no	yes	no	No		
R-1J.3:	The contract with the custodial bank sets that entity as BAM's Book of Record. The project by BAM to transfer the source of accounting data from the general ledger system to the State Street General Ledger should be a top priority.	critical	medium	medium	no	yes	no	No		
R-1J.4:	As soon as possible after the transition to the new data source, policies and procedures should be written and brought up to date.	important	low	low	no	no	no	No		
R-1J.5:	BAM, the pension systems and their governing boards should have interim monthly financial statement available on a timely basis.	leading	medium	medium	no	no	no	No		
2A. Investment Performance Analysis										

	Recommendation	Critical vs Important vs Leading Practice	Difficult vs Medium vs Easy to Accomplish	Resources Required: Low / Medium / High	Comptroller Support Needed	System Support Needed	Enabling Legislation Needed	Template Provided	Examples	Appendix No.
R-2A.1:	BAM should ask the systems to add a second total fund benchmark, equal to the actuarial interest rate, to assess progress against the goal of offsetting liabilities.	Important	Easy	Low	No	Yes	No			
R-2A.2:	BAM should obtain the necessary tools to routinely do performance attributions, train the appropriate staff in their use, and incorporate performance attribution reporting into its manager monitoring program and into its reports to the Trustees.	Important	Medium	Medium	No	No	No	Yes	see examples	See A.1A.22.1 A-1A.22.2
R-2A.3:	BAM should obtain the necessary tools to perform routine risk analyses, train the appropriate staff in their use, and incorporate risk reporting into its manager monitoring program and into its reports to the Trustees. Ideally, the risk package should be able to measure total fund risk.	Critical	Medium	Medium	No	No	No	Yes	List of example tools	A.1A.22.1 A-1A.22.2
R-2A.4:	BAM should explore adding a peer group benchmark, such as Burgiss IQ, for the private equity asset class.	Important	Easy	Low	No	Yes	No	No		
R-2A.5:	BAM should explore using a compound benchmark composed of an appropriate interest rate plus a hurdle for the OFI managers.	Important	Easy	Low	No	Yes	No	No		
R.2A.6:	BAM should use the occasion of the asset allocation study to review all current benchmarks to determine if they remain the best available. BAM should give special focus to bespoke benchmarks created primarily for BAM and to any investment influence they may exert, and on all benchmarks which contain hurdles to ascertain if they are reasonable.	Critical	Medium	Low	No	Yes	No	No		
2C. Master Custodian Services provided to BAM										
R-2C.1:	BAM should monitor the ongoing costs of its unbundled custody, securities lending and foreign exchange services to confirm that they are meeting the expectations BAM had when it entered into these agreements	important	medium	low	no	no	no	No		
R-2C.2:	BAM should be more persistent in communicating its needs and expectations to State Street so that they are addressed and that BAM is taking full advantage of State Street's capabilities. (See also Investment Control C- 1B.14 and C-1B .16).	important	easy	low	no	Yes	no	No		
R-2C.3:	BAM should review its expectations of State Street to ensure that the SLA clearly contains what those expectations are and aligns with the contract. The benchmarks should be reasonable, attainable, measurable and clearly stated. The SLA should require State Street to monitor compliance to the benchmarks and report to BAM at set intervals on the results.	important	medium	medium	no	no	no	No		
R- 2C.4:	BAM should designate a project lead to work with State Street for the creation of a fully functional operations manual.	important	medium	medium	no	no	no	No		
R-2C.5:	BAM should assign oversight responsibility for BAM's day-to-day management of the custody relationship to someone below the most senior levels of the organization.	critical	medium	low	no	no	no	Yes	example provided	A-2C.1
R-2C.6:	BAM should pursue the unitization solution with State Street to simplify the investment account structure at the custodial bank.	Leading practice	difficult	high if daily audited data ; low, if not	no	no	no	No		
R-2C.7:	BAM should engage State Street to perform a process review and assessment, minimally related to the original RFP, to determine areas for improved platform usage. It should be managed as a project similar to a full implementation. The goal would be to migrate spreadsheet based applications to State Street's systems. (See Information Systems R-2J.1)	important	difficult	high	no	no	no	No		
R-2C.8:	State Street should develop a comprehensive list of reports that can be generated on a regular basis to assess, monitor and detect anomalies associated with operational divisions and data sources. (See Financial Reporting R-1H.5)	important	easy	low	no	no	no	No		

	Recommendation	Critical vs Important vs Leading Practice	Difficult vs Medium vs Easy to Accomplish	Resources Required: Low / Medium / High	Comptroller Support Needed	System Support Needed	Enabling Legislation Needed	Template Provided	Examples	Appendix No.
R-2C.9:	Management should make training, integration and use of MyStateStreet a priority. BAM also needs to add staff such as quantitative analysts, investment accountants, and performance analysts who have the training and inclination to garner valuable insights from the data. The elimination of the general ledger system should free up staff time which could be directed toward these other functions. (See Investment Strategy R-1A.2)	important	medium	low	no	no	no	No		
R-2C.10:	BAM should assess the reporting capabilities of the myStateStreet system to maximize the value associated with exception reporting as well as the reconciliation processes used for end of day and month trading activity. (See Compliance Division R-1E1.8)	important	medium	medium	no	no	no	No		
R-2C.11:	BAM should continue to emphasize the design, development and implementation of exception reporting capabilities within the State Street system. (See Compliance Division R-1E1.9)	important	medium	medium	no	no	no	No		
R-2C.12:	BAM should continue to implement the State Street exception reporting initiatives it has underway. (See Compliance Division R-1E1.11)	important	medium	medium	no	no	no	No		
R-2C.13:	The Quarterly Board Total Fund Overview reports prepared by State Street should provide additional overview analysis and highlights noted in the monthly performance reports to help readers understand not only the big picture, but also to more quickly identify and focus on deviations or anomalies as part of the discussion.	important	medium	medium	no	no	no	No		
R-2C.14:	BAM should hold State Street accountable for tracking and insisting on resolution of outstanding reclaims of foreign tax claims.	important	easy	low	no	no	no	No		
R-2C.15:	BAM should utilize State Street's cash forecasting capabilities for investment activities. (See Cash Management R-1C.1)	important	easy	low	no	no	no	No		
R-2C.16:	BAM should continue with the planned rollout of State Street's eCFM and implement as soon as possible. Make it an organizational goal to eliminate all faxed wire transfer requests by the end of the year. (See Cash Management R-1C.2)	critical	easy	low	no	no	no	No		
R-2C.17:	BAM should take advantage of State Street's data export capabilities once BAM's general ledger processing is moved there in its entirety. Even though the numbers are still input into a spreadsheet, the automated data export process will eliminate rekeying and the corresponding risk of errors. (See Cash Management R-1C.4 and Investment Control R-1B.2)	critical	medium	medium	no	yes	no	No		
R-2C.18:	BAM should assign internal responsibility for oversight of failed trades and for ensuring that BAM is made whole if there is financial loss.	important	easy	low	no	no	no	No		
R-2C.19:	Someone in BAM should be responsible for reviewing the information provided in the SSAE 16 reports regarding controls for the STIF.	critical	easy	low	no	no	no	No		
2D. Effectiveness of Third-Party Foreign Exchange services provided to BAM										
R-2D.1:	Develop written policies and procedures that define and assign BAM's duties for F/X, including who is responsible for monitoring performance and compliance.	important	medium	medium	yes	yes	no	No		
R-2D.2:	Conduct an independent review of Russell's performance and fees before the January 1, 2016 fee renegotiation and before the initial term of the contract expires in September 2016.	critical	medium	medium	yes	yes	no	No		
R-2D.3:	In the independent evaluation, address whether certain benchmarks could be incorporated into the regular monthly performance report Russell provides.	important	medium	medium	no	yes	no	No		
R-2D.4:	Based on the outcome of the evaluation, encourage or require more NYCRS external managers to move their F/X trading to Russell.	important	medium	medium	yes	yes	no	No		
R-2D.5:	As part of the next asset allocation study, solicit input from Russell in a review of how foreign currency risk is managed.	leading	easy	low	no	yes	no	No		
2E. Effectiveness of Third-Party Securities Lending Services Provided to BAM										

	Recommendation	Critical vs Important vs Leading Practice	Difficult vs Medium vs Easy to Accomplish	Resources Required: Low / Medium / High	Comptroller Support Needed	System Support Needed	Enabling Legislation Needed	Template Provided	Examples	Appendix No.
R-2E.1:	Conduct a thorough review of the status of the program before extending the current contract with Citi in 2016. This should include an assessment of the risk/reward balance of current guidelines in the current market.	important	medium	medium	yes	yes	no	No		
R-2E.2:	Adopt policies defining the respective responsibilities that BAM and the System Boards each have for securities lending.	Leading Practice	medium	medium	yes	yes	no	Yes	CalSTRS Sec. Lending Policy	A-2E.1
R-2E.3:	Designate a BAM staff member to ensure that compliance and performance reports are reviewed, and that issues are identified and addressed in a timely manner.	important	medium	medium	no	no	no	No		
R-2E.4:	Review the formula for determining BAM's share of lending revenues to assess whether it is achieving what BAM intended and whether its complexity may impede transparency.	Leading Practice	easy	low	no	no	no	No		
R-2E.5:	Modify the monthly performance report from Citi to include benchmarks against which Citi's performance is compared. Include additional insight as to how performance compares to expectations. Pursue gaining on-line access to such information.	Leading Practice	medium	low	no	yes	no	No		
R-2E.6:	Reconfirm that the exclusive arrangement for lending U.S. public equities to the current organization that is the largest borrower is still providing the best value compared to other options.	Leading Practice	medium	low	no	yes	yes	No		
2F. Consulting Services Provided to BAM										
R-2F.1:	BAM should endeavor to reduce the amount of time the consultants spend on manager-specific issues, and increase the focus on high value added issues, such as asset allocation, strategy, analysis of results versus annual strategic plans, and board education.	Important	Medium	Low	No	Yes	No			
R-2F.2:	BAM should work with the GICs to create real strategic plans for the public asset classes.	Important	Medium	Low	No	No	No			
R-2F.3:	BAM should explore what additional resources (quantitative tools, research reports, etc.) are available from each consultant.	Important	Easy	Low	No	No	No			
R--2F.4:	The Executive Director for Pensions should survey the five GICs to ask how they would suggest streamlining investment meeting agendas.	Important	Easy	Low	No	No	No			
R-2F.5:	The CIO should schedule short (20-30 minute) calls with each consultant quarterly to discuss agenda items and to brief consultants on medium and long-term projects.	Important	Easy	edium (CIO Tin	No	No	No			
R-2F.6:	Fixed income should follow the public equity model and schedule monthly calls with the GICs.	Important	Easy	Low	No	No	No			
R-2F.7:	All consultant contracts should include most favored nation clauses.	Important	Medium	edium (CIO Tin	Yes (GC)	No	No			
R-2F.8:	BAM should obtain and keep copies of all consultant contracts, whether let by BAM or the systems.	Important	Medium	Low	No	Yes	No			
R-2F.9:	The OFI staff should analyze under what conditions (assets, managers, new securities, etc.) it would require a specialty manager and identify likely candidates so that, if and when that time comes, it has ready candidates.	Important	Easy	Low	No	No	No			
2G. Transition Management Performance										
R-2G.1:	BAM should seek to add more clarity to the transition portfolio characteristics description to provide bidding managers more opportunity to optimize their pre-bid cost estimates.	Leading Practice	Medium	Medium	No	No	No	No		
R-2G.2:	BAM should develop a formal document outlining the transition manager selection process.	Leading Practice	Medium	Medium	No	No	No	Yes	Russell 8 steps	A-2G.2
R-2G.3:	BAM should review its Work Request and spreadsheet to identify opportunities for a more form type structure and /or ability to automate the data gathering process.	Important	Medium	Medium	No	Yes	No	No		
R-2G.4:	BAM should document the selection team's decision.	Leading Practice	Easy	Low	No	No	No	No		

	Recommendation	Critical vs Important vs Leading Practice	Difficult vs Medium vs Easy to Accomplish	Resources Required: Low / Medium / High	Comptroller Support Needed	System Support Needed	Enabling Legislation Needed	Template Provided	Examples	Appendix No.
R-2G.5:	BAM should contact losing bidders following the selection process as professional courtesy and to open a dialogue for future improvements to the bidding process.	Leading Practice	Easy	Low	No	No	No	No		
R-2G.6:	BAM should bring the independent evaluator into the process as early as possible and solicit their knowledge to assist in the decision and operational processes.	Leading Practice	Easy	Low	No	No	No	No		
R-2G.7:	BAM should consider categorizing transition managers according to their specialty skills and asset class.	Leading Practice	Medium	Low	No	No	No	No		
R-2G.8:	The Contracts group should seek to incorporate the option of using futures, etc. into the transition process to better control various risks.	Leading Practice	Difficult	Medium	No	Maybe	No (basket?)	No		
R-2G.9:	BAM should require post trade meetings at their office with both the transition manager and the independent evaluator to evaluate the program and identify key learnings.	Important	Medium	Medium	No	No	No	No		
R-2G.10:	BAM should document post trade discussions.	Leading Practice	Easy	Low	No	No	No	No		
R-2G.11:	BAM should review staffing levels to maintain appropriate standards of operational due diligence and back up resources.	Critical	Medium	Medium	No	No	No	Yes	see comparative staffing levels in peers	see A.1.1.1
R-2G.12:	BAM should seek to identify features and formats from each managers transition plan documents which best meet BAM's needs and create templates to supplement the Task Order's requirements.	Important	Medium	Medium	No	Possibly	No	No		
R-2G.13:	BAM should evaluate the benefits of requiring the manager to reaffirm their actions were done in accordance with their fiduciary duty and other requirement of the transition.	Leading Practice	Medium	Low	No	No	No	No		
R-2G.14	BAM should periodically (once year) review all control points to determine if they are effectively limiting the potential for a fiduciary breakdown in the transition process.	Leading Practice	Easy	Medium	No	No	No	No		
R-2G.15:	BAM should consider redesigning Board presentations regarding transition management projects to improve their utility and educate Trustees.	Important	Medium	Medium	No	No	No	No		
2H. Independent Evaluators Analysis of Transition Management Services										
R-2H.1:	If BAM continues to use multiple evaluation firms they should all be subject to a fiduciary standard of care and similar contractual obligations in conducting evaluations.	Leading Practice	medium	low	no	no	no	No		
R-2H.2:	As part of their report, evaluators should attest that they have examined each aspect of the transition that is required by contract.	Leading Practice	medium	low	no	no	no	No		
R-2H.3:	More comparability of evaluators' reports could be helpful if BAM continues to use multiple firms. For example, BAM could require that all managers provide a cover memo in the same, standard format that summarizes certain key data and conclusions.	Leading Practice	medium	medium	no	no	no	No		
R-2H.4:	BAM should formalize the process for reviewing evaluation reports and implementing changes that would improve future transitions.	Important	medium	medium	no	no	no	Yes	Template	see A-2H.4
R-2H.5:	BAM could bring the independent evaluator into the process earlier and solicit their advice regarding the strategy and process for the transition.	Leading Practice	medium	medium	no	no	no	No		
2J. Information Systems Performance										
R-2J.1:	Engage SSB to do a Process Review and Assessment, minimally related to the original RFP, to determine areas for improved platform usage. Manage as a project similar to a full implementation. Ensure messaging to teams that the goal is to migrate spreadsheet based applications to SSB functionality.	critical	difficult	high	no	no	no	No		

	Recommendation	Critical vs Important vs Leading Practice	Difficult vs Medium vs Easy to Accomplish	Resources Required: Low / Medium / High	Comptroller Support Needed	System Support Needed	Enabling Legislation Needed	Template Provided	Examples	Appendix No.
R-2J.2:	Risk management, in conjunction with the asset class heads, ought to evaluate Investor Analytics to determine if it can be used effectively by BAM and if there is additional functionality resident in IA that should be pursued. If so, a training program for IA should commence immediately. If not, risk management should, in conjunction with the asset management heads, begin the RFP process for a quantitative risk tool immediately (see R-1A.8)	Important	medium	medium	no	no	no	No		
R-2J.3:	BAM should do a review and reset of its 2015-2017 strategic systems plan based on this review.	critical	difficult	high	no	no	no	No		
R-2J.4:	Information systems planning, management and reporting processes need a reset. Foundational processes are in place but either execution is lacking or management-level communication between organizations is not dealing with the issues that BAM front-line staff are feeling.	Important	Easy	medium	no	no	no	No		
R-2J.5:	Guided by a business systems plan for the whole organization, BAM should work with BIST to add the number and types of additional IT staff needed to adequately support its operations and facilitate the additional system capabilities that are required.	Important	medium	Low	no	no	no	No		
R-2J.6:	Any additional information technology staff hired to support BAM full time should sit on the 8th floor and fully act and be viewed as "part of the BAM organization", whether organizationally part of BAM or BIST.	critical	Easy	Low	no	no	no	No		
R-2J.7:	Project resets should be implemented for both the general ledger system decommissioning and the Risk Analytics warehouse.	Important	medium	medium	no	no	no	No		
R-2J.8:	BAM management needs to strongly reinforce the importance of each business team ensuring their team has fully analyzed its business continuity requirements and have documented them. Full complete participation in all business continuity drills must be an absolute requirement for all BAM teams.	critical	Easy	medium	no	no	no	Yes?	BCP test requirements & workplan	A-2J.8.1 A-2.8.2
R-2J.9:	BAM should work with BIST to schedule and hold a true Business Continuity weekend event for all core (day 0 and Day 1) business processes and associated teams, including recovery to the backup site.	critical	difficult	high	no	no	no	No		

Appendix 4: Best Practice Public Investment Management Models

Best Practice Models for U.S.-based Public Funds

FAS was asked to provide "best practice models" of public investment management organizations. Through our consulting work and research, we have identified four basic fund governance models in use among the major state and municipal pension funds in the U.S.:

1. ***An integrated investment and pension administration organization with a single fiduciary board***, the most common form, has an Executive Director or CEO responsible for the entire organization. In this model, the board has authority for investments and pension administration and delegates its authorities through the CEO. Examples of this model range from the Teacher Retirement System of Texas and New York State Teachers' Retirement System to the School Employees Retirement System of Ohio and Teachers' Retirement System of Oklahoma. Thirty-four of the largest fifty-five, or 62 percent, of state public pension funds in the U.S. utilize this structure.

2. ***A separate investment management organization with its own board*** is the second most common structure and includes states such as Wisconsin (State of Wisconsin Investment Board) and Massachusetts (Massachusetts Pension Reserves Investment Management Board). In each instance of this model, the board has responsibility for investments only and pension administration is operated under a separate organizational structure which coordinates with the investment board for asset and liability matching. Twenty-percent of the largest funds utilize this structure.

3. ***Separate investment and pension administration organizations reporting to the same fiduciary board***, the third most common form, is similar to the integrated model, but the board typically delegates pension administration responsibilities to an Executive Director or CEO and investment responsibilities to a Chief Investment Officer (CIO), with the CEO and CIO each reporting directly to the board. Examples of this model include CalSTRS, the Virginia Retirement System, and the Public Employee Retirement System of Idaho. Six of the largest fifty-five funds use this model.

4. ***Sole fiduciary*** is the fourth governance model, where responsibility is vested in an elected or appointed state official, typically the state treasurer or comptroller. Investments are managed by the state treasurer or comptroller department through a CIO and investment staff, with support from an expert investment advisory board. Typically, there is a separate pension administration organization which may have its own board or multiple boards (for multiple funds) and may or may not report to the sole fiduciary. Several states have abandoned this model in recent years (e.g., South Carolina), and there are currently only four remaining states with major pension funds using the sole fiduciary governance model: Connecticut, Michigan, New York, and North Carolina.

Regardless of the governance model employed, the following are considered leading practices for a large-scale public asset management organization in the U.S.:

- **Taking advantage of investment scale:** Asset management effectiveness and efficiency is heavily impacted by scale in both availability of investment opportunities and ability to manage costs. The very large public funds can consider private market investment structures which are not possible for smaller-scale investors: strategic partnerships, direct investments, and co-investments. From a cost perspective, large commitments can result in the most competitive fee structures. Many successful state investment boards (e.g., Massachusetts, Minnesota, Washington, Wisconsin) serve multiple retirement plans in order to take advantage of these scale opportunities.

- **Alignment of fiduciary authority with responsibilities:** Best practice U.S. public funds have a governance structure which allows their fiduciary board to set the overall budget, determine the headcount for the investment organization, and set compensation levels and other terms of employment for the investment staff. This allows the investment operation to achieve an optimal balance of internal and external investment management with appropriately-resourced support functions such as risk management, research and compliance.

- **Use of prudent investor standard:** A fiduciary board should have the freedom to operate under the prudent investor or prudent expert rule and set its own asset allocation policies and investment guidelines for its investment staff to implement without the constraints of a legal list or basket clause.

- **Effective fiduciary board of trustees:** While there are arguments both pro and con for expert versus lay trustee boards for public funds, we do not believe that is the principal consideration. Rather, regardless of how the board is constituted it should have the following characteristics: ethical and capable leadership; accountable to stakeholders; risk intelligent; long-term investing perspective; and continuous improvement through self-development.

- **Effective oversight and independent reassurance:** Some states which allow their fiduciary boards to operate under prudent investor rules and set their own budget and compensation structure have created an oversight body which monitors the pension funds without being obtrusive. These oversight bodies often have full-time staff which monitor fund performance and advise the legislature, helping to provide independent reassurance and minimizing undue political influence.

Global Best Practice Models for Public Funds

The following section draws extensively upon a book currently in draft being authored by Keith Ambachtsheer, a senior advisor to the FAS team, entitled *The Future of Pension Management: Integrating Design, Governance and Investing*, which is targeted for release on April 1, 2016 by Wiley.

On the organizational structure side, Ambachtsheer interprets Peter Drucker's formula for building high-performance pension investment organizations. He includes five critical elements:

1. Mission Clarity and Organizational Autonomy
2. Good Governance
3. Sensible investment Beliefs
4. Right-Scaled
5. The Right People

The book describes two 'best practice' investment models:

1. *The Norway Model*: key features are government-defined investment policy, clear investment beliefs, passive/outsourced, cost-effective, well-managed, fully transparent

2. *The Canada Model*: key features are arms-length legal structure, clear mandate, strong governance, clear investment beliefs, active in a Keynesian 'wealth-creation' sense, mainly insourced, cost-effective, well-managed, fully transparent

The "Norway Model"

The Norwegian Government Pension Fund Global (GPFG), previously referred to as the "Government Petroleum Fund," is the world's second-largest retirement fund with over US$800 billion in assets under management.

Of the two models discussed here, the Norway model does not score as well as the Canada model on Ambachtsheer's 5-point success formula. For example, while the Fund has a clear mission, Norway is still struggling with achieving the right balance between organizational accountability, autonomy, and good governance. Its organization design/decision chain runs from the Norwegian Parliament, to the Ministry of Finance, to Norges Bank, to NB Investment Management, and finally to a web of outside investment agents and advisors. It appears that this procedural chain may well be necessary in Norway for the Fund to be sustainable in a political sense. However, the chain should also be recognized as a potential material barrier to innovative wealth-creation.

The Norway Fund's procedural governance construct also raises important questions about the investment beliefs, scale, and people elements of the 5-point success formula. For example, to what degree are the Fund's investment beliefs shaped by its procedural constraints rather than seeing the world the way it really is? Is it using its large scale and projected positive cash-flow for many years to come to maximum advantage? Is it hiring people with hands-on experience in turning savings into productive capital? Each of these questions deserve a hard, close look.[38]

The Norway model as described by Keith Ambachtsheer is one where the investment strategy is a classical public market stocks and bonds approach. Guidelines are set for the fund to hold 60 percent of its assets in equities, 35 percent to 40 percent in fixed income and up to 5 percent in real estate (the real estate portfolio is in a start-up phase).

For a public fund management entity which is not independent of governmental influences, Ambachtsheer considers this more conservative, but lower return strategy, appropriate and best practice. Private assets are not part of the investment strategy.

The "Canada Model"

The Canada model embraces all five of Ambachtsheer's success elements. Organizational missions are clearly spelled out, and legal structures are built to strike a balance between organizational accountability and autonomy. Blue-ribbon nominating committees are struck to ensure governing boards have the requisite skill/experience sets, as well as a strong sense of public duty. Care is taken to ensure the organization's investment beliefs are grounded in the messy real world, rather than in elegant 'modern' investment theory. Adequate scale is converted into strong in-sourcing strategies, especially in the expensive private markets spaces (e.g., real estate, infrastructure, private equity). Finally, Canadian funds are increasingly populated by people with hands-on experience in turning savings into productive capital in these private markets spaces, and in financing and governance of publicly-traded corporations. [39]

Even the best-performing large U.S. public pension funds tend have not performed as well as large Canadian funds such as the Ontario Teachers' Pension Plan (OTPP), Ontario Municipal Employees Retirement Plan (OMERS), and the Canada Pension Plan Investment Board (CPPIB). As described in a 2012 article in *The Economist*, "the Canadians prefer to run their portfolios internally and invest directly. They put more of their money into buy-outs, infrastructure and property, believing that these produce higher returns than publicly traded stocks and bonds. They are in some ways like depoliticized sovereign-wealth funds… So far the funds' strategy has paid off. Over the past ten years Ontario Teachers' has had the highest total returns of the biggest 330 public and private pension funds in the world."[40]

OMERS, for example, currently has a target portfolio allocation of 47 percent to private assets. To facilitate this high level of private assets, as well as reduce the investment management costs for both

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[38] Keith Ambachtsheer, *The Future of Pension Management: Integrating Design, Governance and Investing*, John Wiley & Sons, Inc., targeted for release on April 1, 2016

[39] Ibid.

[40] "Maple revolutionaries," *The Economist*, March 3, 2012

public and private assets, OMERS has a target of 90 percent of its total assets to be managed by internal staff.

The Economist article continues, "Those seeking to understand how Canadians have pulled it off are given two answers: governance and pay. There is little political interference in the funds' operations. They attract people with backgrounds in business and finance to sit on their boards, unlike American public pension funds.

Just as important is their approach to compensation. In order to recruit the best executives, Canadian pension funds have ensured their pay is competitive with Bay Street, Toronto's version of Wall Street. They pay a base salary, annual bonus and long-term performance award (which many pension funds elsewhere do not) to make their employees take a long-term view of investments. Mr. Leech, President and CEO of Ontario Teachers', made over C$3.9m in 2010; 51% of that was a long-term performance award, 36% his annual bonus and only 13% of his base salary. He would doubtless earn more on Wall Street, but this is a huge pay packet by public-pension standards."[41]

The Canadian approach differs dramatically from the typical U.S.-based state public pension fund. Based upon Funston Advisory Services LLC benchmarking data, the average level of internal investment management is about 44% for the largest U.S. state pension funds, those with $50 billion or more in assets under management. For the largest Canadian funds, the level is over 80%. The U.S. funds also tend to internally manage the asset classes which have the lowest external management costs, such as passive fixed income and passive large cap domestic equities, and outsource the very high cost alternative asset classes such as private equity, hedge funds and real estate. Even for a U.S. fund with one of the highest levels of internal management, CalPERS, at about 77% internally managed, the ratio of external to internal management costs is about 10 to 1. In other words, the 23% of assets managed externally requires outside management fees which are ten times the internal costs of managing the other 77% of assets in the portfolio.

[41] Ibid. *The Economist*, March 3, 2012

Appendix 5: Economically Targeted Investments

Economically Targeted Investments (ETIs) were not included in the scope of the RFP, perhaps because the head of ETIs is not a BAM employee. Nor are ETIs an asset class. Nonetheless, ETIs are a high-profile aspect of the investment program and BAM coordinates closely with Bureau of Economic Development on the ETI program. FAS therefore is including a brief overview of its investment processes.

ETIs are not an asset class, but a strategy. They are investments designed to provide a double bottom line: market returns consistent with the fiduciary standards of the pension funds and collateral social benefits for the targeted population. ETIs can be controversial, in that some systems outside of New York City have used the ETI rubric to make investments that would not have been made otherwise. Those occasionally have turned into losses and political scandals. NYC has avoided that pitfall by sticking to the guidelines outlined in the ETI investment policy statements approved by the systems. Those IPSs specifically call for ETIs "to achieve competitive returns commensurate with the risk, liquidity, and structure of the investment".

The systems have a joint target allocation of 2% of assets for ETIs. Partially because of the conservative approach, the program has managed to invest just 1% to date, though that 1%, at $1.7 billion, is amongst the largest ETI programs in the country.

ETIs are under the purview of the Bureau of Economic Development (BED)[42] a separate Bureau within the Comptroller's Office. BED coordinates closely with BAM. The head of BED is invited to all BAM senior staff meetings. BED interprets the IPSs to mean "general" economic development within the five boroughs is not targeted enough. The result is a focus on real estate investments within New York City.

Investments are sourced through NYC banks and also through direct solicitation of proposals by the Comptroller's Office. For due diligence, BED has access to Townsend, BAM's real estate consultant. However, while Townsend is amongst the premier real estate consultants in the nation, the very specific geographic and economic focus of the program requires that Townsend's expertise be complemented by NYC-specific knowledge. That is provided by the head of BED, who has a good working knowledge of applicable governmental housing and development finance programs, and by the Director of ETIs. In addition, as the program invests in mortgages, BED coordinates closely with the fixed income staff. Finally, the ETI managers all have a NYC focus. All ETIs must be approved by the CIO prior to being presented to the Systems.

Given the high profile of the investments, BED and BAM monitor and report on them to the boards in two ways. A special ETI report details the investments and collateral benefits, while the general performance report from State Street Bank details performance against benchmark (see section 2A).

[42] As the ETI program is housed in another Bureau, its employees do not qualify for the recent corpus-funded compensation increases.

Appendix 6: OGC comments on Legal Constraints

Provided to FAS by Richard Simon, Office of General Counsel on Oct. 14, 2015

I. Legal Constraints

BAM, in its work for the Systems, is subject to a complex and unique set of binding legal constraints, which have profoundly shaped its culture and procedures.

A. State Law.

The tightest constraints arise under New York State law, and any changes would require acts of the state legislature, signed by the Governor. Under state law, there are five separate and independent Pension Funds, each with its own assets, offices, staff and Board of Trustees. All decisional authority over the investment of a System's assets, from asset allocations to hiring and firing of outside managers and consultants, is vested in its Board. The composition and voting power on the Boards is also set by statute. On the four largest Systems, the Comptroller is only one of many Trustees (the Comptroller is not a Trustee of BERS). See New York City Administrative Code (NYC Ad. Code) Sections 13-103 (NYCERS); 13-216 (Police); 13-316 (Fire); and 13-507 (TRS); and BERS Rules and Regulations, Sections 5(a) and (b). Even in combination, the employer Trustees — including the Mayor's representatives — do not have the votes necessary to take Board action, but rather must always also attract the vote of at least one labor Trustee. As there is no overlap among the labor Trustees on the respective Boards, any action by the Boards on matters common to multiple Systems requires the presentation to, and persuasion of, up to five unique sets of labor Trustees; the City Employer Trustees do not always overlap either.

While each Board may delegate broad investment powers to the Comptroller, in practice the powers delegated to the Comptroller have generally not included making investment decisions, most notably the hiring and firing of outside managers. Moreover, those delegations can only be for a single year. NYC Ad. Code Section 13-702. Thus, even if Boards were to choose to make broad delegations, the statute precludes any assurance that such delegations would endure or be renewed for any longer period, so as to permit the Comptroller to implement a multi-year investment plan.

Regardless of the extent and duration of delegations, New York State law also imposes multiple detailed limitations on the types and percentages of investments that the Systems may hold, including the so-called "basket clause" limitation that a maximum of 25% of a System's assets in aggregate may be held in private markets investments or in other investments that are outside of the types and percentages of investments expressly permitted by law. See NYS Retirement and Social Security Law Section 177(9).

While a statute allows the Systems' assets to be used to pay for certain investment expenses, including certain BAM salaries, the types of expenses are limited, and Board approval is required for such "corpus funding," NYC Ad. Code Section 13-705. The Comptroller has no independent authority to draw on

System assets for personnel costs. Moreover, each Board separately decides on the adoption and amendment of its Investment Policy Statement, which sets forth detailed policies, procedures and limitations for the types of investments the Board will consider, and how the investment process will be administered. Finally, the Boards, by by-law and other Board action, set the frequency and scheduling of their investment meetings. Those Board meetings are now all held monthly and separately, for a total of up to 55 investment meetings per year, plus additional regular monthly meetings to address disability benefit decisions, among other issues.

B. City Law and Procedure

City law and regulation provide additional constraints under which BAM must function. The City's Procurement Policy Board has mandatory written rules (the PPB rules) governing the Systems' procurements of outside managers for public markets investments (primarily stocks, bonds and mortgages). The Mayor appoints the majority of the PPB members. While the PPB rules were amended at the prior Comptroller's request to permit a more accelerated process for manager search and selection, the path for getting approval for a pilot program, and then having a final PPB rule adopted and become effective, was a lengthy one.

Mayoral agencies also have a substantial say over BAM's operations in other regards. The Mayor's Office of Management and Budget (OMB) sets the annual budget for the Comptroller's Office, including BAM. The Mayor's Department of Information Technology & Telecommunications (DoITT) has a major role in Citywide IT systems, including ones used by the Comptroller's Office and BAM. The Mayor's Office of Labor Relations (OLR) plays a major role in Citywide personnel policies, including those affecting the Comptroller's Office, as does the Mayor's Department of Citywide Administrative Services (DCAS); the state Civil Service Law also shapes those policies. The Comptroller's Office works with each of those Mayoral agencies, and can seek to influence outcomes, but has no control over any of them.

While BAM has made certain choices in how to work within all of the above State and City statutory and procedural constraints, and could make some different choices, those constraints have always profoundly shaped how BAM conducts its work for the Systems.

II. Compliance

BAM and OGC have worked over the past decade to ensure that the Systems' current and prospective outside public and private markets managers provide BAM with full and accurate disclosure about the managers' compliance practices, policies, and history. Notably, that work has gone well beyond creating and improving detailed disclosure forms, to include extensive engagement with managers about the content of their completed disclosure forms. It is the strong intent of BAM and OGC to avoid having the manager disclosure process become, or be perceived by managers as, a passive "file and forget" system.

That effort began in 2005 and 2006 with the annual Ethics and Compliance Questionnaire and Certification for public markets managers. Those forms have been refined on several occasions to reflect new compliance issues, including on one occasion with the active assistance of outside counsel for the Variable Funds of the Teachers' Retirement System and BERS. Moreover, BAM Compliance reviews all completed manager responses, both for completeness and for any ambiguous, anomalous or “red flag” responses. BAM then engages with the manager until it has obtained a satisfactory response and explanation in each instance. Besides ensuring complete and meaningful responses, BAM’s doing so serves to emphasize to managers that BAM actually reads all of their responses, and will not simply accept those responses without question.

The effort continued in 2008 and 2009 with the creation of disclosure forms that prospective managers must complete before BAM will recommend to the Boards that the Systems enter into investment arrangements with them. The forms were created primarily to address concerns as to private markets managers, though some use of them, or of variants, is made with public markets managers as well. The initial forms were: The Advisory Notice for Meetings (informational only); NYC Retirement Systems Investment Policies Advisory Notice (only for Private Equity and Real Assets); Doing Business Data Form; Placement Agent Fee Disclosure Certificate; and Supplemental Diligence Questionnaire. Those forms seek information from managers as to compliance with important policies of BAM and the Systems, including those as to investment opt-outs, Placement Agents, gifts, and Pay-to-Play. The forms also expressly lay the basis for strong remedies if managers’ representations are later found to be materially inaccurate. Specifically, in such a case, the Systems could stay in the fund as investors without ever having pay any management fees or incentive/carry. BAM and OGC engage extensively with prospective managers to ensure that they receive complete responses, to investigate any responses that raise concerns, and to refuse any changes to the remedies. The representations and remedies in those documents are then incorporated into, and made legally binding by inclusion in, side letters (for commingled funds) and LPAs or LLC Agreements (for separate accounts).

Most recently, as part of the Comptroller’s 2014 Six-Point Plan to improve compliance, BAM and OGC created the Private Markets Compliance Disclosure (initial) and Private Markets Compliance Questionnaire (annual). Those forms require disclosures as to managers’ compliance policies and training with respect to FCPA, OFAC, AML, and Pay-to-Play; compliance with certain Investment Advisers Act requirements; and any federal or state government investigations, lawsuits, settlements or judgments. Similar to the other manager disclosure forms, BAM and OGC do not simply accept and file managers’ responses. Rather, each response is reviewed, and managers may be asked to provide further explanations, or even to consider substantive improvements, where current compliance policies appear to fall short of best practices. For example, if the manager states it has no FCPA policy, but its website shows it invests in countries known to be at risk for FCPA violations, BAM and OGC will ask the manager to consider adding FCPA policies and training to its compliance program. So far, two managers have agreed to do so. Similarly, if a manager states that because it is not subject to the SEC’s Rule 206(4)-5 on Pay-to-Play, it has no compliance policy for Pay-to-Play, it will be asked to adopt such a policy. One manager recently agreed to do so.

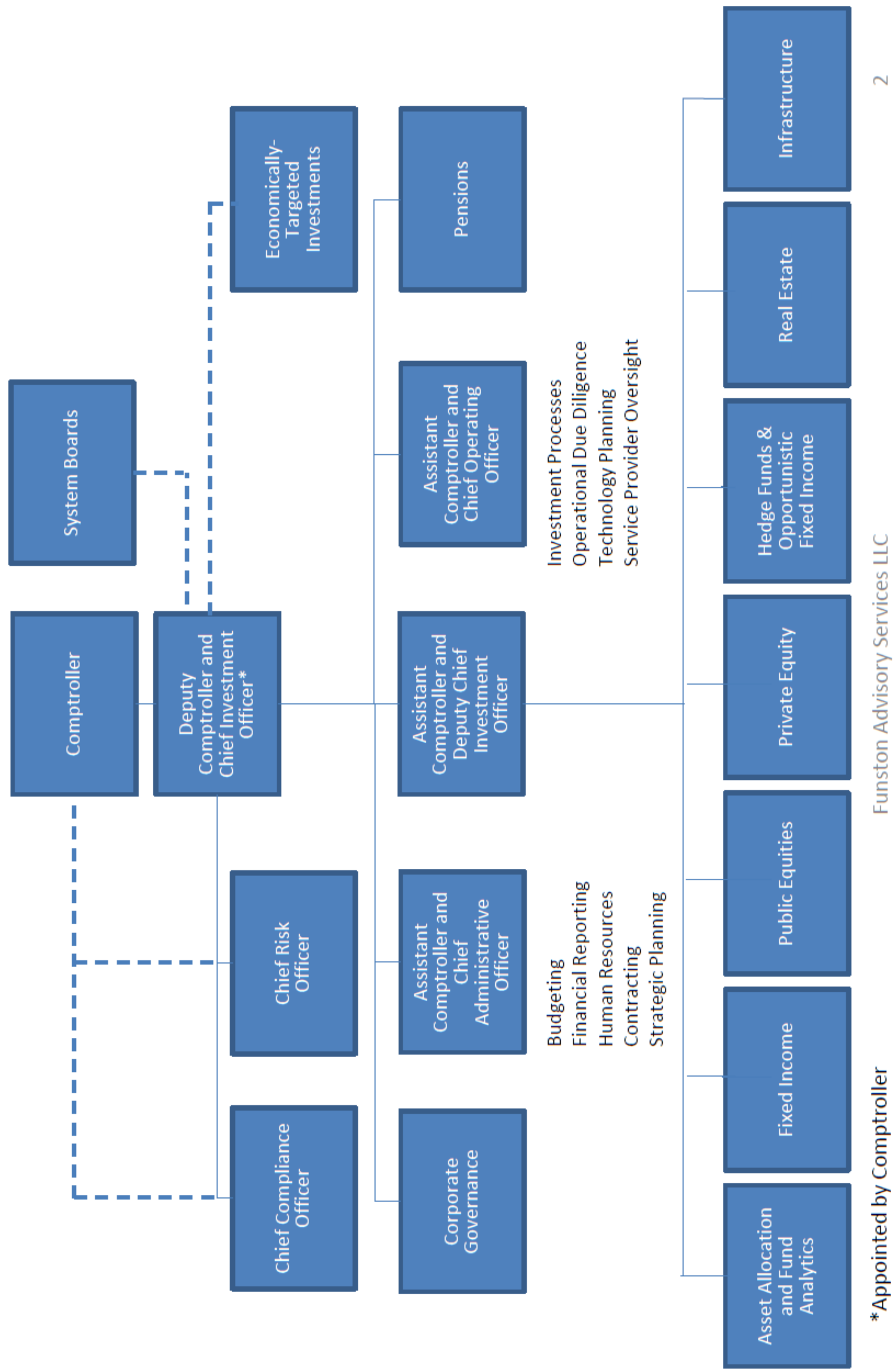
Appendix 7: Proposed BAM Target Organization

Proposed BAM Target Organization

1. Proposed BAM Target Organization
    a. Proposed organization chart
    b. Preliminary planning assumptions
2. Proposed BAM Investment Committee
3. Proposed BAM Operational Risk Committee

These recommendations are not intended as / nor should they be used as Investment Advice and should be subject to review and recommendation of the general investment consultants.

1. Proposed BAM Target Organization

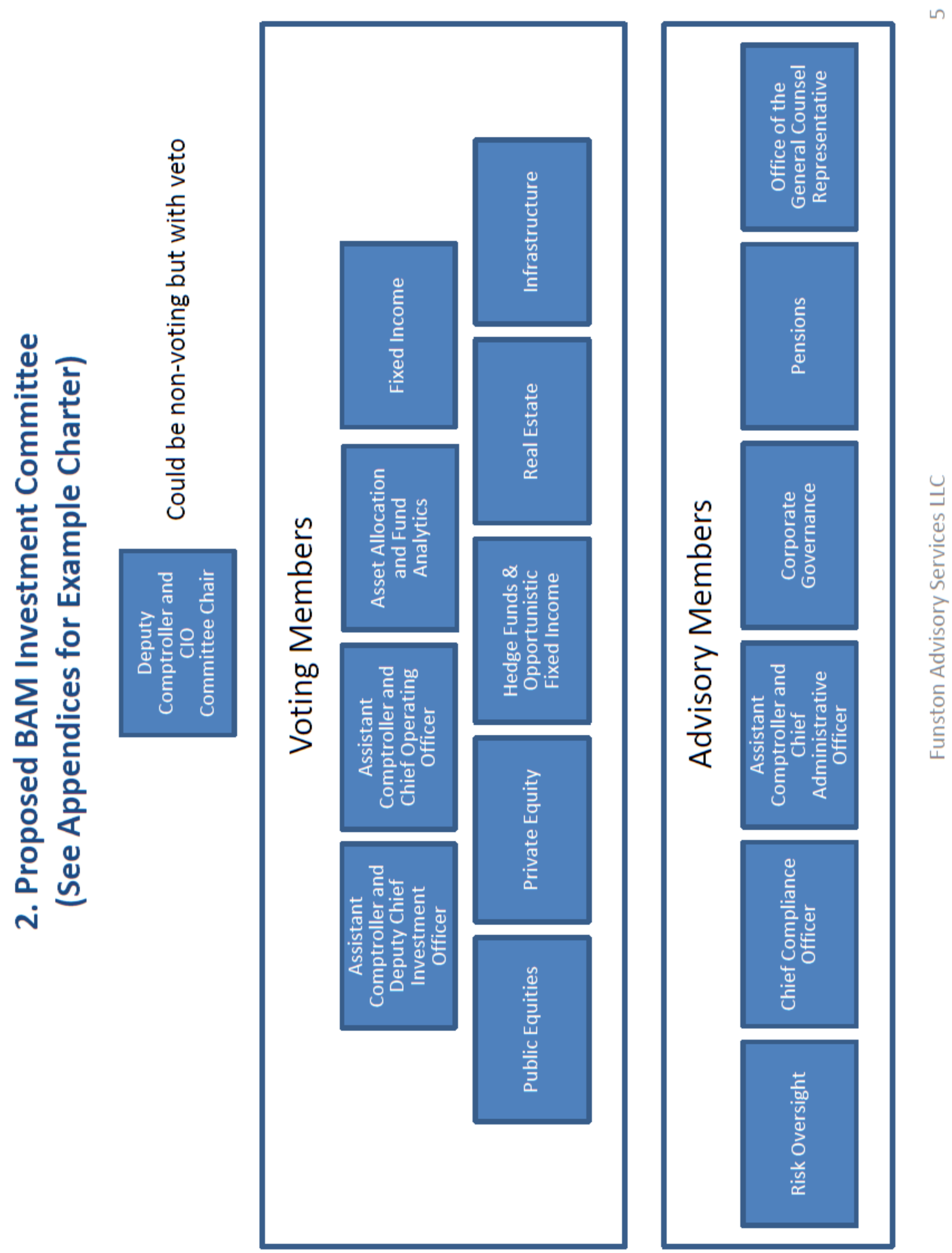


1. Proposed BAM Target Organization Preliminary Planning Assumptions

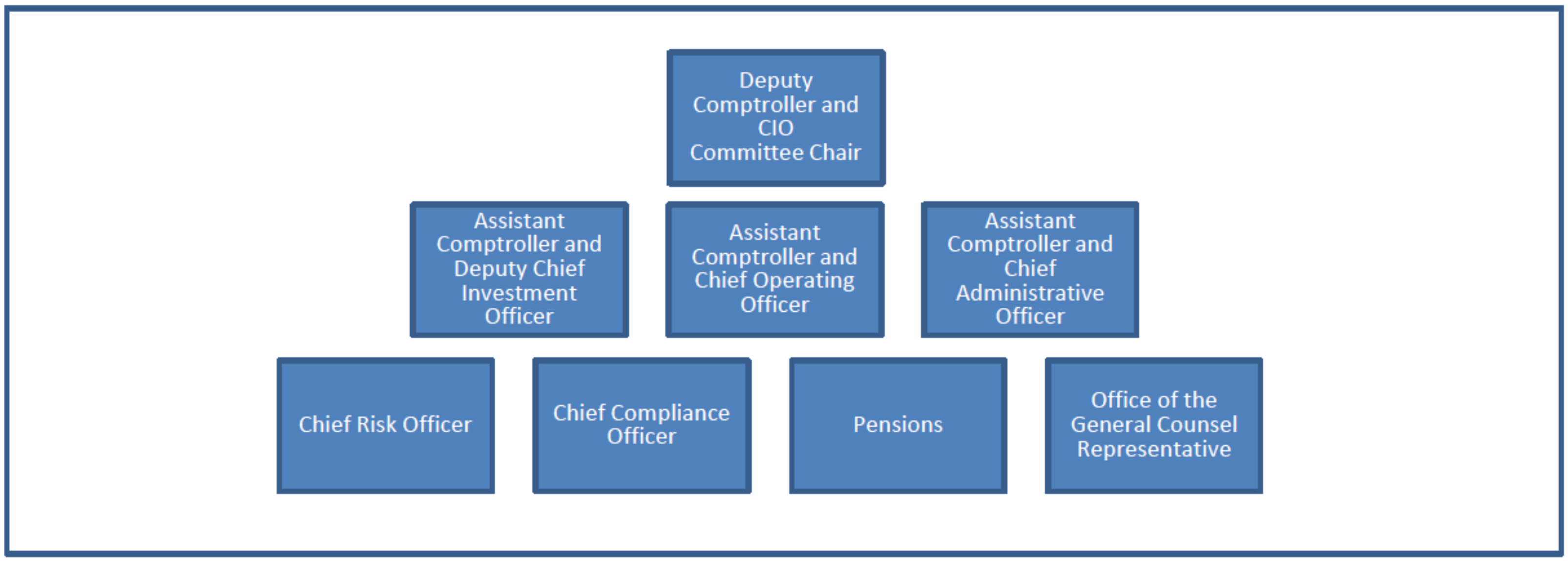
1. All open positions in Investment Strategy are filled to increase headcount from 23 to 33
2. Eleven additional staff in Investment Strategy:
    a. New positions of Assistant Comptroller and Deputy CIO and assistant
    b. New Asset Allocation and Fund Analytics unit with staff of 3
    c. Increased staffing in Public Equities: +2 (from 6 to 8)
    d. Increased staffing in Hedge Funds: +1 (from 3 to 4)
    e. Increased staffing in Fixed Income: +3 (from 7 to 10)
3. Ten new positions and redeployments in Operations:
    a. Assistant Comptroller for Asset Management organization split under two new positions:
        i. Assistant Comptroller and Chief Operating Officer with assistant
        ii. Assistant Comptroller and Chief Administrative Officer with assistant
    b. Under the Chief Operating Officer:
        i. Investment Control redeployed into a smaller Investment Processes unit with headcount reduced from 33 to 20
        ii. New Operational Due Diligence unit with staff of 6
        iii. New Technology Planning unit with staff of 4
        iv. New Service Provider Oversight unit with staff of 4
    c. Under the Chief Administrative Officer:
        i. Increased staffing in Contracts: +1 (from 9 to 10)
        ii. Increased staffing (and new roles) in Financial Reporting: +1 (from 3 to 4)
        iii. New Budgeting unit with staff of 4
        iv. New Human Resources unit with staff of 3
        v. New Strategic Planning unit with staff of 2

1. Proposed BAM Target Organization Preliminary Planning Assumptions

Approved BAM Organization and Headcount				Target Organization and Headcount	
	Filled Positons	Unfilled Positions	Total Positions		Target Organization
Dep. Comp./CIO and Staff	3	1	4	Dep. Comp./CIO and Staff	4
Compliance	2	1	3	Compliance	3
Risk	3	2	5	Risk	5
Pensions	4	0	4	Pensions	4
Investment Strategy:				**Investment Strategy**:	
Public Equities	6	0	6	Public Equities	8
Hedge Funds	2	1	3	Hedge Funds	4
Private Equity	4	4	8	Private Equity	8
Real Estate	3	3	6	Real Estate	6
Infrastructure Investments	2	1	3	Infrastructure Investments	3
Fixed Income and Rebalancing	6	1	7	Fixed Income	10
Subtotal Asset Classes	23	10	33	Asst. Comp./Deputy CIO	2
				Asset Allocation and Fund Analytics	3
				Subtotal Asset Classes	44
Pension Policy	8	0	8	Pension Policy	8
Operations:				**Operations:**	
Asst. Comp. for Asset Mgmt.	6	0	6	Asst. Comp. /Chief Operating Officer	2
Investment Control	27	6	33	Investment Processes	20
Trading	4	0	4	Trading	4
Contracts	8	1	9	Operational Due Diligence	6
Financial Reporting	2	1	3	Technology Planning	4
Subtotal Investment Operations	47	8	55	Service Provider Oversight	4
				Subtoal COO	40
Total	90	22	112		
				Asst. Comp./Chief Admin. Officer	2
				Contracts	10
				Financial Reporting	4
				Budgeting	4
				Human Resources	3
				Strategic Planning	2
				Subtotal CAO	25
				Subtotal Investment Operations	65
				Total	133


2. Proposed BAM Investment Committee
(See Appendices for Example Charter)
Deputy Comptroller and CIO Committee Chair
Could be non-voting but with veto
Voting Members
Assistant Comptroller and Deputy Chief Investment Officer
Assistant Comptroller and Chief Operating Officer
Asset Allocation and Fund Analytics
Fixed Income
Public Equities
Private Equity
Hedge Funds & Opportunistic Fixed Income
Real Estate
Infrastructure
Advisory Members
Risk Oversight
Chief Compliance Officer
Assistant Comptroller and Chief Administrative Officer
Corporate Governance
Pensions
Office of the General Counsel Representative
Funston Advisory Services LLC
5

3. Proposed BAM Operational Risk Committee
(See Appendices for Example Charter)



Appendix 8: Example Internal Investment Committee Charter

POLICIES AND PROCEDURES

FOR THE INTERNAL INVESTMENT COMMITTEE OF THE RETIREMENT FUND

November 4, 2011

Purpose and Scope of Authority

The Internal Investment Committee (the "Committee ") is established to enhance the investment decision making function within the Investment Management Division. Specifically, except for real estate issues that are dealt with by Real Estate Advisory Committee, and as otherwise provided below, no investment allocation decision (including the hiring of investment managers and asset allocation changes) (an "Investment Proposal") will rise to the consideration of the Fiduciary unless reviewed by the Committee.[43]

In addition, at the request of the Fiduciary or the Chief Investment Officer ("CIO"), the Committee may also review and make recommendations with respect to other matters.

Composition

The Committee will have a minimum of 3 members. The initial Committee shall consist of the CIO, the heads of the asset classes and such other persons as the CIO may designate, all of which shall be approved by the Fiduciary. The CIO may add and withdraw appointments to the Committee, provided that such changes are approved by the Fiduciary. A list of the current members of the Committee is attached as Exhibit A.

The CIO will serve as the Chair of the Committee and may appoint a Vice-Chair who, in the event of the CIO's absence would lead the meetings and would otherwise perform the functions of the Chair.

[43] An Investment Proposal does not include rebalancing within the fixed income or internal equity portfolios or cash management transactions.

Meetings

The Committee shall meet at the call of the CIO as needed to address investment allocation decisions and any other matters that may be brought before it, with the intent that the Committee meets at least weekly. The head of each asset class will provide the CIO with a pipeline of investment allocation decisions that are pending over the following two to three months. Such pipeline will be updated by the asset class heads on a weekly basis. In addition, Committee members may propose agenda items (other than asset allocation decisions) for discussion by the Committee. The CIO will propose agenda items based upon the pipeline, member input and the CIO's own proposals.

Meeting agendas will be prepared and provided in advance to members, along with appropriate briefing materials.

Recommendations to the CIO

In order for an Investment Proposal to be considered at a Committee meeting, the Investment Officer shall submit to the CIO and to the Committee, a written recommendation signed by the Investment Officer and the head of the asset class,[44] accompanied by the recommendation of the consultant that has reviewed the Investment Proposal (if applicable), and such other documents as may be useful or necessary ("Recommendation Package").[45] In order for the Committee to consider the Investment Proposal, the Recommendation Package must be delivered to the CIO and the Committee at least 6 business days prior to the Committee meeting, unless such minimum time is waived by the CIO.

Minutes

A member of Investment Management staff shall keep minutes of all meetings and of all actions taken by the Committee. Committee members will be given the opportunity to review and approve such minutes before such minutes are filed with the Fiduciary. All members of the Committee and the Fiduciary will be provided with a copy of such minutes and such minutes will be included in the package of materials presented to the Fiduciary for decision-making.

[44] Each recommendation must be signed by an Investment Officer and the head of the asset class. If the asset class head is also the primary Investment Officer, a second Investment Officer must concur with the recommendation.
[45] These Policies and Procedures are intended to supplement the existing Policies and Procedures relating to investment decision making; to the extent these Policies and Procedures conflict with existing Policies and Procedures, the existing Policies and Procedures will govern.

Recommendations to the Fiduciary

The CIO will insure that recommendations to the Fiduciary are accompanied by minutes of the Committee meeting at which the Investment Proposal was presented, and that the final investment recommendation memo to the Fiduciary contain a discussion of the risks of the proposed course of action as well as the factors mitigating risk, as raised and discussed at the Committee meeting.

The CIO may bring urgent issues, or issues that are particularly sensitive or require an exceptional level of confidentiality, directly to the Fiduciary without involving the Committee; provided that the CIO makes the Fiduciary aware of instances in which she/he is recommending action without Committee involvement and provided further that the CIO report to the Committee on these transactions on an "after-the-fact" basis.

Action Taken Without CIO or Deputy CIO Involvement

The Committee is authorized to act on an exceptional basis (i.e., when time is of the essence and lack of action may place CRF at risk) in the absence of the CIO and the Deputy CIO, subject to super-majority voting by a quorum of its full membership.

In such instance the head of the relevant asset class (if available) and the Investment Officer presenting the Investment Proposal will make the recommendation to the Fiduciary according to the same requirements outlined in the preceding section **"Recommendations to the Fiduciary".**

EXHIBIT A

MEMBERS OF INTERNAL INVESTMENT COMMITTEE

As of November 4, 2011

Chief Investment Officer

Chief Administrative Officer

Director of Internal Public Equity Director of Fixed Income

Director of Absolute Return Strategies

Director of Opportunistic Investments

Director of External Public Equity Director of Risk and Reporting

Director of Emerging Managers

Director of Real Estate

Director of Private Equity

Appendix 9: Example Operational Risk Management Charter

A. INTRODUCTION

Background

The management of operational risk is a key feature of sound risk management practice in modern financial markets. The recognition of operational risk as a specific category next to market and credit risk by the Basel Committee on Banking Supervision in the Revised International Capital Framework demonstrates its growing importance.

While the management of operational risk is the primary responsibility of each function or service responsible, the implementation of an integrated Operational Risk Management Framework shall be coordinated by a dedicated and independent team to achieve operational excellence and to ensure alignment with best market practice. At the Fund, the development and implementation of that framework forms part of the remit of Compliance & Operational Risk (COR).

Purpose and Scope

The Operational Risk Management Charter (the "Charter") applies to all the Fund Staff, services, functions and external offices.

The Charter codifies the Fund's approach to identifying, measuring, managing, reporting and controlling operational risk. It documents sound practices to help ensure that operational risk is managed and measured in an effective and consistent manner across the Fund and describes the key elements of the Fund Operational Risk Management Framework (the "Framework"), including the main roles and responsibilities. The Charter also sets the basis of the Fund's operational risk culture.

Definitions

The definitions establish a common language for describing, understanding, reporting and classifying Operational Risk. Core definitions are outlined in this section.

Operational Risk is defined as the risk of loss or reputational damage resulting from inadequate or failed internal processes, people and systems or from external events.

At the Fund, this definition includes Legal Risk, Compliance Risk and Reputational Risk in line with standard market practice and in the light of the specific importance of reputational risk for the Fund as a European International Financial Institution.

Legal Risk arises from the potential that unenforceable contracts, lawsuits, or adverse judgments can disrupt or otherwise negatively affect the operations or conditions of the organization.

Compliance Risk is the risk of legal or regulatory sanctions, material financial loss or loss to reputation, the organization may suffer as a result of its failure to comply with laws, regulations, rules, related self-regulatory organization standards and codes of conduct applicable to its activities.

Reputational Risk is the risk resulting from adverse perception, whether true or not, of the image of the organization on the part of the Fund's stakeholders, contractual counterparties, the public or supervisory authorities.

Operational Risk Management encompasses the mechanisms, tools, policies, procedures and processes, including management oversight, to identify, assess, monitor, report, and control operational risk.

An Operational Risk Event (ORE) is defined as a failure of internal processes, people or systems, or a result of external events. OREs may result in direct or indirect financial loss or, where this is not the case, in near-misses or may lead to an adverse effect on the Fund's reputation, a breach of internal procedures, laws, regulations or good market practices.

Whereas operational risk represents the *potential* occurrence of a risk, an ORE is the *actual* occurrence of a risk.

OREs are categorized according to the following Operational Risk Event Types:

- Internal Fraud
- External Fraud
- Employment Practices and Workplace Safety
- Clients, Products and Business Practices
- Damage to Physical Assets
- Business Disruption and System Failures
- Execution, Delivery and Process Management

B. GOVERNANCE

Key Principles

"At the Fund, Management of Operational Risk is Everyone's Responsibility."

<u>Guidance</u>

The Fund Board of Directors approves the Charter, including the governance aspects and the general framework. The Board of Directors also approves the Fund's tolerance to operational risk as described under section E of the Charter.

Ownership

The Chief Executive (CE) and the Deputy Chief Executive (DCE) are responsible for ensuring that the appropriate operational risk management practices are in place and operating effectively. The CE and DCE retain the ultimate responsibility for the effective management of operational risk at the Fund within the limits set by the Board of Directors.

Independence

In line with the principles set by the Basel Committee, COR is an independent operational risk management function that is responsible for the design and implementation of the Framework.

Access to information

COR has unrestricted access to any document or information deemed useful for the identification and assessment of operational risk at the Fund.

Oversight

Internal Audit performs regular reviews of the operational risk management processes. These reviews include both the activities of the business units and of the independent operational risk management function.

Responsibilities

The CE and DCE:

- provide sufficient human and technical resources to support effective management of operational risk;
- maintain an appropriate culture and set a tone conducive to effective and transparent operational risk management;
- sponsor the Fund Operational Risk Program.

Fund function or service responsibilities:

- ensure that operational risks (i) associated with their respective processes, people and systems, and (ii) from external events are identified and understood;
- verify that internal controls and practices are in place, appropriate, operating effectively, and consistent with Fund Policies, legal and contractual obligations, and regulatory requirements;
- timely contribute to the monitoring, reporting and escalation processes such that the Fund Senior Management is made aware of material changes to the Fund's operational risk profile.

Fund Compliance & Operational Risk

- implements the Framework to support the management of operational risk;
- develops operational risk management procedures in compliance with the Charter;
- operates and/or coordinates processes for the identification, assessment, reporting, monitoring and mitigation of operational risk;
- provides advisory support to Fund services with regard to operational risk management and internal controls;
- organizes an operational risk awareness and training program.

Procedural framework

The operational risk procedures establish processes, roles and responsibilities for the implementation of the Framework in compliance with the Charter and good market practices.

C. OPERATIONAL RISK MANAGEMENT FRAMEWORK

The Framework is a set of integrated processes, tools and mitigation strategies that assist the Fund in managing and measuring operational risk.

The Framework supports Fund Senior Management in the alignment of business and risk management goals and provides a foundation which enables a consistent approach to operational risk across the organization. Furthermore, the Framework aims at establishing a common understanding of operational risk and risk management, promoting consistent application of techniques, and capture of relevant data.

Operational Risk Management Tools

The main components of the Framework, supporting the identification, assessment, measurement and reporting of operational risk, and the objectives of each, are the following:

Process Risk & Control Assessment

The identification of the risks inherent to the Fund's activities and environment, the assessment of the adequacy of the related internal controls to determine the residual risk for the organization and the classification of the risks according to their potential impact and likelihood.

Key Risk Indicators

The identification and analysis of parameters that can be considered as indicators of the level of operational risk within the organization. The Process Risk & Control Assessment enables a focus on indicators related to the riskiest activities and processes.

Operational Risk Events

The collection and analysis of operational risk events, including the identification of the root cause because that has led to their occurrence and the definition of a remediation plan.

Scenario Analysis

The assessment of the impact and the likelihood of potential OREs and the proactive mitigation of the identified risks. Scenario Analysis enables an organization to gain a better understanding of the risks that it could face under extreme conditions.

New Mandates, Products & Processes

The framework for the proactive identification and assessment of risks inherent to new products and mandates as well as to projects that have a material impact on the Fund's operational processes.

Operational Risk Awareness Program

The organization of trainings, workshops and information sessions to build up an operational risk management culture within the organization and to inform Fund Staff about specific operational risk management tools and processes. The internal operational risk culture is the combined set of individual and corporate values, attitudes, competencies and behavior that determine a firm's commitment to and style of operational risk management.

Relationship with Stakeholders

EIB Group

The Operational Risk function of EIB and the COR function of the Fund continuously co- operate and maintain a mutual flow of information on policies, standards and operational risk issues with potential relevance for the EIB Group, particularly on functions or services outsourced by one EIB Group entity to the other.

Audit Board

The overall assessment of operational risk at the Fund resulting from the implementation of the Framework, and particularly the Process Risk & Control Assessment, will be shared with the Audit Board in the form of the Fund Internal Control Framework (ICF).

D. CAPITAL REQUIREMENTS

The Framework encompasses value-adding processes and aims at improving the quality of the internal controls and at mitigating operational risk.

In this context, and taking into account the nature and size of the business, the Fund adopts the Basic Indicator Approach as proposed by the Basel Committee on Banking Supervision for the quantification of its operational risk.

E. OPERATIONAL RISK TOLERANCE

It is the objective of the Fund not to incur any operational loss or damage to its reputation. For that purpose, the Fund puts policies, procedures and systems in place in order to mitigate the impact and/or probability of occurrence of the operational risks inherent to its activities adopting a cost/benefit approach.

F. CHARTER ADMINISTRATION

This Charter was approved by the Fund Board of Directors on 12 April 2010. The Charter is developed and maintained by COR and is reviewed annually. The Charter is distributed to the Fund Audit Board and is available to all Fund Staff on the Fund Intranet.

Appendix 10: Example CFO Responsibilities

Job Title:	Chief Financial Officer
Department:	Executive
Reports to:	Executive Director
Grade:	16
Salary Range:	115K-169K
FLSA Status:	Exempt
Prepared Date:	January 24, 2012

SUMMARY

Under the administrative direction of the Executive Director of the Fund, directs the activities of the Accounting and Benefits departments and serves as chief financial advisor for accounting, audit, finance and tax activities. Performs related duties as required and specified by the Executive Director.

ESSENTIAL DUTIES AND RESPONSIBILITIES include the following:

1. Plans, coordinates, directs, and evaluates the financial operations of the Accounting, Benefits, Internal Audit, and Payroll Audit departments, within the framework of a team effort and principles of authority, responsibility and accountability.
2. Develops concepts and a philosophy that guides the fiscal operations of the Fund.
3. Oversees and directs the preparation of all financial reports, including the annual report.
4. Develops and administers overall Fund budget and long range financial planning activities; provides financial management and planning guidance to the Executive Director.
5. Exercises general supervision over departmental programs and projects, including general ledger, investment, payroll, internal audit, employee and employer contributions, tax and other related disciplines.
6. Participates as an active member of the management group by contributing to policy formulation, program development, and organizational planning, and by close communication and cooperation with other group members.
7. Implements Fund objectives and trustee policies by integration of thought, attention to details, priority ordering, and the consideration of information systems, cost factors, and resources.
8. Appraises the organization's financial position and issues periodic reports on organization's

financial stability, liquidity, and growth.

9. Directs and coordinates the establishment of budget programs.
10. Analyzes operational issues impacting departments and the whole institution, and determines their financial impact.

SUPERVISORY RESPONSIBILITIES -

Controller
Wage and Payroll Audit Supervisor
Benefits Supervisors
Quality Control Specialist
Special Projects-Admin Asst.

QUALIFICATIONS: To perform this job successfully, an individual must be able to perform each essential duty satisfactorily. The requirements listed below are representative of the knowledge, skill, and/or ability required. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

EDUCATION and/or EXPERIENCE: Bachelor's degree is required. Any major or concentration is accepted, but accounting major is strongly preferred.

CPA and/or MBA strongly preferred.

Must have management experience in a senior level accounting position.

Must have comprehensive knowledge of actuarial practices.

Must have experience managing a comparable number and nature of direct / indirect reports.

Must have at least 10 years of increasing responsibilities in an accounting position.

Experience in financial reporting and issues related to investments is strongly preferred.

Must have exceptional communication skills, and the ability to present information in an understandable manner to all types of internal and external groups.

Must have excellent interpersonal skills, the ability to relate to all levels of the organization as a representative of senior management.

SPECIAL SKILLS: Extensive knowledge of financial systems, planning, and operations. Familiarity with organizational budget and long range financial planning methods, procedures and techniques. Thorough knowledge of management techniques, principles, and practices as they relate to public pension fund and local government operations; considerable knowledge of the principles of cash management and investments, debt issuance, generally accepted governmental and commercial accounting principles, data processing capabilities and applications; knowledge of pension fund organizations, their structures, law, and history; knowledge of decision-making techniques; ability to utilize supervisory techniques to assign, review, and appraise the work of staff members; ability to apply city, state, and federal laws, regulations, policies, and procedures as they related to pension fund financial operations ability to apply financial management principles to achieve ability to communicate understandably and convey technical budget and fiscal information to commissions, boards, other agencies, and the general public; ability to represent the Fund in meetings, conferences, and public and news media inquiries; ability to establish and maintain harmonious working relationships; and ability to prepare complex rep rots that are accurate and understandable.

Appendix 11: Example Human Resources Responsibilities

Job Title:	Human Resources Manager	Job Code:	8-I-3
Department:	Administrative Services	Employee Type:	Full-time
Reports to:	Deputy Executive Director	FLSA Status	Exempt
Travel Required:	None	Supervisory Responsibility	Yes
Prepared Date:	November 2012	Salary Grade:	I

Summary of Responsibilities:

The Human Resources Manager, under the direction of the Deputy Executive Director, is responsible for all HR operations. Areas of responsibility include compensation, benefits and wellness, policy development and administration, compliance, employee relations, employment, performance management, HRMS, and training and development. Also responsible for serving as a backup to payroll, developing and maintaining the human resources infrastructure necessary to meet the needs of the fund, and serves as a coordinator for organizational development services for the Fund and to individual employees.

The Human Resources Manager functions as a strategic business partner and is a member of the leadership team, participating in all leadership development programs, strategic planning, and goal setting.

Essential Duties and Responsibilities:

- Oversee employee recruitment, selection, and orientation process.
- Manage performance management process.
- Oversee employee benefit and wellness programs.
- Provide internal counseling and consulting.
- Demonstrate commitment to providing first-class customer service, characterized by a positive attitude, respect for all people, and timely and accurate responses.
- Develop and maintain HR budget.
- Serve as an oversight to payroll function.
- Manage Tuition Assistance and Certification programs.
- Administer all COBRA, FMLA, and FLSA activities.
- Conduct software administrator duties for HRMS.
- Oversee HRMS data and activities associated with employee information.
- Manage complaint investigations and resolution activities.

- Oversee and coordinating disciplinary and/or termination documentation and process.
- Develop and assist with the implementation of staffing and succession plans.
- Administer workers' compensation activities.
- Administer unemployment compensation activities.
- Develop and implement procedures pertinent to the effective and efficient operation of the Human Resources Department.
- Sets performance standards to meet the Fund's service goals; Coaches and develops Human Resources Department staff. Build alignment on key HR processes and practices and their implementation and execution across the Fund.
- Collaborate with management on training and development needs assessment, training design and delivery.
- Coordinate and facilitate training and development workshops.
- Administer the Fund's policies and procedures. Administer organization-wide surveys.
- Administer compensation and benefit surveys.
- Assist in strategic planning, implementation, and organizational development activities.
- Other responsibilities as assigned.

Educations and Skills/Qualifications:

- Bachelor's degree (B.A.) in human resource management, business, or related field;
- Five or more years' experience in Human Resources; or
- Equivalent combination of education and experience.
- PHR preferred.

The incumbent is required to:

- Carry cell phone to respond to daily business needs and corporate emergencies.

To perform this job successfully, an individual must be able to perform each essential duty satisfactorily. The requirements listed below are representative of the knowledge, skills, and abilities required. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

Competencies:

Fund Specific:

Member/Retiree Focus - Is dedicated to meeting the needs of internal and external customers.

Integrity - Is widely trusted; is seen as a direct, truthful individual; can present the truth in an appropriate and helpful manner; keeps confidences as appropriate;

Open Communication - Creates an environment of open, direct and proactive communication, both written and verbal. Is unafraid to communicate freely across layers of the organization.

Continuous Innovation - Encourages innovation in order to be more efficient and effective; is willing to change. Strives to improve current processes and work products.

Teamwork - Is a team player and contributes to the team's effort; develops constructive and cooperative working relationships with others.

Leadership Specific:

– **Involvement:** Building human capability, ownership and responsibility, which includes:
  - Empowering People
  - Building Team Orientation Developing Organizational Capability

– **Adaptability:** Translating the demands of the business environment into action, which includes:
  - Creating Change
  - Emphasizing Customer Focus
  - Promoting Organizational Learning

– **Consistency:** Defining values and systems that are the basis of strong culture, which includes:
  - Defining Core Values
  - Working to Reach Agreement
  - Managing Coordination & Integration

– **Mission:** Defining a meaningful long-term direction for the organization, which includes:
  - Defining Strategic Direction & Intent
  - Defining Goals & Objectives
  - Creating Shared Vision

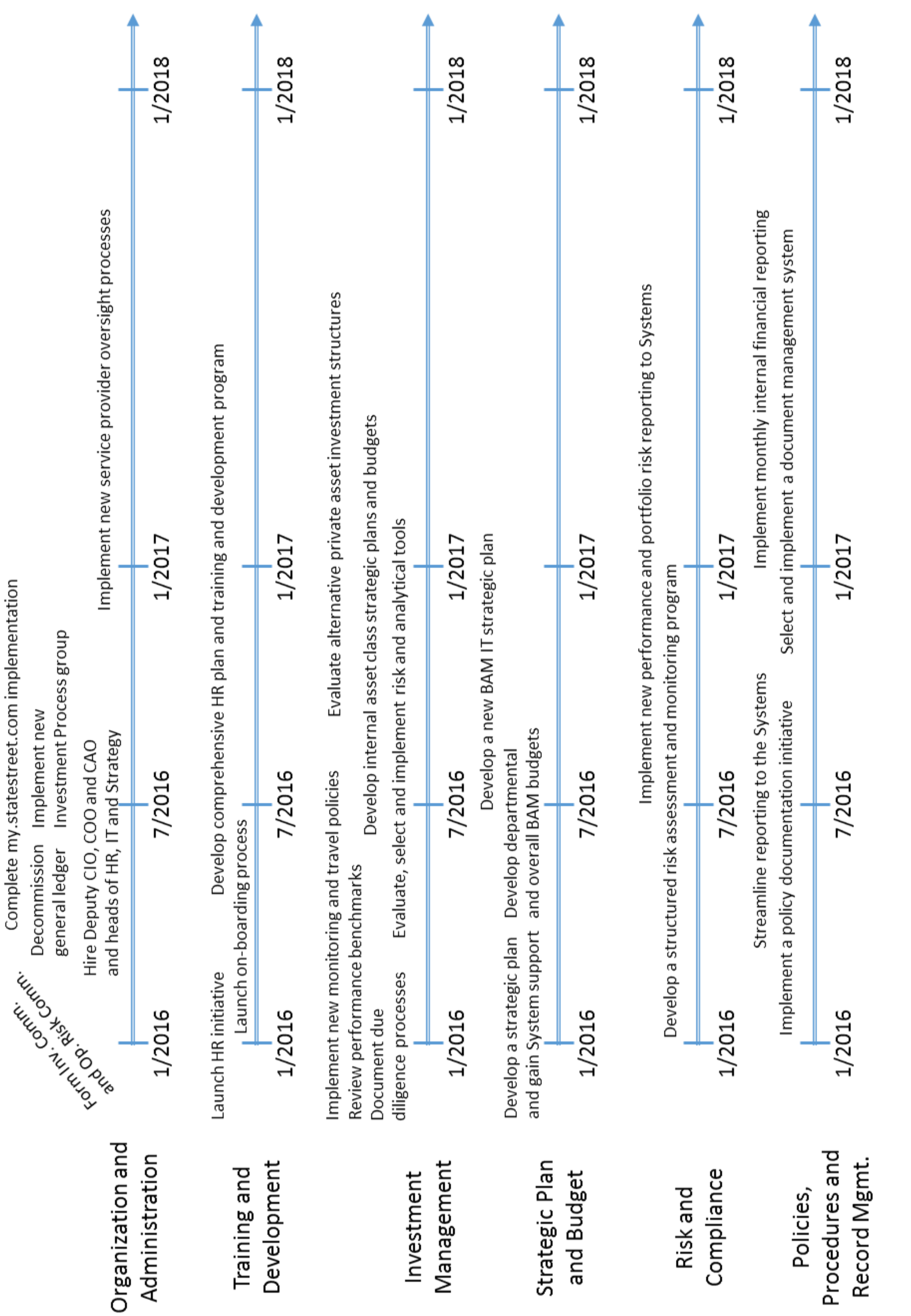
Position Specific:

Attention to Detail (L2) - Taking responsibility for a thorough and detailed method of working.

Appendix 12: BAM Priority Implementation Roadmap

There are several urgent initiatives which BAM should undertake during the next three months to support implementation of the overall FAS recommendations

1. Develop an overall strategic plan as a roadmap to guide the overall transformation
    a. Determine the level of funding the Systems will support
    b. Set the organizational strategy and staffing plans
    c. Develop the budget framework for spending on people, systems and other priorities
2. Expand current recruitment efforts to fill open positions and onboard key staff
    a. Identify internal and external candidates and fill the Deputy CIO, COO and CAO and heads of HR, IT and Strategy positons
    b. Continue to fill open Investment Strategy positions
    c. Decommissioning the general ledger system and reducing manually-intensive reconciliation processes should be accomplished as soon as possible as it will facilitate development of new back- and middle-office capabilities
3. Establish a new internal Investment Committee and an Operational Risk Committee and develop charters for each
4. Review investment benchmarks as part of the ongoing asset allocation strategy process
5. Continue to formalize policies within Investment Strategy
    a. Due diligence policies
    b. Monitoring and travel policies


Organization and Administration
Form Inv. Comm. and Op. Risk Comm.
Complete my.statestreet.com implementation
Decommission general ledger
Implement new Investment Process group
Hire Deputy CIO, COO and CAO and heads of HR, IT and Strategy
Implement new service provider oversight processes
Training and Development
Launch HR initiative
Launch on-boarding process
Develop comprehensive HR plan and training and development program
Investment Management
Implement new monitoring and travel policies
Review performance benchmarks
Document due diligence processes
Evaluate, select and implement risk and analytical tools
Develop internal asset class strategic plans and budgets
Evaluate alternative private asset investment structures
Strategic Plan and Budget
Develop a strategic plan and gain System support
Develop departmental and overall BAM budgets
Develop a new BAM IT strategic plan
Risk and Compliance
Develop a structured risk assessment and monitoring program
Implement new performance and portfolio risk reporting to Systems
Policies, Procedures and Record Mgmt.
Implement a policy documentation initiative
Streamline reporting to the Systems
Select and implement a document management system
Implement monthly internal financial reporting
1/2016
7/2016
1/2017
1/2018

LIST OF SUPPLEMENTAL APPENDICES

Note: These appendices are not included in the final report but were provided to BAM staff as reference materials to assist in development of an operations manual for BAM.

33. **A-1B.2.4 Functional Models**
34. **A-1B.4 Example Succession Planning Career Pipeline ToolKit**
35. **A-1C - CutterResearch Supporting Cash Management 2009**
36. **A-1E.1.4.1 Example San Diego Compliance Charter**
37. **A-1D.1 Sample Short-Term Investment Policy (NYS Teachers)**
38. **A-1E.1.4.2 Example Board Compliance Plan Agenda**
39. **A-1E.1.4.3 Example Policy Manual**
40. **A-1E.1.4.4 Example Critical Policy Listing**
41. **A-1E.1.4.5 Example CalPERS Compliance Plan**
42. **A-1E.1.4.6 Example Compliance Charter ING**
43. **A-1E.1.4.7 TIAA Risk and Compliance Committee Charter**
44. **A-1E.2.1 COSO ERM**
45. **A-1E.2.1.1 COSO Outreach Deck May 2013**
46. **A-1E.2.2 ISO Leading Practice Expectations for Risk and Compliance**
47. **A-1E.2.3 Example Risk Assessment Template**
48. **A-1E1.4.1 Example San Diego Compliance Charter**
49. **A-1E1.4.2 Example Board Compliance Plan Agenda**
50. **A-1E2.4.1 Sample Risk Appetite Framework**
51. **A-1E2.4.2 Sample Active Risk Policy Statement**
52. **A-1E2.7.1 Investment Report to Board Sample**
53. **A-1E2.7.2 Manager sample risk report**
54. **A-1E2.7.3 RiskView Sample**
55. **A-1E2.7.4 MaaG Sample**
56. **A-1E2.8 Sample Risk Appetite Framework**
57. **A-1E2.9.1 CalPERS Risk Management Dashboard 1**
58. **A-1E2.9.2 CalPERS Risk Management Dashboard 2**
59. **A-1E2.9.3 CalPERS Risk Management Dashboard 3**
60. **A-1E2.9.4 CalPERS Risk Management Dashboard 4**
61. **A-1E4.7 Sample ERM Charter**
62. **A-1F.7 Sample Record Retention Policy**
63. **A-1F.8 Sample Record Retention Strategic Roadmap**
64. **A-1G.4.1 Example MPP Board Orientation program policy**
65. **A-1G.4.2 Example AFSCME Trustee Orientation**
66. **A-1G.4.3 NewTrusteeOrientationThingsEveryTrusteeShouldKnow-JeffClay-PSERS**
67. **A-1G.4.4 Example Board Orientation Program Maryland**
68. **A-1G.9 Example Executive Summary Template**
69. **A-1G.18 Example Consent Agenda**
70. **A-1G.23 Exception Report Template**

71. **A-1H.1 Sample CFO Job Description 1**
72. **A-1H.2 Sample CFO Job Description 2**
73. **A-1H.3 Sample CFO Job Description 3**
74. **A-1H.4 Sample Financial Reporting Org Chart 1**
75. **A-1H.5 CAFR Checklist**
76. **A-1H.6 CAFR Checklist 2**
77. **A-1I.7.1 Example Document Retention Policy**
78. **A-2C.5 BAM Custody Relationship Manager**
79. **A-2E.1 CalSTRS Securities Lending Program and Policy**
80. **A-2G.1 Article – Transition Management**
81. **A-2G.2 Transition management made simple guide**
82. **A-2G.3 russell-investments-transition-management-eight-guidelines-for-chosing-a-trusted-provider**
83. **A-2H.4 Template for Review of Independent Evaluators**
84. **A-2J.8.1 BCP Assessment Workplan**
85. **A-2J.8.2 BCP Assessment Workplan**
86. **A-2J.8.2 BCP Assessment Criteria**
87. **A-2J.8.3 Application Architecture - Investment Management Template**
88. **A-2J.8.3.1 Applications and Vendors**
89. **AA.4 List of Interviews**