Fiduciary Performance Audit of

The Ohio Public Employees Retirement System

Conducted on Behalf of

The Ohio Retirement Study Council

November 14, 2019

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Executive Summary

The content of this report supports our conclusion that, overall, the Ohio Public Employees Retirement System (OPERS) is a well-run organization, with many exemplary policies and practices. There are a few areas where we believe OPERS would benefit from enhancements, and recommendations are provided where this is the case. Nothing was found that represents insurmountable fiduciary or operational risk.

OPERS has implemented many policies and processes which align with best or leading-edge practices; consequently, the majority of the 56 recommendations contained in this report can be characterized as fine-tuning. Even so, we believe that fine-tuning OPERS' operations can add value and, therefore, all recommendations in this report merit consideration.

This executive summary is an abridged version of the key findings and recommendations contained in the report. It is a high-level summary and is not intended as a replacement for the full report. Rather than relying on this executive summary, we encourage readers to examine the detailed narrative within the report. A recommendation matrix, which aggregates all the recommendations that appear in the report, can be found in Appendix A at the end of this report on pages 140 through 144. A glossary of terms is also provided in Appendix B on pages 145 through 149. We caution readers that our findings and recommendations are limited to the areas of review defined in the project's scope of work and the information provided to us.

An overview of key findings and recommendations for each of the six main sections of the report are highlighted below.

1. Board Governance and Administration

Expand Board Appointee Expertise Requirement

The fiduciary standards governing OPERS are consistent with best practices. We found the OPERS Board composition, size, selection process, and term length to be appropriate. Consistent with best practices, there is an expertise requirement for the OPERS appointed members. However, the requirement is limited to investment expertise. Given the importance of the OPERS Audit Committee's oversight functions, we **recommend** that OPERS' governing statute be amended to require that one of the OPERS Board appointees have financial audit or internal controls expertise or, as an alternative, that OPERS retain a consultant that is a qualified "audit committee financial expert" to advise the OPERS Audit Committee.

Amend Governing Statutes to Better Align with Best Practices by Granting OPERS Authority to Select Its Essential Service Providers

The current governing statutes include four statutory limitations which are not consistent with best practices and run contrary to OPERS' ability to carry out its fiduciary duty to act in the sole interest of the beneficiaries and participants. These limitations are: (1) OPERS' inability to select its legal advisers; (2) OPERS' inability to select its financial auditor; (3) OPERS' inability to select its custody bank(s); and (4) the requirement that the custody bank be in state. The latter two statutory limitations are the most significant issues we found during our review.

Virtually all public retirement systems in the United States have exclusive authority and control, and thus oversight of their custody bank(s); this is not, however, the case under Ohio law. Requiring the custody bank to be in state is also an atypical requirement and not in line with the common or best practice. Ohio law designates the Ohio Treasurer of State (TOS) as the custodian. As the custodian, the TOS selects the custody bank(s) that OPERS must use. Consequently, OPERS receives and pays for the services but has no authority over the custody bank. We found that both the TOS and OPERS have made best efforts to operate under the current legal constraints. However, the designation of the TOS as the custodian and the in-state bank requirement hinders OPERS' efficiency, introduces risk, and necessitates the expenditure of millions of additional dollars to make the current requirements workable.

The common and best practice, whether public or corporate, is to use a single custodian. Under the current statutorily required custody serve model, in order for OPERS to receive the custody services needed to support its operations, three different custody banks must be used. This is because there is only one eligible in-state bank that is capable of supporting the consolidated custody model needed by OPERS. In most cases, the in-state bank still needs to subcontract with a non-state bank or entity to provide some of the services required by OPERS (e.g., global custody, securities lending, investment performance, investment compliance, investment risk reporting, etc.). This results in a non-competitive environment that does not align with best practices. Further, OPERS must use a master recordkeeper to combine all of the accounting data into one source. The master recordkeeper is also necessary to reduce the impact on and mitigate risk to OPERS from the TOS changing the custody bank(s). Historically, the custody has been changed more frequently than we would expect.

The Current Custody Model Results in Higher Fees

Because there are multiple custodians, the combined custody/recordkeeping fees for 2016 were $7.8 million (0.86 basis points). OPERS' custody fees are approximately 200% higher than the average basis points paid by its peer public funds (0.29 basis points). Further, total fees have nearly doubled since the custodian conversion in 2013. This increase is contrary to the current custody fee decline observed in the industry. Consolidating all custody services with a single provider under the authority of OPERS would remove the need for a master recordkeeper. We estimate this could result in a fees savings of several million dollars. We **recommend** amending Ohio law (R.C. 145.26 and 145.11(C)) to remove the TOS' custodian role and grant OPERS with exclusive authority and control over the custodian relationship. We **recommend** amending Ohio law (R.C. 135.03) to remove the requirement that the custodian bank must be located in Ohio. (The custody model used by OPERS is addressed in Task Area 3.D. on pages 98 through 113 of this report. It is discussed here because of its importance to the governance and administration of OPERS.)

Additionally, to bring OPERS in line with best practices, we **recommend** amending the applicable statutes to also grant OPERS exclusive authority and control over the selection of (1) its legal advisors and (2) its financial auditor.

OPERS Has Extensive Documentation of Its Governance

Overall, the breadth of OPERS' governance documentation is leading-edge. This is also the case regarding the tools OPERS uses to communicate with the OPERS Board, its members, and retirees. Examples include: (1) OPERS' documentation of responsibilities and reporting lines; (2) OPERS' Financial Reporting Budget Policy and the reporting mechanisms used to ensure adherence; (3) the policies and processes OPERS has in place to facilitate compliance with the Ohio Ethics law; and (4) the newsletters, handbooks, and leaflets OPERS produces.

OPERS' Education and Total Administrative Costs Are Reasonable

During the review period, OPERS' Board education and associated costs were $41,889. We find this amount to be de minimis compared to OPERS' total budget and the costs expended by comparable retirement systems. Further, we found OPERS' total administrative costs of $109 per member, inclusive of health costs, to be much lower relative to the median and average administrative costs of comparable retirement systems.

2. Organizational Structure and Staffing

OPERS' Staffing and Compensation Levels Are Reasonable

OPERS' overall staff size of 555 employees (as of 12/31/2017) is within normal limits. Peer funds generally have between 300 and 700 employees. OPERS' investment staff headcount of 57 is above the peer median staffing size of 46 but well below the high quartile of 100 employees. For non-investment functions, OPERS uses 4.15 employees per 10,000 members versus the peer group average of 4.77. Thus, OPERS' non-investment staffing levels are also within competitive normal limits. We found that, overall, OPERS' compensation levels are conservative compared to peers.

OPERS' Turnover Has Increased

We found OPERS' hiring procedures to be leading-edge and a model that can be used by other public retirement systems. OPERS also has a leading-edge employee performance evaluation process, provides excellent in-house training and development opportunities, and has high engagement scores. Notwithstanding, OPERS' turnover for 2017 was 13.2%. Although 44% of the 2017 turnover was due to retirements and involuntary departures, high levels of turnover can negatively impact the effectiveness and efficiency of an organization and, therefore, are not consistent with best practices. We **recommend** OPERS explore ways to diminish turnover.

3. Investment Policy and Oversight

OPERS' Investment Policy Statement and Review Processes Are Appropriate

The current investment policy documentation is comprehensive and consistent with best practices. The processes used by OPERS to adopt, monitor, periodically review and update its investment policy, and the extent to which it observes the policy, are also appropriate. OPERS also has written policies and procedures in place around broker selection and oversight, which we found to be in line with industry best practices.

The controls and processes used by OPERS to regularly review and monitor investment performance and assess compliance by external and internal investment managers are sound. OPERS' robust approach exceeds that of many other retirement systems and favorably aligns with best practices implemented by many commercial market participants such as asset management firms.

Investment Fees Are In Line with Peers; Documentation of Fee Review Analysis Should Be Enhanced

We found that OPERS' investment management fees are generally in line with those of peer public pension funds and in line with the level we would expect given the asset size, asset allocation, and implementation style.

As part of our analysis, we reviewed an April 2018 fee presentation that was produced for the hedge fund portfolio. The presentation evaluated hedge fund fees over time and across strategies and differentiated management fees and incentive fees. We believe this type of analysis is an important component of ongoing oversight and assists OPERS in communicating how it thinks about, evaluates, and manages investment management fees. We **recommend** conducting this type of analysis on each asset class as part of ongoing oversight and as a tool in communicating to stakeholders the underlying value proposition of each investment and why fees vary from one investment to the next.

Documentation of Manager Selection Processes Aligns with Best Practices

OPERS' investment manager selection processes, including each of the necessary steps, are clearly defined in distinct documents for each asset class in which OPERS invests. Overall, the documentation aligns with industry best practices. OPERS uses an approval committee for each asset class. Committee approval is required before investing in any external investment manager. This approach, along with robust documentation, helps to ensure a collaborative and consistent selection process. OPERS engages specialty external consultants to supplement its knowledge and functional work in areas where it may not have internal resources or expertise. The use of specialty consultants is a common and best practice.

Operational Due Diligence Should Be Improved

OPERS' current risk-based investment managers review approach is used by many market participants in order to optimize resource allocation. However, it is not a best practice. We **recommend** that OPERS implement an investment manager review schedule to ensure all external managers for its external public markets programs are reviewed onsite on a periodic basis to update its operational due diligence (ODD).

The position responsible for OPERS' ODD process for external public markets is independent from the investment department, which aligns with best practices. However, OPERS' ODD process for private markets is embedded within its investment due diligence process. While this approach generally aligns with market practice, to be consistent with best practice, the ODD process should be separate. We **recommend** the OPERS Risk Management Team perform the ODD process independently of the investment team for its private market program. As an alternative, we **recommend** OPERS engage its external consultant to conduct detailed ODD for each mandate.

4. Legal Compliance

We found the policies and processes used by OPERS for purposes of legal compliance and adherence to United States Internal Revenue Service regulations to reflect best practices. OPERS' allocation between benefits and transactional legal work is also appropriate. The statutory designation of the Ohio Attorney General (AGO) as the legal advisor to OPERS is consistent with common practice among public retirement systems; however, it is not a best practice. To align with best practices, OPERS should have the ability to select its own legal counsel, independent of the AGO (Recommendation 1.A.1. provided in Task Area 1 on page 11).

5. Risk Management and Controls

OPERS Maintains an Effective, Comprehensive Risk Management Framework

Risk management and controls are an evolving trend among public retirement systems. Only a few public funds have an enterprise risk management framework in place; OPERS is one of them. OPERS currently operates under two distinct risk management frameworks: Operational Risk Management and Enterprise Risk Management (ERM). OPERS' approach to defining responsibilities, oversight, and procedures aligns with best practices. OPERS is in the process of fully integrating its ERM framework.

The detailed documentation of OPERS' accounting procedure is consistent with best practice and, in some cases, represents leading-edge practice. Further, the external audit procedures appear to be adequate. OPERS received an unqualified audit opinion for the year ending December 31, 2016. Oversight of financial reporting and internal controls are key responsibilities of the OPERS Audit Committee. Notwithstanding, the ability of the OPERS Audit Committee to provide effective oversight and control would be enhanced if it were comprised of members with strong accounting or audit experience. This could be achieved by the adoption of Recommendation 1.B.1., provided in Task Area 1 on page 15, to amend OPERS' governing statute to require that one of the appointees have financial audit or internal controls expertise or, as an alternative, that OPERS retain a consultant that is a qualified "audit committee financial expert" to advise the OPERS Audit Committee. (Recommendation 1.B.2.)

6. Information Technology (IT) Operations

OPERS' IT Policies, Processes, and Oversight Generally Align with Best Practices

Physical security surrounding the office building and access to the location were found to be in line with expectations. OPERS selects an external vendor annually to conduct penetration testing of its IT network. An annual risk assessment focusing on IT is also performed. OPERS' recovery time objective for priority one incidents is inside 24 hours, and it has developed a helpdesk solution that is in place to record, prioritize, and dispatch appropriate personnel through a supporting incident response system.

OPERS has business continuity and disaster recovery policies and processes in place that are in line with industry best practices.

Introduction

Background

The Ohio Retirement Study Council (ORSC) was created by the Ohio General Assembly in 1968. It is one of the oldest permanent pension oversight bodies in the nation. Its purpose is to advise and inform the state legislature on all matters relating to the benefits, funding, investment, and operation of the five statewide retirement systems in Ohio.

The ORSC, pursuant to R.C. 171.04(F), is required to have a fiduciary performance audit of each of the five Ohio retirement systems conducted at least once every ten years. After a competitive process, ORSC selected Aon Hewitt Investment Consulting (AHIC) to conduct the fiduciary performance audit of the Ohio Public Employees Retirement System (OPERS).

Created in 1935, OPERS is a statewide retirement system governed by an 11 member board, which provides pensions and access to health care coverage to state and local government employees. As of the end of 2017, OPERS had approximately 347,730 active members, 559,587 inactive members, and 210,882 retired members. Total assets as of the end of 2017 were $101.4 billion.

Purpose and Scope of the Review

The purpose of the fiduciary performance audit was to critically review and evaluate the organizational design, structure, and practices of OPERS in order to identify strengths and weaknesses, compare OPERS' operation with best practices of comparable public funds, and make recommendations for enhancements. Six main areas were addressed:

1. Board governance and administration;
2. Organizational structure and staffing;
3. Investment policy and oversight;
4. Legal compliance;
5. Risk management and controls; and
6. Information technology operations.

The report addresses numerous topics within each of the six main areas. These topics were defined by the scope of work for the review. For each key topic, background information is provided followed by findings and conclusion and recommendations. An executive summary is provided that highlights the key findings and recommendations contained in the report.

Methodology

The development of this report progressed through several stages. These stages included document collection, analyses, interviews and discussions, research, and report drafting. AHIC submitted several draft versions of the report and had numerous discussions with both the OPERS staff and the ORSC staff. This approach is consistent with the AHIC review methodology used for the many other fiduciary audits it has performed.

This process of draft, comment, and redraft enabled relevant parties to point out matters that, in their view, were either factually or conceptually inaccurate, incomplete or misleading, and enabled AHIC to obtain additional information and prepare a revised draft and subsequently a final report that takes into account all relevant comments. The final report reflects the combined analytical efforts and independent judgment of a diverse team of governance and investment professionals.

Report Caveats

This report should be read and evaluated with several caveats in mind:

- First, many of the subjects addressed in this report are inherently judgmental and not susceptible to absolute or definitive conclusions. Many of the recommendations constitute alternatives for the board and staff to consider in light of OPERS' evolving management, practices, and investment program.

- Second, in conducting this review, we assumed the information we were provided, whether by OPERS, OPERS' service providers, or the TOS, was accurate and could be relied upon. We sought to verify certain information among different interviewees and the documents reviewed, but the process of verification was limited. We were not retained to detect or investigate fraud, concealment, or misrepresentations. We were also not retained to, and did not attempt to, conduct a formal or legal investigation or otherwise use judicial processes or evidentiary safeguards in conducting the review. The findings and conclusions in this report are based upon the documents reviewed and the interviews AHIC conducted with OPERS' board and staff, independent analysis, and AHIC's experience and expertise.

- Third, this report does not, and is not intended to, provide legal advice. Although the report considers various legal matters, AHIC's findings and recommendations are not intended to provide legal interpretations, legal conclusions, or legal advice. For that reason, action upon such matters should not be taken without obtaining legal advice addressing the appropriate statutory or regulatory interpretation regarding such matters.

- Finally, although we discussed the findings and recommendations contained in this report with OPERS and ORSC and took their feedback into consideration, its final form and content reflect the independent judgment of AHIC.

Acknowledgements

AHIC thanks the ORSC staff for their time, diligence, and feedback during this review. We also thank the board and staff of OPERS for their time, cooperation, feedback, and candor during the review.

Findings, Analyses, Conclusions, And Recommendations

Task Area 1: Board Governance and Administration

A. Governing Statutes and Compliance

Background

The authority and requirements of a statewide public retirement system are established by law: including the Ohio Constitution, the enabling statute, other state statutes (such as the state's ethics, open meetings, and open records laws), and administrative rules, which have the force and effect of law. Failure to comply with applicable law and administrative rules can result in a breach of fiduciary responsibility and potential civil penalties or fines.

The fiduciary standards applicable to retirement system fiduciaries are typically modeled after, and are often virtually identical to, the Uniform Prudent Investor Act and the Employee Retirement Income Security Act (ERISA)[1]. ERISA fiduciary standards are viewed as the highest standards under the law and are reflective of best practices. Consequently, it is critical for a board, as the body with the ultimate fiduciary responsibility for carrying out the mission of the retirement system, to be governed by statutes and administrative rules which grant it exclusive authority and control over all the retirement system's activities. It is a best practice for a retirement system to have control over its budget and the selection of its legal advisers, independent financial auditors, and custodian bank(s). A board may delegate authority to others, but the board is the ultimate governing fiduciary.

Governance and autonomy best practices recognize the need for transparency, accountability, and compliance with legal requirements. Each of these is a tenet of a "good governance" model. Public funds use various means to achieve compliance including legal counsel, internal audit, risk management, a compliance officer, and reviews by independent external service providers.

It is a common mistake to confuse the roles of the chief compliance officer, the risk management officer, and that of internal auditor, particularly as the roles of these various positions relate to the compliance function. The need for these functions has emerged as public funds have become more multifaceted and the degree of legal and policy compliance required has grown significantly. While interrelated, each of these roles should be viewed as an integral, distinct part of the organization's leadership, with clearly defined parameters of authority.

Findings and Conclusions

A.1. Governing Statutes

OPERS is governed primarily by its enabling statute, Ohio Revised Code Chapter 145, Ohio Administrative Code Chapter 145, and numerous policies and procedures. It is also subject to certain federal laws (e.g. the Internal Revenue Code tax qualification requirements) and other Ohio laws, including, but not limited to, the Ohio Ethics Laws (R.C. Chapters 102 and 2921), the

[1] 29 U.S.C. § 1104 (1974).

Ohio Open Meetings Act (R.C. 121.22), and the Ohio Public Records Act (R.C. Chapter 149). To confirm awareness of their legal obligations and to ensure compliance with the law, board members are required to sign an affirmation pledging to support the Constitutions of the United States and the State of Ohio. The affirmation includes language that they will not knowingly violate, or permit to be violated, any of the provisions of the law governing OPERS.[2] This language is very similar to the ERISA fiduciary duty to follow plan documents.

Courts have found that ERISA's fiduciary responsibility provisions are the highest under the law.[3] The fiduciary standards of most large retirement systems are modeled after ERISA. All of the Peer Group A retirement systems[4] have fiduciary duties modeled after ERISA. The provisions of law establishing the fiduciary standards under which OPERS operates are comparable to ERISA's fiduciary duty of loyalty, duty of prudence, and duty to diversify.[5] The provisions reflect industry best practices.

The statute governing OPERS grants the OPERS Board with independent budgetary, personnel, and procurement authority. Granting this level of authority allows the board, as the ultimate fiduciary, to control plan assets and make decisions that are in the best interest of the beneficiaries and participants. This level of authority of independence is consistent with best practices. There are, however, several governing statutes applicable to OPERS that are inconsistent with the common and best practices of public retirement systems. These provisions prevent the OPERS Board from selecting its legal advisers,[6] independent financial auditors,[7] and custodian bank(s).[8] This is the case even though the OPERS Board must pay the cost of these services. Instead, the authority to select these service providers is vested in other Ohio governmental officials, specifically, the AGO, the Auditor of State (AOS), and the TOS. These other governmental officials are not subject to the same fiduciary standards as the OPERS Board. Further, the custody bank must be in-state. The limitations run contrary to the ability of the OPERS Board to carry out its fiduciary duties. The designation of the TOS as the custodian and the in-state bank requirement are the most significant of the limitations. As a result of the current custody bank statutory requirements, OPERS must expend millions of additional dollars to make the current requirements workable. It also exposes OPERS to inefficiency and risk. (The significant issues related to the current custodial relationship are discussed in detail in Task Area 3.D. on pages 98 through 113.) To be consistent with best practices, the OPERS Board should be vested with the statutory authority to directly contract with, evaluate, and change its legal advisers, independent auditors, and custody bank(s), based on fiduciary standards of prudence and loyalty.

A. 2. Compliance with Laws and Administrative Rules

The OPERS Board Governance Policy Manual establishes that the board is ultimately responsible for ensuring compliance with legal standards.[9] OPERS has multiple processes in place to assess and confirm compliance with applicable laws, administrative rules, and policies.

[2] R.C. 145.07.
[3] Tatum v. RJR Pension Investment Committee, 761 F.3d 346, 356 (4th Cir. 2014).
[4] The customized group of ten comparable retirement systems are listed as Peer Group A in Appendix C on page 152.
[5] R.C. 145.11.
[6] R.C. 145.10.
[7] R.C. 117.10.
[8] R.C. 145.11.
[9] The OPERS Board Governance Policy Manual, Section 6, page 10.

For example, OPERS has a robust system of internal controls, risk management, audit, and compliance processes designed to promote adherence to applicable legal and policy requirements related to investments, benefits, health care, and the general administration of OPERS. Some of these systems are automated and reflect best or leading-edge practices.

The OPERS Board also receives reporting from several groups regarding compliance-related requirements. The OPERS Board Governance Policy Manual identifies various written and oral reports that are to be routinely provided to the OPERS Board to facilitate its oversight of compliance with applicable laws and the policies under which OPERS operates, as well as to ensure that the OPERS Board is carrying out its fiduciary responsibilities.[10] Some of the reports that are to be regularly provided to the OPERS Board include the following:

- The executive director's monthly report;
- Investment reports, including asset allocation and performance reports;
- Operating budget reports;
- Litigation status reports;
- Legislative reports; and
- Strategic plan progress reports.

Neither the OPERS Board nor any of the staff members interviewed expressed concerns regarding compliance with legal requirements nor did our review uncover any instances of non-compliance. Notwithstanding, when reporting is from multiple sources, gaps can occur. Given the obligation of the OPERS Board to ensure compliance, we believe it would be prudent for the OPERS Board to require a distinct annual certification from staff. The certification would include a checklist of key legal and administrative rule requirements and a verification statement that OPERS has complied with each during the year. This is an effective, efficient best practice tool that can be used by the board and oversight bodies to confirm OPERS' compliance.

OPERS uses a decentralized approach to compliance for non-investment functions, i.e., responsibility for compliance review and confirmation is spread out over a number of areas, including audit, legal, and risk management. OPERS' approach is not inappropriate; it is a common approach among public retirement systems. For example, in a recent survey performed by the National Association of Public Pension Attorneys, only 28% of survey respondents had a chief compliance officer[11]. However, the developing best practice trend is to establish a chief compliance officer position. Several of the pension funds in Peer Group A (page 152) have a distinct chief compliance officer; examples include the California Public Employees' Retirement System (CalPERS), the California State Teachers' Retirement System (CalSTRS), the Teachers Retirement System of Texas (Texas TRS), and the Tennessee Consolidated Retirement System (TCRS). Additionally, the U.S. Department of Justice and the

[10] The OPERS Board Governance Policy Manual, Section 9, page 16.
[11] National Association of Public Pension Attorneys, "Public Pension System Operational Compliance" (2018).

U.S. Securities and Exchange Commission have both issued guidance encouraging the establishment of a chief compliance officer position.[12]

A chief compliance officer function is different from internal audit or risk management functions. The position centralizes responsibility for ensuring that an organization is conducting its business in full compliance with all applicable laws, regulations, professional standards, and internal policies. The reporting line for the chief compliance officer position varies among pension funds. In some cases, the chief compliance officer reports to the executive director; in other cases, the position reports to the general counsel, the chief operating officer, or the finance director. Similar to the internal auditor, the best practice is for the chief compliance officer to have the authority to go directly to the OPERS Audit Committee regarding any critical compliance concerns.

OPERS does have a centralized approach for investments. The staff responsible for investment compliance is located within the OPERS Investment Compliance and Risk Department of the Finance Division. The staff is led by the assistant director of investment accounting and compliance. Segregating the compliance oversight function outside the investment department fosters independence and is consistent with best practices.

Recommendations

1.A.1. Seek a statutory amendment to vest authority in the OPERS Board to independently select its legal advisers or to use the AGO's office, in its discretion, for legal advice and representation.

1.A.2. Seek a statutory amendment to vest authority in the OPERS Board to select its own independent financial auditor.

(In Task Area 3.D. on page 113, we recommend that OPERS seek a statutory amendment to grant the OPERS Board exclusive authority and control to select its custody bank(s).)

1.A.3. Establish a single cumulative annual report to the OPERS Board that certifies OPERS was in compliance with key legal and administrative rules for the fiscal year.

1.A.4. Establish a chief compliance officer position, which reports to senior leadership but is also authorized to go directly to the OPERS Audit Committee.

B. Board Composition

Background

The composition, selection process, terms, and experience requirements among public fund boards vary significantly. Structuring the composition of a public fund board so as to promote an effective, efficient entity involves the careful consideration of a number of factors including: ensuring representation by the system participants (actives and retirees), the contributing employer(s), and individuals with demonstrated experience in investments, finance, or benefits,

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[12] Department of Justice and Securities and Exchange Commission, "A Resource Guide to the U.S. Foreign Corrupt Practices Act" (2012).

while mitigating the risk of conflicts of interest. The board selection process typically includes election by constituent groups; appointments by the governor, legislature, or the treasurer; and ex-officio membership. Appointed members are most commonly appointed by the governor.[13]

The boards of statewide retirement systems that handle both benefits administration and investments commonly have members elected by the participants (i.e. active and retired members), appointed members, and ex-officio members (who are on the board by virtue of their position). Public fund boards that are only responsible for investment funds tend to have more appointed and ex-officio trustees than those who are elected by the members or beneficiaries of the pension plans.

Becoming familiar and knowledgeable regarding the various topics within the purview of a public fund takes time. In our experience, it takes board members at least three to four years to become well versed in institutional investment strategies, actuarial concepts, benefits, and healthcare programs. Consequently, it is not surprising that the length of terms of public fund board members is commonly three to four years. It is atypical among public fund boards to have term limits.

As the complexity of investment vehicles and benefits administration has evolved, there has been a trend to statutorily impose experience requirements for some number of the appointed members. While the requirement is typically directed to board member investment or finance expertise, a few states have recognized the importance of knowledge regarding actuarial, auditing, and benefits matters. Even when experience requirements are not imposed by law, many appointing authorities have been sensitive to the need to appoint individuals that have relevant knowledge. The extent to which expertise or professional qualifications has to be demonstrated is often liberally interpreted.

To make our evaluation for purposes of board composition, selection process, terms, and experience requirements, we created a customized peer group of ten retirement systems (Peer Group A, see list of Peers in Appendix C, on page 152.) The peer group is very similar to Peer Group B on page 152, except Peer Group A contains only other large retirement systems, while Peer Group B also contains investment boards. We also used industry survey information to supplement the peer group comparison.

Findings and Conclusions

The Ohio Revised Code[14] establishes the OPERS Board and sets forth its composition, selection and election process, terms, and experience requirements. The governing statute requires that the OPERS Board be composed of 11 members. A board size of 11 is consistent with the median board size of Peer Group A which is 11.5. In a larger survey of 88 public retirement systems (which also did not include state investment boards), the median board size

[13] Carol V. Calhoun, Cynthia L. Moore, and Keith Brainard, *Governmental Plans Answer Book*, 4th Edition, Wolters Kluwer Law & Business (Aspen, 2018).
[14] R.C. 145.04.

was nine, with a range of five to 19.[15] Neither the OPERS Board nor its management expressed concern regarding its size. We find the OPERS Board size to be appropriate.

The composition of the OPERS Board includes an ex-officio, three appointed members, and seven that are elected members. The Ohio Director of Administrative Services is the ex-officio, the Ohio Governor and the Ohio General Assembly (i.e., the Speaker of the Ohio House and the President of the Ohio Senate, jointly) each appoints one member, the TOS appoints a designee, the active members elect five members, and the retiree members elect two members. The composition of the OPERS Board, including greater representation by the active members, is consistent with the composition of the retirement systems in Peer Group A and industry survey data. Neither the OPERS Board nor its management expressed concern regarding its composition. We find the composition of the OPERS Board to be generally appropriate.

The composition of the OPERS Board could be enhanced by requiring one of the appointees to have financial audit or internal controls expertise. OPERS' enabling statute requires that three of the members, i.e., the TOS's designee and the two members appointed by the Ohio Governor and the Ohio General Assembly must have "direct" investment experience. As noted earlier, requiring some number of the members of the board to have expertise is a growing trend and a best practice among public funds. Approximately 60% of the retirement systems in Peer Group A have specific expertise requirements. Unlike OPERS, the expertise requirement is typically not limited solely to investments. Best efforts should be used to ensure the prospective members actually have the required expertise. We have found that public funds often loosely interpret the requirement of "direct" or "demonstrated" investment experience. In our opinion, this is because the requirement to have individuals with "direct" experience must be balanced with the need to avoid conflicts of interest, actual or perceived. Conflicts of interest are inherent in the financial industry. Therefore, there is a high probability that people who are currently working in the investment or benefits industry will have actual or perceived conflicts. It is a best practice and consistent with "good governance" to avoid conflicts of interest whenever possible.

Having at least one member with "financial expertise" on the audit committee is a recognized best practice. For example, The New York Stock Exchange (NYSE 303A.07), the American Stock Exchange (NYSE American, Part 8, Section 803(B)(2)(a)(iii)), and the National Association of Securities Dealers Automated Quotations Exchange (Nasdaq Equity Rule 5605(c)(2)(A)) have each adopted a rule requiring at least one audit committee member to have "financial expertise" for the companies trading on the respective exchange. As part of its implementation of Section 407 of the Sarbanes-Oxley Act of 2002,[16] the U.S. Securities and Exchange Commission (SEC) requires public companies under their jurisdiction to disclose whether at least one "audit committee financial expert" (ACFE) serves on its audit committee or to disclose the reason for not having such an expert. The SEC uses the term "audit committee financial expert" rather than "financial expert." The SEC defines an ACFE as an individual with the following attributes:

[15] Carol V. Calhoun, Cynthia L. Moore, and Keith Brainard, *Governmental Plans Answer Book*, 4th Edition, Wolters Kluwer Law & Business (Aspen, 2018).

[16] Section 407 of the Sarbanes-Oxley Act requires the SEC to adopt rules regarding the disclosure of whether there is a financial expert on the audit committee, and if not, why not. It also requires the SEC to define the term "financial expert."

- An understanding of generally accepted accounting principles (GAAP) and financial statements;
- An ability to assess the general application of GAAP to accounting for estimates, accruals, and reserves;
- An understanding of internal control over financial reporting;
- An understanding of audit committee functions; and
- Experience preparing, auditing, analyzing, or evaluating financial statements of a breadth and level of accounting complexity generally comparable to that expected to be present in the company's financial statements (or experience actively supervising others engaged in such activities).

OPERS' administrative rules recognize the importance of having financial expertise by suggesting that the chair of the board consider the accounting, finance, or business management background of board members when making appointments to the OPERS Audit Committee.[17] Expanding the OPERS Board's expertise requirements to include financial audit or internal controls experience would reflect a best practice and facilitate the chair's ability to appoint members to the OPERS Audit Committee that have the background envisioned by OPERS' administrative rules. As an alternative to having members of the OPERS Audit Committee with financial expertise, several public retirement systems retain an audit committee consultant that is independent of management and possesses the expertise needed to advise them.

Most public retirement systems board members have defined terms of service. The term length varies. The term of service for OPERS Board members is four years for both the elected members and the appointed members. The ex-officio serves by virtue of their position. The median term length for the Peer Group A funds was also four years, with a range of three to six years. We find the OPERS Board members' term length to be appropriate.

OPERS does not have limits on the number of terms that can be served. This is the case for all but one of the funds in Peer Group A. Neither the OPERS Board nor its management expressed concern regarding the length of the members' terms or the desire to institute term limits. While term limits are typically viewed as a best practice, it is an atypical practice among public funds. This is the case notwithstanding the fact that many public funds advocate terms limits for directors on public boards as part of their proxy voting guidelines.

We note that the OPERS Board did experience significant board member turnover during 2017. Four of the 11 board members started in 2018, and one started in 2017. Consequently, 45% of the OPERS Board is new. This level of turnover can be challenging for an organization because new members have to become knowledgeable regarding fiduciary concepts, investments, benefits, health care, and the myriad of issues attendant to the running of a large, sophisticated retirement system. We found that OPERS has developed several layers of training that will assist in bringing the new members "up to speed." (Orientation and ongoing education is discussed in detail later in this section of the report).

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[17] O.A.C. Sec. 145-1-01(D)(3).

Recommendations

1.B.1. Amend OPERS' governing statute to require that one of the board appointees have financial audit or internal controls expertise.

1.B.2. As an alternative to amending the statute, we recommend that OPERS retain a consultant that is a qualified "audit committee financial expert" to advise the OPERS Audit Committee.

C. Documentation of Responsibilities and Reporting Lines

Background

Fundamentally, "governance" refers to the method by which an entity is directed and controlled. To achieve "good governance," an organization must have clear and concise documentation of roles and responsibilities, effective and efficient reporting lines, and clarity regarding what authority has been retained by a board and what has been delegated. Studies have shown that "good governance" adds tangible and intangible value to an organization.[18]

In some cases, the enabling statute of a public fund may define certain duties of the board, the executive director, and the chief investment officer (CIO); however, such provisions are typically very high level. Consequently, by-laws, charters, written delegations of authority, organizational charts, position descriptions, and policies and guidelines (e.g., the investment policy statement, governance manual, etc.) are the key tools used by public funds to document the roles, responsibilities, and reporting lines among those responsible for governance and administration. It is common for large retirement systems to use most of these tools. Other documents that reflect emerging best practices are the use of board member expectations and an allocation of a responsibilities matrix.

Clearly defined roles and responsibilities facilitate a board's ability to fulfill its fiduciary duty, mitigate risk, and help the organization to run more effectively and efficiently. It is important that the documentation not exceed the parameters of the law and be unambiguous, succinct, consistent, and periodically reviewed to ensure relevance.

Findings and Conclusions

To make our assessment, we relied primarily on OPERS' enabling statute, organization charts, position descriptions, OPERS' Governance Policy Manual, OPERS' Investment Policy Statement, and various other key policies and procedures documents. Based on our review of these documents, we found OPERS' documentation of responsibilities between the OPERS Board (and its committees) and the staff to be very thorough and consistent with best practice.

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[18] "Good Governance Adds Value", a study published by Rotman International Journal of Pension Management, found that better governed pension funds outperformed poorly governed funds by 2.4% per annum during the 4-year period ending 12/2003. A similar study for the period 1993-1996 found a 1% annual good governance performance dividend. Capelle, Ronald, Lunn, Hubert and Ambachtsheer, Keith, "The Pension Governance Deficit: Still with Us" (October 2008), Rotman International Journal of Pension Management, Vol. 1, 2008.

Overall, we found that OPERS effectively uses its governance manual, committee charters, policies, and detailed multiple level organization charter for each division to systematically delineate the board's and staff's roles and responsibilities.

We also found OPERS' primary governing statute (R.C. Chapter 145) and administrative rules (O.A.C. Chapter 145) to be more detailed regarding the duties and responsibilities of the board and staff than many other public retirement systems. For example, the OPERS enabling statute defines the duties of the CIO in more granularity.[19] It also defines how the internal auditor is to be selected.[20] OPERS' administrative rules also define the composition of OPERS' standing committees, as well as the parameter of board member education and travel. Many retirement systems use board policy rather than administrative rules to amplify and clarify their enabling statutes. Board policy can be amended more expeditiously than administrative rules. Yet, while the administrative rule amendment process takes longer, it also contributes to transparency and accountability. Transparency and accountability are key components of good governance. We do not find that the current approach is onerous. The OPERS Board still has the option to use policies to further define its duties and responsibilities and those of its staff.

Using the policies and charters contained in the OPERS Board Governance Policy Manual and other key OPERS policies as a barometer for the sufficiency of documentation, we then compared the types of board-approved policies used by OPERS to those used by Peer Group A retirement systems. We found OPERS' level of documentation, across the key topics necessary to the running of a public retirement system, to be exemplary. OPERS has the breadth of governance documentation we would expect to find at a leading-edge public retirement system. The only key policies we found missing were a strategic planning policy and a succession planning policy. We are aware that OPERS has a thorough strategic planning framework in place. However, there is not a document that describes the components of the framework. Such documentation would include the process to be followed when developing, implementing, and monitoring the strategic plan. It would also include, for example, the roles and responsibilities of the board versus those of the executive director, the minimum frequency of review, and benchmarks to measure success. (Succession planning and the recommendation to adopt a succession planning policy is discussed in Section I. of this task area on pages 31 through 33.)

Also consistent with best practices, the OPERS Governance Policy Manual is required to be reviewed annually. OPERS reviewed and revised its governance manual during the scope period (2017), as well as eight out of the last ten years.

We note that the executive director currently has ten direct reports[21] in her span of control, including one position (the director of internal audit) that has dual reporting to the executive director and the OPERS Audit Committee. Traditional thinking was that a narrower span of control, five to seven people, was better because it provided a manager with more time to be

[19] R.C. 145.094.

[20] R.C. 145.095. The OPERS Audit Committee Charter provides that the OPERS Audit Committee has responsibility for approval of decisions regarding the appointment and removal of the OPERS Director- Internal Audit, the selection process and hiring of the position, and annually reviewing the performance of the position. The position description for the OPERS Director- Internal Audit confirms that the position reports to the OPERS Executive Director.

[21] A direct report is an employee who is managed by and reports to someone else immediately up the chain of command in the organizational structure.

strategic in the running of the organization. According to the Society for Human Resource Management, "… narrow spans of control are more expensive for organizations, but they allow managers to have more time with direct reports, and they tend to spark professional growth and advancement. In contrast, a wide span of control increases the number of interactions between the manager and his or her direct reports, which could cause managers to become overwhelmed but can also provide more autonomy."[22] The evolving standard is that there is no right or wrong number of direct reports. Rather, the number should be based on the functions of the organization. As a general rule of thumb, a chief executive director of an organization that has very homogeneous functions can have more direct reports than an organization that has significantly varied functions. Often new directors will have more direct reports initially because they are trying to learn the business of the organization. As this is accomplished, the number of direct reports typically declines. The use of deputy directors, or strong leaders in key positions (e.g. a chief operating officer), aids in the delegation of the span of control, allowing the executive director to be more strategic in their management of the organization rather than tactical.

We compared the number of executive director direct reports at OPERS to other retirement systems in Peer Group A. For purposes of comparison, we did not include dotted line reporting (i.e. the position reports to the executive director only for administrative purposes, but is accountable to another entity or individual, typically the board or a committee, which has the authority to hire, evaluate, and fire the person in the position). For example, for a number of the funds in Peer Group A, the internal auditor reports to the board or a committee of the board, and thus only has dotted-line reporting to the executive director. We also excluded executive assistants because some organizational charts reflect them and others do not. OPERS is slightly higher than the median of other public retirement systems. While OPERS is not materially out of line with other funds in Peer Group A, we nevertheless believe the current number of positions that directly report to the executive director subjects OPERS to keyman risk. Keyman risk occurs when an organization is too reliant on an individual. Keyman risk is inconsistent with best practices.

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[22] Society for Human Resource Management, "Span of Control: What factors should determine how many direct reports a manager has," April 25, 2013.

Table 1-1

Retirement System	Direct Reports
OPERS	10[23]
CalPERS	9[24]
CalSTRS	6[25]
CoPERA	7[26]
NYSTRS	9[27]
OhioSTRS	10
PSERS	4[28]
TNCRS	6
VRS	8
Texas TRS	8[29]
Median	8

Recommendations

1.C.1. OPERS should consider adopting a strategic planning policy.

(See Recommendation 1.I.1. provided in this task area on page 33 which suggests the adoption of a written succession planning policy.)

1.C.2. To reduce keyman risk, OPERS should consider reducing the number of executive director direct reports.

D. Board Education and Associated Costs

Background

The importance of new board member orientation and continuing education cannot be overstated. Education helps trustees to understand their governing laws, investment strategies, actuarial concepts, pension benefits, and health care administration. Fundamentally, education helps board members to understand and fulfill their fiduciary responsibilities, concepts that are typically unfamiliar to most people. A board member's fiduciary responsibilities make it imperative for trustees to stay abreast of "the circumstance then prevailing" and what those "acting in a like capacity" and of "like character and like aims" are doing, i.e. what their peers are doing.[30] In some cases, trustees are required to obtain orientation prior to attending their first meeting; in other cases, it must be obtained within a prescribed number of days after becoming

[23] The director-internal audit position was included because the position has a solid line reporting relationship to the executive director.
[24] The two areas (internal audit and the equal employment opportunity office) which have dotted line reporting to the chief executive officer are not included.
[25] While the 2017 CalSTRS's Comprehensive Annual Financial Report only reflects four positions reporting to the chief executive officer, a more detailed organizational chart identifies two positions in actuarial resources reporting to the chief executive officer.
[26] The internal audit position only has a dotted line reporting to the chief executive officer.
[27] Two areas (internal audit and legal) which have dotted line reporting to the executive director are not included.
[28] Three positions (the actuary, general counsel, and the internal auditor) which have dotted line reporting to the executive director are not included.
[29] One position (the chief audit executive) which has dotted line reporting to the executive director is not included.
[30] R.C. 145.11(A) and 29 U.S.C. § 1104(a)(1)(B) (1974).

a trustee. The developing best practice is to require, either by statute or policy, board members to engage in a prescribed number of hours of continuing education.

Findings and Conclusions

To develop our findings and conclusions related to this topic, we examined OPERS' governing law and policies concerning board education. We reviewed board minutes and other documentation regarding education undertaken by board members and the expenses incurred. We then compared OPERS' education and travel practices and costs to those of the Peer Group A retirement systems.

a. Orientation

Newly elected or appointed board members are statutorily required[31] to complete the orientation program established jointly by the five statewide retirement systems. The program must be completed within 90 days of commencing service on the board. The training is to cover common topics relevant to all of the systems including fiduciary basics, ethics, governance processes and procedures, actuarial soundness, and investments. The training can be a live or recorded presentation. We were informed that, in practice, orientation is conducted by each retirement system independently. A customized orientation and education plan is created for each new OPERS board member, tailored to their specific needs. The training is led by the executive director and designated members of OPERS staff from the various administrative areas. The chair of the board also participates in new member orientation; this practice is called for in the OPERS Board Education and Travel Policy.[32] A follow-up orientation session is also to be offered to each new board member six months into their term. During the interview process, we were informed that the follow-up session did not occur in 2017.

b. Ongoing Education

The Ohio Revised Code provides that board members who have served for more than a year must annually attend at least two of the jointly established retirement systems' continuing education offerings.[33] We were informed that, in practice, the retirement systems coordinate and provide an educational/training session for board members and others every three years.

During seven of 12 months in 2017, the OPERS Board was provided on-site educational training during committee meetings across a myriad of subjects (e.g. investments, enterprise risk management, retirement planning, board composition, etc.). There is also a monthly investments newsletter which spotlights investment topics of interest and provides links to articles on OPERS' traditional investment consultant's website. While we are aware that from time to time members attend recognized industry conferences (e.g., the International Foundation of Employee Benefit Plans, the National Conference on Public Employee Retirement Systems, etc.), there is not a formal listing of recommended external training. Instead, board members become aware of possible training opportunities from the program sponsor directly, from staff, or from each other. Attendance at external seminars and conferences allow board members to increase their knowledge, interact with other retirement

[31] R.C. 145.041.
[32] The OPERS Board Governance Policy Manual, Section 7, page 13.
[33] R.C. 145.041 and R.C. 171.50.

systems, and obtain different perspectives on how their peers operate. Most board members expressed satisfaction with the educational opportunities provided, noting that there is some form of educational session at most meetings. One member, however, expressed a desire for greater education. We often recommend compiling a list of recommended annual external educational training. Compiling a list is a best practice tool used by a number of public pension funds to better inform board members of available opportunities.

With regard to compliance with their educational requirements, board member education compliance guidelines were issued in June of 2005 and were last revised in January of 2012.[34] The guidelines require tracking of the continuing education sessions of each member. As noted earlier, educational presentations are provided throughout the year to the board members during their meetings. The education guidelines adopted by the board indicate that to qualify for continuing education credit, the presentations, classes, or events held in the state of Ohio must be at least 30 minutes long and approved by the executive director and general counsel as meeting the requirements of R.C. 171.50. When a presentation before the OPERS Board has been approved as a continuing education session, the meeting agenda is to include a notation that the presentation is an educational component in furtherance of the continuing education requirement. The process set forth in the guidelines is leading-edge and can serve as a model for other large pension funds. However, a review of the agendas for the board and the committee meetings for 2017 did not reflect any notations. We also did not find a periodic written statement or dashboard that tracks the sessions each board member has attended in furtherance of fulfilling their educational requirements. Instead, it appears that board members rely on management to inform them whether they have fulfilled their annual obligations. The absence of a systematic approach which tracks and reports on board member compliance with continuing education requirements is not consistent with best practices.

Travel to obtain education is often a thorny subject for public pension plans. However, to address this issue, it is a best practice to adopt education and travel policies that reinforce the importance of orientation and ongoing education and the parameters of permissible travel to obtain it. Like the majority of the retirement systems in Peer Group A, OPERS has adopted both board education guidelines and a travel and expense policy. Consistent with the applicable statutory requirement,[35] the document entitled “OPERS Travel & Expense Policy” requires that reimbursement for all out-of-state travel expenses for conferences, seminars, or other continuing education must be approved in advance by a majority of the OPERS Board at a regular board meeting. An out-of-state travel action item memo is prepared for the board’s consideration. This is another best practice utilized by OPERS to confirm compliance with the statutory out-of-state preapproval requirement. Three trips, up to a maximum amount of $6,000 per year, are allowed. The limit on the number of trips was requested by the ORSC. The OPERS Board does, however, have the discretion to authorize additional travel expenses for a member. The pre-approval can be waived in the case of an emergency. This type of board pre-approval authorization is commonly found among large public funds. The limitation on the number of trips and the amount that can be spent each year is not a common practice among large plans. For example, based on information obtained through our research, only two of the ten retirement systems in Peer Group A also use a $6,000 budget per trustee for travel.

[34] The OPERS Board Member Education Compliance Guidelines.
[35] R.C. 145.08(A).

However, in our opinion, establishing a budget per board member adds a layer of fiscal management, which is consistent with best practices. It does not unduly constrain a board member's ability to obtain education because authorization for additional travel can be granted by a majority vote of the OPERS Board.

Total travel expenses incurred by the OPERS Board for the scope of review period (i.e., for the calendar year ending December 31, 2017) were $41,889.[36] This represents four basis points out of the 2017 total operating expenses budget of $115,560,000.00, a de minimis amount when compared to the total operating expense budget and the trustee travel expense of some of the other funds in Peer Group A that provided trustee travel cost transparency.

Recommendations

1.D.1. Establish a board education and associated costs quarterly tracking and reporting process, which discloses the following information to the board: (a) when a new board member attended the statutorily required new member orientation and whether follow-up orientation was offered to the new member; (b) the attendance status of members with more than one year at continuing education sessions; and (c) the total travel expense for each board member, by name, year to date. The total travel expense report for each board member should also include the dates and locations of all trips, the names of the seminars or conferences attended, and details as to the total costs of the trips, including for example airfare, lodging, meals, and registration fees.

1.D.2. Include a notation of meeting agendas that designates the sessions which have been approved for purposes of continuing education.

1.D.3. Compile an annual list of recommended external educational opportunities for board member training.

E. OPERS Budget Process and Compliance

Background

Historically, public retirement system budgets were typically subject to approval by the legislature. This was the case notwithstanding the fact that retirement system expenses were paid from plan assets and not general fund revenues. With time, the need for a retirement system's board of trustees, as the ultimate governing fiduciaries, to have budgetary autonomy, independent procurement, and personnel authority became a recognized best practice. The importance of autonomy was recognized by the National Conference of Commissioners on Uniform State Laws in the Uniform Management of Public Employee Retirement Systems Act.[37] There are still a number of retirement system boards where legislative control of the budget still exists; however, this is not the best practice.

[36] In addition to airfare, lodging, and conference registration fees, as well as travel costs associated with regular board and committee meetings.

[37] The National Conference of Commissioners on Uniform State Laws, Uniform Management of Public Employee Retirement Systems Act (1997), comment on page 16.

If non-fiduciaries (e.g., the legislative and executive branches of a state) have control over the budget process, they can impose unreasonable restrictions, second-guess, and hinder or even prevent boards from fulfilling their fiduciary obligations. While the potential for this type of occurrence may seem minimal, the ability to unreasonably cut budgets is inherently present. When this is the case, retirement boards may find themselves constrained in supporting an infrastructure to meet the high fiduciary standards of prudent investors required by law with little available recourse to remedy the situation. This is particularly evident in times of fiscal crisis.

Findings and Conclusions

OPERS' governing law, R.C. Chapter 145, does not require that a budget be prepared for the retirement system. But for administrative purposes, an annual budget is presented to the OPERS Board for its review and approval. OPERS is legally required to submit its administrative budget to ORSC at least 60 days before it is adopted.[38] Notwithstanding, the OPERS Board has the ultimate authority and responsibility for approving the annual operating budget for the organization and ensuring that proper financial controls are in place.[39] Having independent budgetary authority is a best practice. It allows the OPERS Board, as the ultimate fiduciary, to determine what is in the best interest of the participants and beneficiaries in terms of prudent allocation of resources. The majority of the retirement systems in Peer Group A also have final approval over their respective budgets, although submission of the budget to an oversight entity is common. Oversight of a retirement system's autonomy is also a best practice.

We found that OPERS has a comprehensive written document, entitled "Financial Reporting Budget Policy" (the OPERS Budget Policy), which clearly details the structure for preparing, administering, and oversight of the budget. The document sets forth the authority and responsibilities of the various parties (e.g. the board, the executive director, division heads, department heads, and section heads) involved in the budget process. It also establishes the timing of various actions related to the budget process and the frequency of reporting to the board to facilitate its oversight. The policy establishes and succinctly defines the following eight distinct budget categories:

1) Personnel expenses;
2) Professional services;
3) Communications;
4) Information technology;
5) Office equipment and supplies;
6) Training and travel;
7) Custodial fees; and
8) Overhead.

These are the typical categories used by the retirement systems in Peer Group A. Each budget category has a set of account numbers that identify the expense fund chart of account numbers

38 R.C. 145.092(D)(1).
39 The OPERS Board Governance Policy Manual, Section 6, page 10.

in the general ledger. A statement of justification for a budget request is required, including how the request is linked to the short-term and long-term strategic goals and objectives for the upcoming year. A written justification identifying each element of each amount requested within each of the eight budget categories must also be submitted. The board receives monthly and quarterly reports regarding adherence to the budget, including the current status of the budget (e.g. budget compared to actual spending, any transfers among categories, variance greater than 10%, etc.). We found the OPERS Budget Policy to be a model document reflective of leading-edge best practices, as well as the reporting mechanisms used to ensure adherence.

Recommendations

None.

F. Administrative Costs

Background

Administrative expenses (also referred to by some funds as operating expenses) for a retirement system are typically set forth by administrative categories and then line items within each category. The following are examples of the categories commonly used and line items within each category:

- Personnel expenses – wages, salaries, and benefits;
- Professional services – audit, actuarial, legal, management, health care consulting, and computer support;
- Communication – printing, postage, and telephone;
- Information technology; and
- Miscellaneous – rental of office space, supplies, and maintenance.

There is no uniform prescribed rule regarding the categorization of costs on a schedule of expenses. Some retirement systems present their schedule of administrative expenses in a more gradual fashion, breaking out communication, travel, education, and meetings as administrative categories. Some use high level schedules for one purpose and more detailed schedules for others. A few retirement systems identify investment manager fees and custodian fees as operating expenses but differentiate them in the schedule from administrative expenses. Some retirement systems include custody and banking fees, as well as the cost of investment consultants as investment expenses, while others identify them as administrative expenses.

Findings and Conclusions

Based on the information obtained, we found that the categories of expenses used by OPERS are appropriate and comparable to those of the retirement funds in Peer Group A. We also found that OPERS' presentation of expenses tends to be slightly more granular than some of the other retirement systems in Peer Group A. This granularity contributes to transparency and is consistent with best practices.

Table 1-2 sets forth OPERS' total administrative expenses for 2017 compared to the ten retirement systems in Peer Group A.

Table 1-2 - Peer Group A – Administrative Expense Comparison for 2017[40]					
Custom Peer Group	**Asset Size (000)**	**Total Membership Size (000)**	**Total Administrative Costs (000)**	**Basis Point Cost[41]**	**Cost per Member**
1. **CalPERS***	$340,313,748	1,929	$818,667	24	424
2. CalSTRS	$235,670,234	930	$186,131	8	200
3. Texas TRS	$165,379,342	1,545	$44,189	3	28
4. NYSTRS	$117,507,662	428	$61,611	5	144
OPERS	$99,570,121	1,092	$119,454	1	109
5. Virginia RS	$83,548,300	687	$89,560	1	130
6. Ohio STRS*	$80,010,732	518	$66,149	1	128
7. Georgia TRS	$71,422,510	447	$16,733	0	38
8. **PSERS***	$57,079,968	510	$84,440	1	165
9. TCRS	$52,035,060	523	$18,512	0	35
10. **CoPERA***	$44,748,334	566	$64,001	1	113
Median[42]	$81,779,516	545	$65,075	1	129
Average	$124,771,589	808	$144,995	4.4	140.5

** Denotes peers that are also responsible for some form of health care administration*

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[40] The 2017 Comprehensive Annual Financial Reports for each retirement system.
[41] Ratio of total administrative expenses to asset size.
[42] When making comparisons, we focus on the median rather than the average because we believe it to be a better measure for purposes of benchmarking. We have, however, provided the average as another data point.

Based on the data we were able to obtain, we found that OPERS' total administration costs of $109 per member (inclusive of health care) was much lower relative to the median and the average of the Peer Group A retirement systems. This was the case even though a number of the retirement systems in Peer Group A are not responsible for healthcare administration.

Recommendations

None.

G. Conflict of Interest Policies and Procedures

Background

Conflict of interest restrictions are designed to protect plan participants by ensuring financial advisers, their firms, and their affiliates act in their clients' best interests. The best practice for market participants is to establish a credible framework for assessing and avoiding potential conflicts of interest, wherever possible. In the event that a conflict is identified, the framework should establish processes for escalating the issue appropriately.

As noted previously in this report, most public retirement systems are governed by ERISA-like fiduciary standards, which include the duty of loyalty. The duty of loyalty requires that fiduciaries act solely in the best interest of the participants and beneficiaries. The duty of loyalty can be equated to a "no conflicts of interest" requirement. A "conflict of interest" is any action that is or reasonably appears to be influenced by consideration of personal gain or benefit to any third-party or entity rather than motivated by the best interest of the participants and beneficiaries. Some examples of conflicts of interest include the acceptance of gifts, "self-dealing," and the use of confidential information. If a conflict of interest (actual or perceived) cannot be avoided, then both disclosure and recusal are required, which includes not participating in a discussion or voting on matters where the conflict exists.

To mitigate the risk of conflicts of interest, most large retirement systems have adopted a written ethics policy or a code of conduct. The policy should address expectations regarding acceptable and unacceptable conduct. At a minimum, the ethics policy should address the following topics: any annual financial disclosure requirements; personal trading; any personal relationship with service providers; revolving door issues; political contributions; and the appropriate channels within the organization to disclose and vet actual or perceived conflicts of interest.

Requiring an annual written acknowledgment from board members and staff declaring that they have reviewed, understand, and agree to comply with the ethics policy is a best practice. A few retirement systems also require their service providers to annually file and disclose certain information that may be viewed as an actual or perceived conflict of interest. While not widely used, we consider this to also be a best practice.

To evaluate the topic, we considered the following documents provided by OPERS:

- The OPERS Ethics Policy;
- The OPERS Personal Trading Policy; and
- The OPERS Conflicts of Interest Policy in the OPERS Board Governance Policy Manual.

In this section of the report, we focus on the policies component of how OPERS guards against professional conflicts. In Task Area 3.B.5. on pages 86 through 87, we focus on the issues of segregation of duties, background checks, and related parties in connection with conflicts of interest.

Findings and Conclusions

As noted previously, OPERS is subject to fiduciary standards which are modeled almost verbatim after ERISA. OPERS fiduciaries must act solely in the best interests of the participants and beneficiaries of the system and for the exclusive purposes of providing them with benefits and defraying reasonable administrative expenses. The ERISA-like requirements under which OPERS operates are consistent with the highest standards under law.[43] They include:

- Board members are prohibited by law from engaging in certain party-in-interest transactions (e.g., furnishing of goods or services between the system and a relative of a board member), and are prohibited from using assets of the system for their own interests (self-dealing); and
- Board members are also prohibited from receiving any consideration for their own personal accounts from any party dealing with the system in connection with a transaction involving the system's assets. Board members may not act on behalf of a party whose interests are adverse to the system, its participants, or beneficiaries.

OPERS is also prohibited by law from making investments or doing business with individuals or entities controlled by individuals who were board members, officers, or employees of the system within the last three years and further prohibits such individuals or entities from being involved in investment recommendations to the system where such individuals or entities would benefit by any monetary gain. Board members are prohibited from having any direct or indirect interest in the gains or profits of any board investment.

Under the Ohio Ethics law[44], board members are prohibited from soliciting or accepting payment of travel expenses, including expenses incurred with the travel for lodging, meals, food and beverages from anyone other than OPERS. Accepting anything of value from persons or corporations doing business or seeking to do business with the system is also prohibited. We were informed that the legal restrictions also apply to OPERS staff.

Consistent with R.C. 145.093, the OPERS Board has adopted an ethics policy which has been approved by the Ohio Ethics Commission and reviewed by the ORSC. The ethics policy establishes the expectation that board members and staff will follow the Ohio ethics laws and conduct themselves at all times in a manner that avoids favoritism, bias, and the appearance of impropriety. The ethics policy is to be reviewed biennially. A majority vote by the board, after approval by the Ohio Ethics Commission and review by ORSC, is necessary to amend the ethics policy. This type of multi-level approval structure is not typically required for a public retirement board to amend its ethics policy. We find that there are pros and cons to this approach. The Ohio Ethics Commission has a compelling interest in ensuring that the ethics policies of agencies under its purview are consistent with law. The board has a fiduciary duty to

[43] Tatum v. RJR Pension Investment Committee, 761 F.3d 346, 356 (4th Cir. 2014).
[44] R.C. 102.03(H)(2).

comply with applicable law. Therefore, the policies it adopts must be consistent with applicable law. Given the board's fiduciary obligations, we believe their ability to amend its ethics policy should be subject to a review, but not an approval process, by the Ohio Ethics Commission.

The ethics policy establishes that board members and certain staff, e.g., the state retirement system investment officers and the executive director, are required to file an annual financial disclosure statement with the Ohio Ethics Commission. It is our understanding that all members of the OPERS leadership team, not just those required to do so, file an annual financial disclosure form. We believe that voluntarily disclosure by this broader group of key employees is consistent with best practices.

The ethics policy also notifies the board and staff of the Ohio Ethics Commission as a source to obtain advice and assistance regarding Ohio ethics laws. Many retirement systems use internal legal counsel for this purpose. The OPERS process, which allows for vetting of actual or perceived conflicts of interest by an independent source with the necessary expertise, is a best practice.

To facilitate compliance with the ethics policy, the Ohio ethics law, and federal securities law, OPERS has adopted a number of policies and procedures. The following are examples:

- OPERS has adopted the OPERS Material Non-Public Information Policy (adopted November 18, 2009) and the OPERS Personal Trading Policy (originally created on October 1, 2005, and current as of February 15, 2017). The first guides employees with access to information concerning OPERS' assets and the latter guides employees regarding their personal investment activities. Both are designed to prevent employees from misusing material non-public information and front running, which could violate federal securities and Ohio law. The latter applies to a broad range of "covered employees"; it defines the roles and responsibilities of the position involved in the process. There are multiple detailed procedures related to personal trading activities; and
- OPERS has developed conflict of interest investment compliance procedures. The procedures require annual completion of the OPERS Management Conflicts of Interest Statement and Disclosure of Personal and Business Relationship. The investment compliance lead is responsible for maintaining and applying these procedures. Anyone in a supervisory or non-supervisory position that has the ability to influence a contract must sign the attestation. The tracking process associated with this procedure is very detailed and well documented.

Annually, to facilitate its oversight function, the investment compliance staff prepares a report to the board which summarizes the quarterly personal trading memos to the CIO. The report lists any breaches of the personal trading policy during the past 12 months.

In order to help implement this mandate, on an annual basis, OPERS' compliance team works with human resources and the investment team to compile a list of individuals who supervise others throughout the organization as well as anyone who may have the ability to influence a vendor contract. Anyone in a supervisory role (or in a non-supervisory position but who has the ability to influence a contract) must attest annually to receipt and review of the OPERS Management Conflict of Interest Statement and Disclosure of Personal and Business Relationships.

We were informed that the internal audit staff, as part of its annual audit plan, verifies compliance with the OPERS Ethics Policy. This was an objective in the 2017 OPERS Audit Plan. As part of the verification process, OPERS indicated that external investment managers, brokers, and service providers are contacted and asked to disclose any gifts, meals, lodging, entertainment, sporting events, or anything of value that was paid for or otherwise provided to any OPERS' employees or board members during the previous year. Conducting this type of verification to ensure that external service providers are in compliance with the OPERS Ethics Policy is consistent with best practices. There is not, however, language in the OPERS Ethics Policy that establishes the application of the ethics policy to anyone doing business with OPERS.

Recommendations

1.G.1. Amend R.C.145.093 to add language requiring that any amendments to OPERS' Ethics Policy must be consistent with applicable law and subject to review by the Ohio Ethics Commission and the Ohio Retirement Study Council.

1.G.2. Add language to the OPERS Ethics Policy that specifies those doing business with OPERS are subject to the purview of the policy.

H. Communications

Background

Transparency regarding the actions and decision-making process of a governmental entity, including the policies and procedures upon which decision-making is based, is a fundamental tenant of "good governance." Transparency provides stakeholders with a comfort level regarding the activities of the retirement system. Transparency also facilitates accountability. Notwithstanding, to the extent possible given "sunshine" laws, it is also important to balance the need for transparency into the proceedings of a governmental entity with the need to protect the sometimes sensitive issues discussed during meetings. To set forth its philosophy and parameters regarding communications with its stakeholders, it is a best practice for a board to adopt a communications policy.

The purpose of a communications policy is to establish expectations regarding written or verbal exchanges among the board and staff, system members, other stakeholders (e.g., the legislature, the governor, other governmental entities, the unions, etc.), the media, current and prospective service providers, and the general public. A written policy aids in ensuring that communications are efficient, timely, consistent, and accurately reflect the positions and actions of the retirement system. Ideally, the policy should identify the system's official spokesperson and set forth how and in what format regular communications are to be made.

A robust website, intranet, social media (such as Facebook and Twitter), newsletters, meeting minutes, summary plan descriptions or employee handbooks, and the annual financial report are a few of the tools commonly used by a retirement system to communicate with stakeholders and promote transparency and accountability.

Findings and Conclusions

a. Board Communications Policy

OPERS has adopted a board communications policy, which is part of the OPERS Board Governance Policy Manual.[45] The board communications policy specifically addresses: 1) how the board is to handle questions regarding the system's operations and requests for information; 2) how to handle exchanges with system members; 3) the process for members to address the board; 4) dealing with the media, including designation of the executive director and director of marketing and communication as the primary spokespersons for purposes of system matters and the board chair as the spokesperson for board-related matters, the process in the event individual members elect to speak with the press, and the process for issuance of press releases concerning OPERS; 5) limitations on the board's interactions with vendors, lobbyists, and service providers; and 6) board members' presentations to external groups. We were informed that most communications between the board and staff are directed through the executive director and associates are to inform the executive director prior to initiating any communication. We were informed that an associate engaging in separate communication with a board member is a rare occurrence.

We found that the current communication policy is generally aligned with best practices; however, the policy could be enhanced by clarifying that individual board members are to have no contact during the process leading up to the award of any contract with any individual that may have a financial interest in the contract, except under specifically prescribed circumstances. Additionally, while the communication policy provides direction to board members regarding their initiation of contact with staff, it does not address situations where a staff member initiates ex parte contact with a board member. Several board members believe a policy is in place that addresses staff communication with the board. The current policy also does not address board member social media communications (e.g., Facebook and Twitter) regarding OPERS related matters.

b. Newsletters

OPERS publishes multiple quarterly newsletters for its active members based on the type of plan (i.e., traditional pension plan, combined plan, or member-directed) and a quarterly newsletter for OPERS retirees. There is also a newsletter for OPERS employers. Archived newsletters can be found on the OPERS website.

Preparing a separate quarterly newsletter for active members, retirees, and employers is a common practice among large, more sophisticated public retirement systems; further differentiating based on the member's type of plan is a best practice. This is because active members may have a different focus depending upon their stage in the workforce. A leading-edge practice is to further differentiate active members by age (e.g., members 49 and younger and 50 and older). Differentiating by age is a leading-edge practice. We were informed that OPERS has explored the cost/benefit of differentiating its active member newsletter by age group and decided not to employ the approach.

[45] The OPERS Board Governance Policy Manual, Section 8, page 14.

We found the newsletters to be informative, covering the type of subject matter one would expect to see communicated to members and retirees, and written in easily understood language.

c. Handbooks and Leaflets

OPERS has developed extensive communications for its membership – actives and retirees – regarding the retirement programs. Examples of these communications include:

- A benefit recipient handbook;
- A member handbook;
- A health care coverage guide for 2018;
- A benefit recipient tax guide; and
- Approximately 16 leaflets, which address numerous topics of interest to the membership such as: 1) retiring from public employment tailored to the type of pension plan the member is enrolled in (traditional, combined, member-directed); 2) changing retirement plans; 3) survivor benefits, service credit, and contributing months; 4) terminating public employment; 5) returning to work after retirement; 6) health care coverage; 7) disability benefits; and 8) domestic relations issues.

d. Website

OPERS has a very extensive website that is fairly intuitive to navigate. The website provides educational videos, detailed financial information (including investment information, the defined benefit plan, the health care plan, and the defined contribution plan. The website has dedicated segments for active members, retirees, employers, and health care. There is also a section on the website with links to popular forms as well as all the forms, leaflets, and handbooks offered by OPERS. The "About OPERS" section of the website provides historical information about the retirement system, identifies the board members and OPERS senior leadership team, has links to OPERS' enabling statue, administrative rules, the IRS tax determination letters, the meeting dates for the current year and the agendas and meeting minutes for the prior year.

Given the overall robust nature of the OPERS website, we were surprised that certain information we would expect to find was not provided, such as the board committee assignments, the OPERS Board Governance Policy Manual, an OPERS organizational chart (at least at the senior level or manager level), or minutes beyond the last year. The addition of these items would further improve transparency and accountability. There are also not separate meeting minutes for each standing committee. Instead, the deliberations and actions taken at the committee level are reported during the board meeting, which is a common practice; however, the minutes of the committee meetings are then subsumed into the board meeting minutes. We find this approach to be atypical and not consistent with best practices. Additionally, although the executive director provides a report at each board meeting and it is included in the board's materials, there is not a link to these reports on the OPERS website. The executive director's monthly reports communicate the status of major issues and system activities. Thus, they serve as an excellent oversight and accountability tool for the board and interested stakeholders. For these reasons, while we find the website to be leading-edge overall, we believe it could be further enhanced.

Recommendations

1.H.1. We recommend the addition of no contact, "black-out period" language to the OPERS Board Communications Policy.

1.H.2. We recommend the addition of language to the OPERS Board Communications Policy to include its current protocol of requiring staff to inform the executive director prior to initiating ex parte communications with a board member.

1.H.3. We recommend the addition of language to the OPERS Board Communications Policy regarding the parameters of board members' use of social media regarding OPERS matters.

1.H.4. We recommend expanding the information provided on the OPERS website to include links to board committee assignments, the OPERS Board Governance Policy Manual, a comprehensive organizational chart, meeting minutes for at least the last three years, and the executive director's monthly reports to the board.

1.H.5. We recommend that separate committee minutes be maintained for each committee meeting and published on the OPERS website.

I. Succession Planning

Background

Succession planning is a process that helps ensure an organization's continued effective performance by making provisions for the development and replacement of key people over time. While some turnover is inevitable, effective succession planning can reduce the risks and effects on an organization when key individuals are lost. (OPERS turnover is discussed in Task Area 2.A.1. on pages 34 through 37.) The importance of succession planning has been an ongoing topic of significant discussion at both public and corporate entities. Succession planning is an essential risk mitigation tool and a best practice.

Succession management is also critical to the succession planning process. While succession planning focuses on compiling a list of possible replacements for a position, succession management focuses on both identifying and developing high-potential leaders who are capable of executing the strategy of the organization. Succession management involves tracking key roles that are emerging as possible "resource pressure points" and proactively identifying and developing a strong talent pool of future leaders.[46]

Findings and Conclusions

OPERS informed AHIC that succession planning and keyman risk areas are regular topics of discussion and planning at the senior leadership level. These discussions include identification of both likely successor candidates and also top tier talent within the organization that could be recruited for additional opportunities. Succession planning is also a component of the annual evaluation process with senior leadership and the executive director. We were informed that succession plans exist for all key areas within each division; however, since such plans are

[46]Aon Hewitt, "Best-in-Class Succession Management: Who Will Take the Baton?" (2012), 2.

generally not publicized, they were not provided to us. Keeping the succession plans confidential is viewed as necessary in order to avoid creating the expectation that a position is "guaranteed" to a potential successor that may be identified in the succession plan. We are in agreement with this concern. But having a written succession planning policy or guidelines is not the same as the actual succession plan. Developing a succession planning policy does not require the identification of a single or probable successor. A succession planning policy describes the philosophy, objectives, and approaches OPERS uses for purposes of succession, identifies key positions, and differentiates between succession planning and succession management. For example, based on information obtained during the interview process, the preference of many of the board members is to promote from within whenever possible. This appears to also be the culture of OPERS senior leadership. However, it is not documented. Further, OPERS has a number of state of the art leadership development programs that contribute to succession planning and management. However, the role of these programs in relationship to overall succession planning and management is not clearly articulated. The adoption of a succession planning policy is consistent with best practices.

OPERS employs a broad variety of approaches for purposes of succession planning and management. The following are examples of approaches utilized by OPERS. Many of them are dynamic, leading-edge best practices not found at other large public retirement systems.

- At the senior leadership level, OPERS has engaged an outside consultant to work on succession planning. The consultant is charged with identifying those that would be successful in moving permanently into senior leadership positions and working to close gaps that may exist with respect to the readiness of potential candidates.
- For management level vacancies, a discussion takes places between the hiring manager and the division director regarding the need to fill a position and how the replacement fits into the current and succession needs of the division. It is our understanding that the executive director may also participate in these discussions. We were informed that OPERS places great emphasis on ensuring the amount of work available justifies the hiring of replacement staff, including discussion of those who can step in and provide support for more than one area. Further, at OPERS, high value is placed on evaluating the organizational structure to determine whether there are new and more efficient and effective ways to operate. OPERS' objective is to ensure continuity of service when there is a departure or long term absence.
- OPERS has a comprehensive, state of the art leadership development plan. Its goal is to develop leaders across OPERS by ensuring employees receive training and development. This allows employees to have the skill set necessary to take on new opportunities as they become available. The plan is comprised of individual training sessions, small classroom offerings, larger presentation style events, leadership focused book clubs and working with leadership coaches. While traditionally these development opportunities were limited to OPERS leadership, the emphasis has evolved to encourage associate development. This change was in direct response to comments provided as part of OPERS' employee engagement survey.
- For associates seeking to gain knowledge and skills necessary to position themselves for future opportunities, there is also an OPERS Emerging Leaders Program. To date, the program has been offered twice: April 2012 through April 2013 and January 2015 through January 2016. It consists of leadership seminars, coaching, goal development, and

management training. A number of participants were successful in obtaining leadership opportunities following completion of the program.

- OPERS is currently developing a core curriculum and elective style course program to be called the OPERS University. The core curriculum will be focused on providing an overview of all facets of the organization from the executive director's perspective. The selective courses will focus on training for replacements at the department director level. The initial offering is expected in 2018.

A number of internal candidates have moved to leadership roles; therefore, it appears that OPERS' approach to succession planning and management is working. There are, however, several leadership positions that we found have been vacant and filled by internal staff on interim bases for extended periods of time. We acknowledge that filling vacancies on an interim basis may be appropriate as it allows a potential replacement candidate to learn and prove themselves in a position. Additionally, positions may remain vacant for an extended period because an active search does not result in an individual with the necessary skill set that is willing to accept the prescribed compensation. Nevertheless, it is not consistent with best practices to leave employees in interim positions for extended periods, i.e., more than six to nine months. Additionally, it can be disconcerting to the employee that has been in the interim position for an extended period, as well as the overall organization, if another candidate is ultimately hired.

Recommendations

1.I.1. Develop a written succession planning policy that establishes the philosophy and processes OPERS uses, particularly as it relates to mitigating keyman risk.

1.I.2. Use best efforts to limit the use of interim candidates in a vacant position to no more than six to nine months.

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Task Area 2: Organizational Structure and Staffing

There is no single optimal organizational structure model for all public retirement systems; however, there are attributes that are fundamental to a best practice structure including: having staffing levels that are sufficient to carry out the mission of the retirement system, having the ability to attract and retain qualified professionals, and addressing keyman risk through succession planning (addressed in Task Area 1.I. on pages 31 through 33).

A. Staffing, Hiring, and Performance Evaluations

1. Staffing Size

Background

In order to accomplish its statutorily defined stated purpose and mission, a retirement system must have adequate staffing. Staffing levels should be based on the functions necessary to effectively and efficiently achieve the business of the retirement system. The need for staffing levels can increase due to the retirement system's complexity in relation to the required functions. It can also be reduced by the use of outsourcing and external service providers. It is important to note that while the latter practices may reduce staffing levels, they may not necessarily reduce costs. Consequently, we caution that making comparisons to staffing levels at other public retirement systems is not a definitive basis for determining what is needed, particularly if the goal is to operate consistent with best practices.

Staffing levels are impacted by personnel turnover. While turnover is often used as an indicator of the adequacy of compensation (discussed later in this section of the report), we have found that other factors may contribute even more including: high stress (which is often the case for personnel working in a retirement system's call center), lack of job challenge, dealing with bureaucracy, poor working conditions (such as insufficient resources), poor work-life balance, and poor supervision.

Findings and Conclusions

The following is the breakdown of OPERS staffing levels by division.

Table 2-1 OPERS Division Staffing Levels

OPERS Division	Staffing Levels
Benefits	179
Information Technology	149
Finance	99
Investments	57
Legal	24
Executive Services	14
Health Care	10
Human Resources	8
Internal Audit	8
External Relations	7
Total OPERS Staffing Level	555

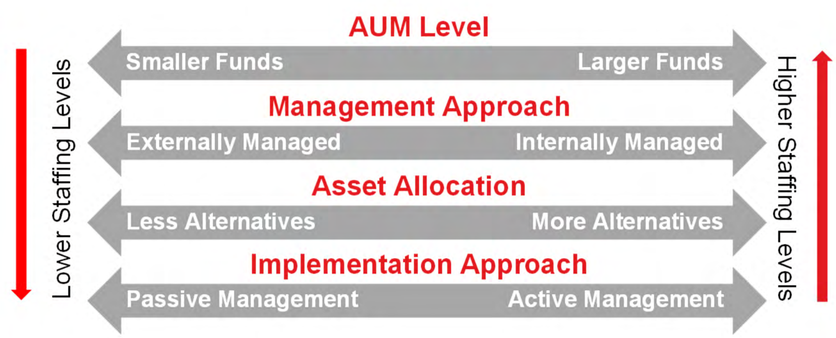
Compared to Peer Group B, which includes retirement systems and investment funds (see listing of funds in Table 2-3 in Section C. of this task area on page 49), we found that OPERS' staff size of 555 employees (as of 12/31/2017) is within normal limits. The funds in Peer Group B generally have between 300 and 700 employees.

Staffing levels are influenced by several factors. The factors that can influence staffing levels are discussed below in greater detail for investment and non-investment positions.

Investments

Overall, OPERS' 57 investment employee headcount is above the peer median staffing size of 46, but well below the high quartile of 100 employees. The factors identified in the following Assets Under Management (AUM) Chart typically influence investment staff size.

Chart 2-1

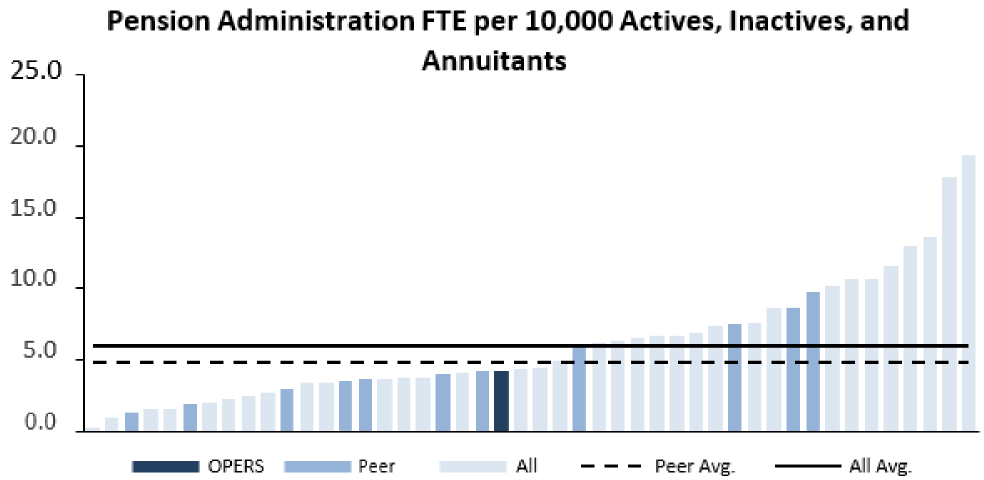


Non-Investments

OPERS' non-investment staffing levels also appear to be within competitive normal limits. Factors influencing these levels are largely: (1) number of clients (retirees) served and (2) the services provided by OPERS staff versus outside/external vendors and other agencies, and (3) service level philosophy (e.g. expectation regarding acceptable wait times). Our conclusions are consistent with the findings of the 2016 OPERS CEM[47] Benchmarking Study, reflected in Chart 2-2 below. OPERS uses 4.15 employees per 10,000 members versus the peer group average of 4.77.

[47] CEM Benchmarking Inc. is a global benchmarking company.

Chart 2-2 Comparison of OPERS Pension Administration Full-time Equivalent (FTE) to Peers



Source: OPERS CEM Benchmarking Study (2016), Staff Costs and Productivity 5-2.

An evaluation of turnover rates is essential to any consideration of staffing levels. Table 2-2 presents the departures, by type, during the scope of review period. The percentage of turnover is determined by calculating the number of departures as a percentage of total staff. Turnover at OPERS during 2017 was relatively high, 13.2%, which is double the 2015 level of 6.2%.

Table 2-2 2017 OPERS Turnover as of 2/1/2018

Type of Departure	Number of Departures
Involuntary	16
Retirements	16[48]
Voluntary	41[49]
Total	73

Most of the departures were in the benefits area (34), followed by information technology (IT) (14). Of the departures, 26% in the benefits area and 21% in IT were involuntary. Turnover in OPERS' benefits division accounted for approximately 46% of the total turnover for 2017. Turnover in high customer-facing areas, such as the member call center, tends to be elevated because of the stressful issues employees must continually address.

Turnover includes both employees that quit their jobs, retire, and those who are asked to leave. Whether the departure was regrettable or non-regrettable, when an employee leaves, there is a

[48] Four of the 16 retirements were categorized as "non-regretted." Non-regretted is defined as an associate that leaves or is let go that had poor or inconsistent performance, or poor behavior, or was undependable.
[49] Fourteen of the 41 voluntary departures were categorized as non-regretted.

cost associated with the departure. Studies report that every time a business has to replace an employee, it costs six to nine months of the person's salary.[50]

High turnover is often a sign of poor morale or poor HR practices. Consequently, during the interview process, we asked about morale. None of the staff interviewed or any of the board members expressed morale concerns. We also reviewed the results of the 2017 OPERS engagement study.[51] Conducting an engagement study is consistent with best practices. With a response rate of 99%, the 2017 OPERS Engagement Study reported that 65% of OPERS' employees are engaged[52] and only 4% were disengaged.[53] This level of engagement suggests that 65% of OPERS' workforce is committed to the organization and its goals. Sixty-five percent is a very good engagement score. However, companies that are considered "great" or the "best" places to work often score in the high 70's. Further, research has shown that increasing an engagement score by just 5% can improve the overall productivity of an organization.

It is important to keep in mind that engagement scores are not a measure of whether employees are satisfied or happy at work. Rather, "employee engagement is defined as 'the level of an employee's psychological investment in their organization.'"[54] The "employee experience score" based on responses to the key question, "*How likely would you be to recommend this organization to a friend as a great place to work?*" can be instructive. In response to this key question, 40.4% of OPERS survey respondents were supporters, 36.6% were neutral, and 23% were detractors. We are aware that OPERS is placing more focus on associate leadership development in response to feedback received from the engagement study. Showing that OPERS management is responsive to employee feedback from the study should further enhance engagement.

Recommendations

2.A.1. Explore ways to diminish turnover.

2.A.2. Explore ways to further enhance OPERS' engagement score and its employee experience score.

2. Hiring Procedures

Background

A well-defined hiring process is essential to attracting the right talent needed to carry out the organization's required activities. To be consistent with best practices, at a minimum, it should contain the following elements:

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[50] Christina Merhar, "Employee Retention – The Real Cost of Losing an Employee" (2016).
[51] Performed by McLean & Company.
[52] For purposes of the study, "engaged" employees are those that consistently exceed expectations, are energized and passionate about their work, which leads them to exert discretionary effort to drive organizational performance.
[53] For purpose of the study, "disengaged" employees are those that usually fail to meet minimum expectations, putting in time rather than effort. Twenty-five percent were "almost engaged." Almost engaged employees sometimes exceed expectations and are generally passionate about their work. Seven percent of employees were "indifferent." Indifferent employees are satisfied, comfortable, and generally able to meet minimum expectations. However, they see their work as "just a job." The source of this information, including the breakdown of OPERS' overall engagement results, is the OPERS Engagement Report (July 2017), prepared by McLean & Company. Percentages exceed 100% due to rounding.
[54] Aon Hewitt, "2017 Trends in Global Employee Engagement: Global anxiety erodes employee engagement gains" (2017), 2.

- A clearly defined position description;
- The process for attracting candidates;
- The process for evaluating candidates; and
- A verification process.

Findings and Conclusions

Responsibility for the hiring of all OPERS staff, except the internal auditor, is vested in the executive director. This authority is carried out pursuant to comprehensive, systematic hiring procedures, which are primarily executed by OPERS' human resources division. We found the hiring procedures to be consistent with leading-edge best practices and a model that can be used by other public retirement systems.

OPERS refers to its hiring procedures as "the talent acquisition process." The procedures provide for the following three phases of hiring. Clearly defined documentation has been created which details the steps in each stage of the hiring process and assigns responsibility among the various parties (e.g. human resources hiring manager, etc.) for each task. OPERS strives to accomplish the hiring process within 60 days, when possible. We find this to be a reasonable period.

- **Phase One** – Job opening, job descriptions, and posting process.

  During phase one, when there is a position vacancy or a new position has been budgeted, a requisition form called the "Structure Update Form" is completed electronically by the hiring manager which must be approved by the division director. The job description is finalized and posted. The job description contains the parameters of the job, the minimum qualifications, and desired qualifications. OPERS' policy requires that openings be posted a minimum of five days internally. Externally, openings may be posted until the position is filled. During the posting phase, the hiring manager works with the talent acquisition (TA) partner to develop pre-screening questions for interviewing and ranking candidates. We were informed that all vacancies sourced externally are posted to both the OPERS website and to Indeed.com.[55] Depending on the vacancy, industry-related sites or an executive search firm may also be used.

- **Phase Two** – Taleo electronic screening,[56] phone screens, face-to-face interviews, assessments, debriefing, and candidate selection process.

  During the first stage of phase two, both internal and external candidates apply for vacant positions through the Taleo system. Internal candidates are required to submit, with their applications, an email from their supervisor verifying the candidate is eligible to post. Hiring managers may request an internal candidate's attendance record and performance evaluations or contact the candidate's current supervisor for references. The hiring manager is responsible for daily reviewing candidate applications and resumes and determining the

[55] Indeed.com is an American worldwide employment-related search engine for job listings.
[56] Taleo is an applicant tracking system/electronic recruiting application system.

candidates eligible for a telephone screen. Those that are not selected receive a written notification.

Following the initial phone screening, there are at least two rounds of face-to-face interviews. Interviews are only arranged with candidates who meet the minimum qualifications outlined in the job description created for the position. Detailed notes are required by OPERS for the phone screens. OPERS' standard on a candidate pool is four to seven people during the first round to ensure there are enough candidates in the pool to make a good decision and selection for the second round. Every person involved in interviews gives their view on what they saw during the interviews. Skill based assessments are used to determine candidates' skills. Management positions include an additional assessment to determine skill and fit for supervising people and processes. The final stage in phase two includes a debrief with everyone involved in the second round of interviews along with the TA partner. The purpose of the debrief is to document how the selection decision was made.

- **Phase Three** – The background check, drug test, offer formulation and extension, and determination of start date.

  OPERS uses a third-party vendor to complete background, reference, and education verifications.

Recommendations

None.

3. Delineation of Staff Roles and Responsibilities

Background

The predominant model used among retirement systems is to have a board, as the ultimate fiduciary, with responsibility for carrying out the system's mission and then oversight of any responsibilities it has delegated. Using this model, the executive director has the next tier of primary authority, reporting to the board, with responsibility for the day-to-day activities required to carry out the mission and policies the board has adopted. A best practice trend, related to the delineation of staff roles and responsibilities, is for the board to delegate investment functions that are more in the realm of policy implementation to the executive director or the CIO. Examples include: selection and termination of investment managers, and investment manager fee negotiations.

The primary tools used for purposes of delineation of staff roles and responsibilities are the organizational chart, position descriptions, and policies and procedures. An organizational chart is a key management tool that illustrates the roles and reporting lines between individuals and their functions. It is a very helpful point of reference.

Findings and Conclusions

Consistent with emerging best practices, the OPERS Board has delegated authority for a number of investment functions to the CIO, including the selection and termination of investment managers and investment manager fee negotiations. We discussed the delineation between the board and staff in Task Area 1.C. on pages 15 through 18 of this report. Much of the documentation used for purposes of making our assessment there is the same here. As previously noted, documentation of staff's roles within OPERS' numerous policies is excellent. The extensive organizational charts developed by OPERS for each division and department within each division is also very instructive in terms of providing an outline of the responsibilities and reporting relationships within OPERS.

The seminal document for purposes of defining the roles and responsibilities of each staff member is their respective job description. OPERS has over 270 job descriptions, one for each position within the organization. The job descriptions identify: (1) the title of the job; (2) who the position reports to; (3) the division and the department the position is located; (4) the Fair Labor Standards Act status; (5) the essential functions of the position; and (6) the knowledge, skills, and abilities required to perform the essential functions of the position and whether such expertise is required or preferred, including education, qualifications, experience, any certifications or licenses, and physical requirements. This level of documentation facilitates transparency and accountability, mitigates operational risk, and is clearly a best practice.

Recommendations

None.

4. Performance Evaluations

Background

a. Board

Engaging in a self-evaluation process is a recognized best practice.[57] The New York Stock Exchange requires all listed companies to conduct an evaluation of the board and its committees at least annually.[58] A board self-evaluation is an organized process by which the board members regularly examine their performance, both as individuals and as a group. It is used to identify strengths and weaknesses and to develop a consensus oriented action plan for improvements where needed. The goal is to determine whether the board is performing effectively, and if not, what changes are needed.

The evaluation process can vary significantly. Some boards examine how the committees and committee chairs are functioning. To promote candor, some use an independent facilitator annually, while others do so only periodically. Some use a questionnaire, while others use one-on-one interviews. Ideally, the process used should be constructive rather than a check-the-box exercise.

b. Staff

Performance evaluations are an essential tool used by management to assist supervisors in their evaluation of employee work performance. It is also an instructional tool, helping staff to develop their goals and objectives for the coming year and providing feedback on work

[57] The terms "self-evaluation" and "self-assessment" are used interchangeably and have the same meaning.
[58] Rule 303A.09, adopted in 2003 and approved by the SEC.

performance during the year. To reflect best practices, personnel evaluations should be done on an annual basis. Updates should also be done on at least a semi-annual basis. Using a mid-year evaluation process allows a supervisor to inform employees whether they are on the right track and, if not, what adjustments are needed before the annual evaluation is done. Mid-year evaluations are also an appropriate time to communicate directly with the employee regarding whether the priorities of the organization have changed.

It is also a best practice for employee evaluations to be based on predefined criteria that are communicated to the employee prior to the start of the evaluation period. The criteria need to be tailored to the employee's particular functions and reflect expected results that are achievable and measurable. In addition to the supervisor's evaluation, the process should include an employee self-evaluation. A well-designed performance evaluation process allows an employer to track the quality of an employee's work, identify performance improvements, and communicate feedback in a productive manner. Finally, the evaluation process should provide an opportunity to discuss any additional education, training, and resources required for an employee. If done correctly, it can strengthen employees' relationships with their employer and positively affect retention. If not, it can diminish morale and engagement and cause turnover rates to increase.

Findings and Conclusions

a. Board Evaluations

OPERS has developed a board and committee self-evaluation policy[59] and a questionnaire to carry out the evaluation entitled the "OPERS Annual Overall Review of Board Operations."[60] Pursuant to the policy, the board and its committees are to schedule a time to engage in an annual self-evaluation. The self-evaluation is to be conducted in conjunction with the executive director's evaluation. The chair of the governance committee has responsibility for overseeing implementation of the policy.

We found that the OPERS Board engages in some form of self-evaluation on an annual basis, which is consistent with best practices. OPERS' self-evaluation process does not focus on committee performance. Assessing committee performance is atypical among most of the public funds that engage in a self-evaluation process. The process the OPERS Board uses for its self-evaluation varies from year to year and ranges from a formal self-evaluation, facilitated by an external third-party, to completion of the questionnaire which is reviewed and presented by the chair of the governance committee, to an open and informal discussion at a governance committee meeting. We were informed that in 2017, the self-evaluation discussions were internal to the board.[61] Based on information provided during the interview process, we found that the members value the self-evaluation process; however, some believe that candor could be enhanced by the use of an independent external third-party to facilitate the process. As noted earlier, this approach has been used from time-to-time by OPERS. In our experience, it adds a level of candor and rigor to the process.

[59] The OPERS Board Governance Policy Manual, Section 10, page 17.
[60] Appendix K in the OPERS Board Governance Policy Manual.
[61] In 2016, the board spent a half day during strategic planning with a facilitator on this topic addressing leadership and effective board practices.

More public funds are engaging in an annual self-evaluation process; however, many still do not because of concerns regarding open meetings and public records requirements. Based on a review of the self-evaluation practices of the retirement systems in Peer Group A, we found that a majority conduct self-evaluations annually, facilitated by an external third-party. Examples include CalPERS, CalSTRS, the State Teachers Retirement System of Ohio (Ohio STRS), the Colorado Public Employees' Retirement Association (CoPERA), and the New York State Teachers' Retirement System (NYSTRS). At least one fund in Peer Group A uses a less formal approach, where the board has regular discussions regarding its processes and performance. Several other members in Peer Group A do not engage in a self-evaluation process.

b. Staff Evaluations

It is OPERS' philosophy that employees will do their best work when they know what is expected of them. Therefore, they have implemented a dynamic, leading-edge performance evaluation process, which we find to be more robust than a number of its public retirement peers. To aid employees in achieving their performance goals, they can obtain assistance from OPERS' professional development officer and their supervisors. These are excellent resources not commonly found even at some of the larger public retirement systems.

There are three components to OPERS' performance evaluation process: the orientation, mid-year, and annual evaluation. The following is a description of each.

- ***Employee Orientation Period*** – As a prerequisite to continued employment, a new employee (whether new to the organization, a transfer, or promotion into the position) must successfully complete a six-month orientation period. During the orientation period, employees are evaluated after their first three months and again after six months.
- ***Mid-year and Annual Evaluations*** – Upon successful completion of the six-month orientation period, employee performance is reviewed semi-annually. Employees can complete a self-evaluation for their annual evaluation and their mid-year review.

There are two distinct evaluation forms; one for staff positions and another for management. For management, the evaluation is based on a 50/50 split between predefined goals and core competencies. There are six management core competencies: (1) building coalitions; (2) business acumen; (3) leading people; (4) leading change; (5) job knowledge; and (6) results drive. Each competency is clearly defined and rated on a scale from one to three. In 2017, 5% of a management employee's overall goals were attributable to required leadership development. However, in 2018, leadership development has been removed as a required goal for all management. It can still be assigned as a goal by an employee's supervisor based on the individual rather than using a "one-size-fits-all" standard. Evaluations for non-management (i.e., staff positions) are based solely on six competencies, which are different than the competencies used for management. The six non-management core competencies are: (1) adaptability; (2) application of job knowledge; (3) communication; (4) customer focus; (5) dependability/accountability; and (6) teamwork and collaboration.

The OPERS Board has adopted a specific policy that addresses its evaluation of the executive director.[62] It provides for the executive director to annually provide a self-evaluation memo to the board for its review and discussion. The self-evaluation memo is to contain the following:

- The system's accomplishments;
- Any relevant performance issues for the previous year; and
- Recommended goals for the coming years.

The executive director's evaluation is to be tied to the goals set forth in OPERS' strategic plan and performed in conjunction with the board's annual self-evaluation. The policy calls for the board to strive to reach a consensus view on the executive director's performance in order to provide a unified message. A written summary evaluation is prepared by the chair of the OPERS Personnel and Salary Review Committee and provided to the executive director. The steps in this approach are consistent with best practices. The board does not use an independent facilitator to assist with the executive director's evaluation process. Like the board's self-evaluation, we believe that the use of a third-party would assist the board, add rigor to the process, and would be consistent with best practices. A number of funds in Peer Group A use an independent facilitator to assist with the executive director's evaluation.

Recommendations

2.A.3. Update the board's self-evaluation policy to require a more formalized annual self-evaluation process, including the use of a third-party facilitator.

2.A.4. Consider the use of a third-party facilitator for purposes of the executive director's evaluation.

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[62] The OPERS Board Governance Policy Manual, Section 11, page 18.

B. Customer Satisfaction Evaluation Process

Background

Public retirement systems are businesses. As a business, it is very important to periodically assess the quality and level of services being provided to the customers, i.e., the participants and beneficiaries of the system. Businesses often make cost/benefit decisions about the services provided. Doing a customer/member satisfaction survey is an excellent tool that allows retirement systems to determine how the services they provide are being received and whether changes are indicated.

Service activities typically measured to determine satisfaction levels include: (1) member transactions, including timeliness of pension payment processing; (2) member communications, such as their experience with the call center, one-on-one counseling received, presentations and group counseling provided; (3) content and ease of use of the website; and (4) timeliness and content of member statements. The most significant of these is pension payments, the call center, and the website.

Findings and Conclusions

We were informed that OPERS conducts member satisfaction surveys on an annual basis, alternating between customer satisfaction surveys for members and retirees. This is considered a best practice for public retirement systems. We found that a retiree survey was conducted in 2015 and a member survey was conducted in 2016. Issues & Answers Network, Inc., a national market research firm (the “Firm”) was used to perform both surveys. The retiree satisfaction study planned for 2017 was not performed because a survey regarding the proposed COLA change was sent to 195,000 benefit recipients to obtain their feedback. The response rate was 39%. Since a survey was not performed in 2017, we used the 2015 and 2016 customer satisfaction surveys.

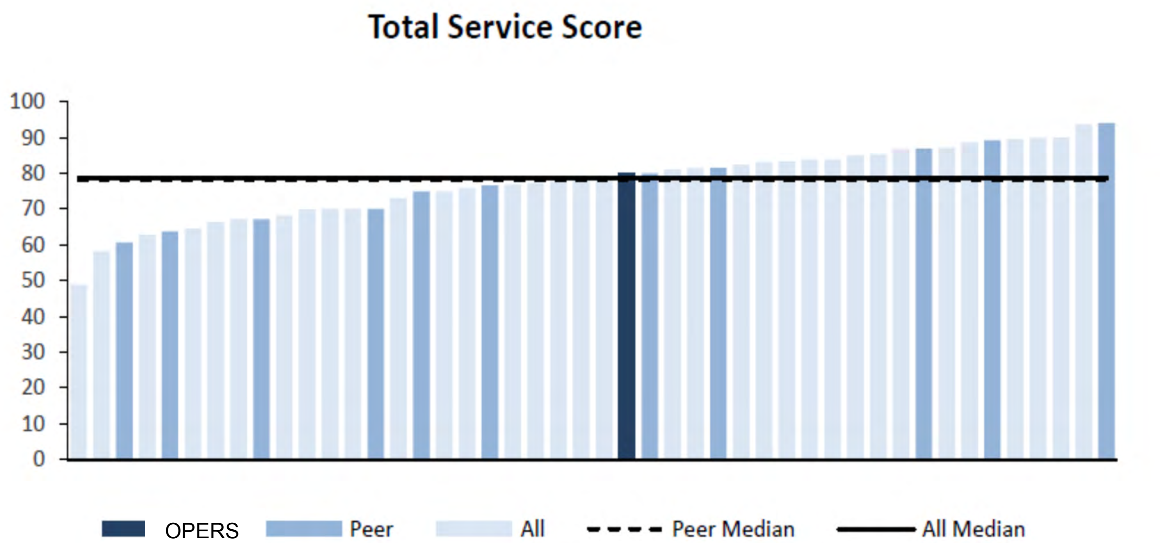
The Firm contacted OPERS retirees and members for each survey. For both surveys, the respondents were screened to confirm that they were either a retired OPERS member (in 2015) or a current OPERS member (in 2016). The participants then responded to predetermined screening questions asked by the Firm interviewer. Using a third-party firm to perform the surveys enhances the independence and objectivity of the survey results.

The 2015 retiree survey was designed to measure retirees’ satisfaction levels regarding: (1) the overall experience with OPERS; (2) benefits administration; (3) the knowledge and responsiveness of the member services call center; and (4) member communications, such as the website and newsletter. The 2016 member survey measured satisfaction levels with the same activities as the retiree survey, with one additional objective – measuring satisfaction with the annual benefits statements.

The survey data results were compiled into two detailed reports: the “Retiree Satisfaction Survey” and the “Member Satisfaction Survey”; both reports include an executive summary as well as a conclusion section which included recommendations. While the full results are available if desired, the results of both reports are typically summarized and provided to the board in a memo for its review and consideration.

In addition to the customer satisfaction surveys, OPERS also monitors customer calls. It monitored approximately 1.6% of the calls it received during 2016 and 2017 (i.e., 6,667 calls were monitored for 2016 – 5,672 were monitored in 2017). Based on Chart 2-3 below, we found that OPERS received a slightly higher than median customer service score relative to its CEM peers – 80 versus a median of 78.[63]

Chart 2-3 Comparison of OPERS Total Service to Peers



Source: 2016 CEM Benchmarking Study

There are actions that OPERS could take to achieve a higher customer satisfaction score. For instance, we were informed that OPERS sends all new retirees a customer satisfaction survey with their first check. The survey includes questions regarding their one-on-one interactions with their counselor. However, as noted in the 2016 CEM study, "high service may not be cost effective or optimal." For example, in order to significantly increase OPERS' customer service score the following changes would need to occur: (1) members would have to experience no undesired outcomes when contacting the call center; (2) the time required to get to a knowledgeable person would have to decrease from the current average of three minutes to 20 seconds or less; and (3) the number of attendees at presentations would have to be reduced from the current average of 65 attendees to 20 or less. Implementing these changes may not be the best use of OPERS resources. Notably, as illustrated in Chart 2-4, relative to its peers, OPERS already provides a high level of service at low cost.

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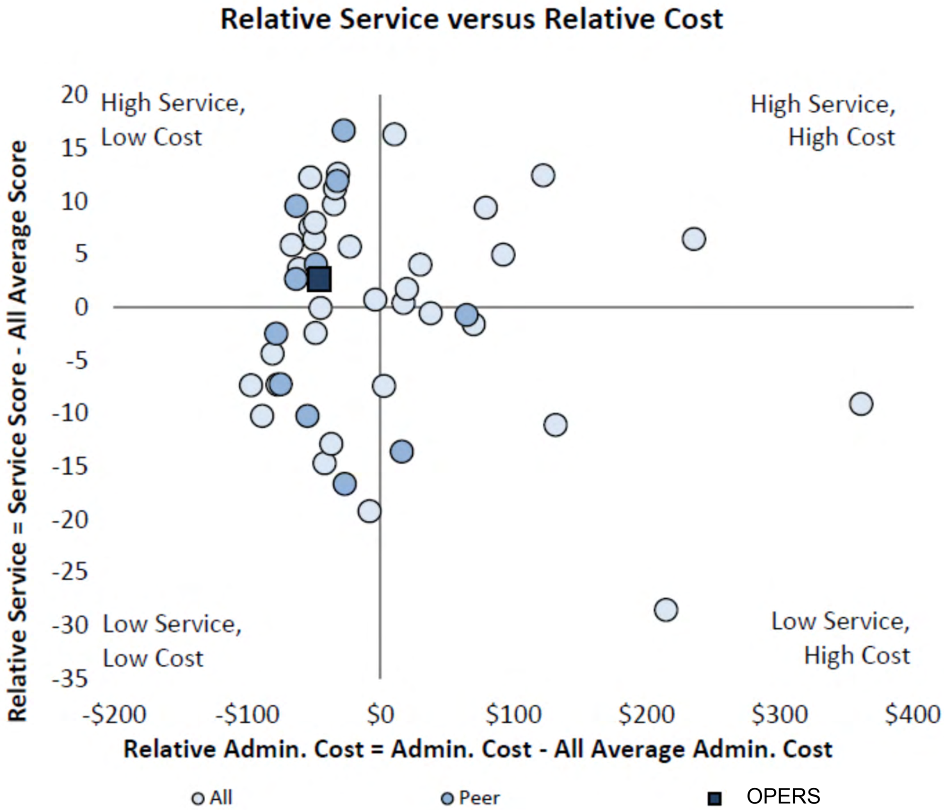
[63] November 15, 2017 CEM Report for Fiscal Year 2016.

Chart 2-4 Comparison of OPERS Relative Service Versus Relative Cost



Source: 2016 CEM Benchmarking Study[64]

Chart 2-5 reflects that OPERS has a call outcome service score of six out of 100. This score is significantly below the median score of 37 reported for OPERS' CEM peers. Achieving no undesired call outcome is not realistic; however, OPERS' score of six suggest that call outcomes service is an issue that should be remedied. The score may be an anomaly resulting from the methodology used by CEM. We suggest this as a possibility because OPERS' customer satisfaction report for 2016 was very favorable. Nearly all of the 400 members surveyed (96%) expressed satisfaction with the courteousness of the Member Service Call Center employees. Satisfaction was also reported regarding the professionalism, overall performance, and knowledge provided by the representatives they encountered.[65]

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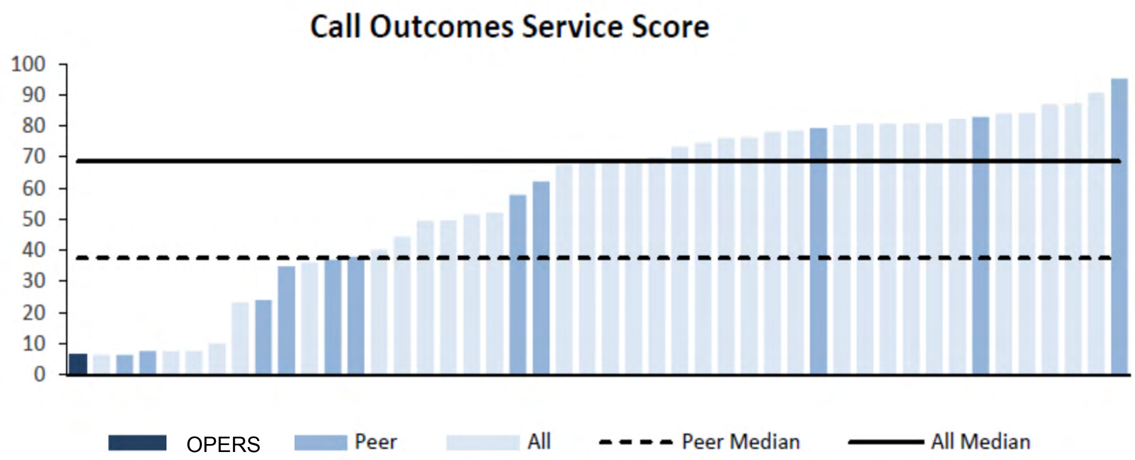
[64] November 15, 2017 CEM Report for Fiscal Year 2016.
[65] Issues & Answers Network, Inc. 2016 Member Satisfaction Survey.

Chart 2-5 OPERS Call Outcomes Service Score



Source: 2016 CEM Benchmarking Study[66]

Recommendations

2.B.1. We recommend that OPERS consult with CEM and its peers to determine what, if anything, can cost effectively be done to enhance OPERS' call outcomes service score.

C. Compensation

Background

Compensation can help or hinder an organization's ability to attract and retain qualified talent. Compensation paid to public pension sector employees across the United States varies widely. Historically, the ability of public retirement systems to determine what to pay their staffs and whether to offer performance-based pay rewards was impaired as they did not have independent personnel authority or were subject to civil service requirements. Recognizing that this was not an optimal structure, many large public retirement systems have now been granted authority by their respective legislatures to establish their own compensation structures, at a minimum, for investment and investment-related staff. Competitive salary schedules are necessary to ensure the board's ability to attract and retain qualified professionals. The need for competitive salaries may be more acute when there are extensive internal asset management and complex IT systems.

When designing a compensation philosophy and structure, it is important for the organization to take into consideration the going market rate for different types of talent and continually stay abreast of changes in competitive compensation practices. To accomplish this, it is a best practice for an organization, public or corporate, to use an external, independent consultant to conduct a compensation study. A majority of the retirement systems in Peer Group A have the authority to establish their own compensation structures for some or all of their employees.

[66] November 15, 2017 CEM Report for Fiscal Year 2016.

Incentive plans can also play an important role in the compensation framework. Financial incentives are a recognized, accepted, and effective method of stimulating productivity and retaining key staff. Incentive compensation is most appropriate where there is a demonstrable and significant connection between (a) the extent to which an employee is motivated to do superior work and (b) whether the employee's efforts and skills in that regard produce desirable outcomes for the retirement system. Employees that participate in the incentive program should have responsibilities that enable them to contribute directly and significantly toward the achievement of major fund objectives. Incentive compensation in the public fund sector is typically limited to investment staff.

Findings and Conclusions

McLagan's 2017 Investment Management Survey Suite compared OPERS' compensation levels to an equally weighted composite of other leading public funds (Table 2-3 on page 49 contains Peer Group B which includes 16 retirement systems and investment boards) and Midwest private sector firms (Table 2-4 on page 49). This is the same methodology and peer groups that OPERS' Compensation Committee uses for investment professionals. The analysis for this performance audit was completed consistent with McLagan's prior compensation reviews for OPERS.

Data was used from McLagan's 2017 Investment Management Survey Suite based on survey position matches provided by OPERS' HR staff and confirmed by McLagan. The analysis focuses on base salary and cash incentives. Long-term incentives offered in the private sector (e.g. stock options, restricted stock, etc.) were excluded from the analysis. Moreover, the analysis does not include retirement or other benefits. Individual position matches were identified for each of OPERS' employees. The analyses below are based on aggregate compensation spent, or the total amount OPERS spends on all employees, versus the sum of the competitive benchmarks for those employees.

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Table 2-3 Leading Public Fund Comparison Comparator Group

Leading Public Fund Compensation Comparator Group		
	AUM*	% Internally Managed
California Public Employees Retirement System	$302.8	
California State Teachers' Retirement System	196.4	
New York State Common Retirement Fund	186.0	
Teacher Retirement System of Texas	140.4	
Washington State Investment Board	112.4	
State of Wisconsin Investment Board	109.1	
North Carolina Retirement System	86.6	
Georgia Retirement Systems	79.3	
State Teachers' Retirement System of Ohio	71.7	
Virginia Retirement System	69.9	
State of Michigan Retirement Systems	62.2	
PA Public School Employees' Retirement System	57.8	
Tennessee Consolidated Retirement System (TCRS)	47.0	
Colorado Public Employees' Retirement Association	45.0	
Texas Municipal Retirement System	26.1	
South Dakota Investment Council	11.3	
High Quartile	$119.4	69%
Median	**75.5**	**56%**
Low Quartile	55.1	35%
Ohio Public Employees' Retirement System	**$89.1**	**39%**

*Assets Under Management

Table 2-4 Midwest Asset Managers Compensation Peer Group

Midwest Asset Managers Compensation Peer Group				
	# of	AUM		
	Firms	25TH	Median	75TH
Investment Management Firms	17	$18.7	$67.2	$109.0
Banks (Investment Management Department)	7	44.7	51.2	60.2
Insurance Companies (Investment Management Departments)	23	19.5	70.0	126.7
Endowments, Foundations and Corporate Plan Sponsors	5	7.1	7.2	31.2
Total	**52**	**19.0**	**50.1**	**108.5**

In Chart 2-6, we compared OPERS to the blended peer group and we found that OPERS' pay levels are conservative to mainstream. Base salaries, in aggregate, approximate the competitive median. Earned total cash (salary + earned incentive compensation) approximates the competitive 25th percentile. Maximum total cash (salary + maximum incentive) approximates the median. On a base salary basis, non-investment staff is positioned somewhat more favorably than investment staff (2% above median versus 8% below median, respectively). Factoring in performance-based incentive compensation, however, both groups' maximum total cash is near median. While OPERS' maximum total cash is, in aggregate, positioned near the competitive median, maximum total cash generally reflects "A+" levels of performance. In other words, OPERS' current compensation system is designed to almost always deliver below-median levels of total cash compensation. To enhance OPERS' ability to retain high performers, the board should consider whether OPERS' staff should have the ability to earn above median pay for "A+" performance.

Chart 2-6 OPERS' Pay Level Positioning vs. Peer Group

PERS' Pay Level Positioning vs. Blended Peer Group	25th Percentile	Median	75th Percentile
2017 Actual Total Cash			
Investments	1%	-23%	-42%
Non-Investments	6%	-8%	-20%
Total	**4%**	**-12%**	**-27%**
2018 Base Salary			
Investments	6%	-8%	-19%
Non-Investments	14%	2%	-9%
Total	**12%**	**-1%**	**-12%**
2018 Maximum Total Cash			
Investments	31%	1%	-24%
Non-Investments	9%	-4%	-17%
Total	**16%**	**-3%**	**-19%**

Recommendations

2.C.1. OPERS should continue to conduct regular compensation reviews to ensure compensation levels remain competitive and fair.

2.C.2. OPERS should evaluate each individual position's market competitiveness and internal fairness in relation to the roles and responsibilities of each position.

2.C.3. OPERS should evaluate whether offering near median, maximum total cash levels relative to the performance required to earn maximum total cash is adequate to attract, retain, and motivate the talent required for OPERS' long-term success.

D. Monitoring and Maintaining Staff Qualifications and Continuing Education

Background

Public retirement systems are no longer small, plain vanilla operations; they are sophisticated, big businesses employing hundreds of professionals. Their performance affects the retirement security of thousands of beneficiaries and participants. Consequently, professionals who work for retirement systems must understand and stay abreast of evolving issues and intricacies in their respective areas. These areas include benefits administration, investment management, and healthcare. From the board members' perspective, as the retirement system's ultimate fiduciaries, unless they have qualified professionals capable of carrying out the necessary day-to-day activities, they are potentially subject to fiduciary risk or potential liability. Documentation of minimum required qualifications, licenses, certifications, etc. for each job position, annual performance evaluation, leadership, and continuing education are all factors that leading-edge retirement systems use to ensure that staff have and maintain the skill set necessary to do their jobs. To be consistent with best practices, a mechanism is needed to verify continued compliance with any stated requirements of a position.

To maintain their qualifications, it is also important for staff to network with other retirement systems in order to build relationships and exchange useful information. Failure to provide staff training and networking opportunities exposes an organization to operational risk because staff may not know of evolving best practices. Therefore, continuing education and training are critical factors in maintaining qualified staff and guaranteeing an organization's overall success.

Findings and Conclusions

A number of job positions have required certifications or licensing requirements. Examples include the CIO and the other members of the investment division that are performing investment functions, the chief financial officer (CFO), the general counsel and the other attorneys in the legal division.

We were informed that depending on the qualification, there are several points at which OPERS would become aware of a failure to continue to meet qualifications. The following are examples:

- All investment staff must be licensed annually by the Ohio Department of Commerce Securities Division as State Retirement System Investment Officers (SRSIO).[67] To accomplish this, the investment staff must complete and submit an application form to the Ohio Department of Commerce Securities Division within six months of hire and meet the eligibility requirements. Registration and licensure with the Ohio Department of Commerce Securities Division is required in the job descriptions of OPERS' investment staff. To ensure compliance of this requirement, we were informed that annual renewal of SRSIO licensing is done by OPERS' legal division.
- The attorneys in the legal division must have a current license to practice law in the state of Ohio.

[67] R.C. 1707.162 and R.C 1707.163. Risk and administrative staff within OPERS' Investment Division are not subject to the requirement.

- The position description for the CFO requires that the incumbent must maintain their license as a certified public account or designation as a certified internal auditor. Unlike the attorneys, the position description for the CFO does not require that the license be issued by Ohio.

There is not a systematic tracking tool to monitor compliance with position description requirements. Instead, OPERS generally relies on two events as the tools to monitor whether qualifications are being maintained: 1) the annual performance evaluation process; and 2) whether an employee seeks time away from the office and then seeks reimbursement for the expense necessary to obtain their required continuing education hours. The following are examples of how OPERS' current qualifications monitoring approach works.

- All associates are expected to engage in a career/development conversation during the annual performance evaluation process. Education and training are often listed as a goal in an associate's evaluation. As such, discussion of whether an associate continues to meet their certification/license/educational requirements often occurs during the mid-year or annual performance evaluation process. This provides another opportunity to ensure required education and qualifications are being met.
- Associates with licensing or certification requirements for their job position often have the dues associated with that certification paid by OPERS. For example, the Ohio Supreme Court registration fee for OPERS' in-house attorneys is paid by OPERS. These come due biennially. According to OPERS staff, it is through this process that OPERS would become aware of any failure to continue to meet licensing requirements since it would prevent the attorneys from seeking renewal of their licenses.

We found that the process for tracking and monitoring staff required licenses/certifications and ongoing education could be more systematic. Employees that have required qualifications should be tracked to ensure that they continue to fulfill any requirements of their respective job descriptions.

In furtherance of maintaining and enhancing staff's qualifications, OPERS offers several types of training opportunities:

- OPERS offers an educational assistance program, which provides up to $5,250 per year for associates who pursue college coursework, technical/professional certification, or continuing education activities. In 2017, OPERS had 40 associates take advantage of the program;
- OPERS has an online Learning Management Center (LMC) that houses hundreds of educational videos on a variety of topics. Training topics range from professional development to technical skills training to leadership development topics. Every associate at OPERS has access to LMC training library. In 2017, OPERS had 282 LMC users who took a total of 1670 courses; and
- OPERS offers a robust leadership development program for associates in a leadership role in the organization. In 2017, the leadership development program consisted of several required courses, as well as optional additional opportunities for development via formal coursework, LMC courses, or professional development coaching.

For professional staff, department budgets typically allow for industry conferences or other trainings within the staff member's technical or professional field.

We found the in-house training and development opportunities offered by OPERS to exceed those offered by many of its peers. They serve as a model of best practices.

Recommendations

2.D.1. Develop a tracking system to monitor adherence to required personnel qualifications and certifications.

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Task Area 3: Investment Policy and Oversight

A. Investment Policy

1. Comprehensiveness

Background

Institutional investors, including public retirement systems, often marshal a variety of resources to assist in achieving investment objectives. Focusing disparate individuals and firms on the investor's circumstances and goals can be a managerial and administrative challenge. A systematic approach to documenting objectives, constraints, and governance mechanisms is thus useful for clarifying responsibilities and establishing accountabilities. An investment policy statement (IPS) serves this purpose.

The IPS functions as a strategic guide in the planning and implementation of an investment program. When implemented successfully, the IPS is used to anticipate issues related to governance of the investment program, planning for appropriate asset allocation, implementing an investment program with internal and external managers, monitoring the results, risk management, and appropriate reporting. The IPS also establishes accountability for the various entities that may work on behalf of an investor. Perhaps most importantly, the IPS serves as a policy guide that can offer an objective course of action to be followed during periods of market disruption when emotional or instinctive responses might otherwise motivate less prudent actions.

There is no uniform standard for the content and no absolute model to follow when drafting an IPS. The IPS should ideally be a highly customized document that is uniquely tailored to the preferences, attitudes, and situation of each investor. Notwithstanding, there are certain critical elements that recognized industry investment authorities, such as the CFA Institute, recommend be included. Using the CFA Institute's suggested topics,[68] supplemented by AHIC's expertise regarding desired subject matter content, the following is a listing of the key elements that one would expect to find in an IPS that reflects best practices:

- The system's mission and purpose;
- The system's investment objectives;
- The system's risk tolerance and other constraints;
- The liquidity needs of the system;
- The roles and responsibilities of the essential parties in the investment process (e.g., board, staff, the investment consultants, investment managers, custodian(s));
- The system's long-term strategic asset allocation, including specific targets and ranges;
- Rebalancing process;

[68] CFA Institute, "Elements of an Investment Policy Statement for Institutional Investors," May 2010.

- Standards and measures of investment performance, including: (a) the process for monitoring and evaluating performance of the fund as a whole and the individual managers (both external and internal, if applicable), and (b) benchmarks for each asset class and the total fund as a whole;
- Process and criteria for the selection of external investment managers, including whether the board has retained or delegated this authority;
- Broad total fund and asset class investment portfolio guidelines, including: (a) permissible and impermissible asset classes, investment strategies and instruments, and (b) reasons and general parameters for each major asset class;
- Risk management process, including metrics for risk measurement and evaluation;
- Criteria and procedures (or reference to separate policies) regarding specific miscellaneous subjects, including: (a) securities lending, (b) proxy voting, (c) securities litigation, and (d) brokerage; and,
- The process for review and amendment of the IPS, including stated frequency of review.

While not required by law, having and adhering to an IPS is considered a best practice. The IPS should also be reviewed at least annually to ensure that it continues to reflect the investor's objectives and circumstances. In addition, the IPS may be modified in whole or in part by the board at any point in time.

To evaluate the comprehensiveness of the IPS, including the process used to ensure adherence, we reviewed the document entitled the "OPERS Board Policies Governing Investment Activities" (the policy document) covering the OPERS Defined Benefit Fund (DB Fund) and the OPERS Health Care 115 Trust Fund (HC 115 Fund). The policy document is a collection of OPERS' policies and guidelines governing the investment program. We evaluated the components of the existing documentation in relation to the desirable components of an IPS for institutional investors as described in the CFA Institute's publication entitled "Elements of an Investment Policy Statement for Institutional Investors."

Findings and Conclusions

Based on our review of the policy document and discussions we had with OPERS staff, we conclude that the current policy document is comprehensive, including the process used to ensure adherence for both the DB Fund and the HC 115 Trust Fund.

The policy document includes all the essential components we would expect to find in an IPS consistent with best practices. It addresses the management of each asset class and the permitted use of derivatives in detail. It also contains detailed program policies for corporate governance, securities lending, soft dollar, leverage, and liquidity.

The policy document also reflects more of a principals-based structure rather than a rules-based structure, which we believe to be leading-edge when compared to other public retirement systems.

- **Rules Based Investment Policy** – Prescriptive approach that provides guidance on what can and cannot occur. This approach requires significant detail and foresight on future scenarios; it also requires more modifications as the investment environment evolves. The board provides a rule book for staff to follow.

- **Principles Based Investment Policy** – Provides high level guidance which can be applied to many circumstances. The board provides high level guidance to staff and encourages the use of professional judgment when making decisions.

The policy document does not specify the extent to which the basis for particular investment decisions should be articulated in writing by the board or staff. However, in the roles and responsibilities section of the policy document, it does state that investment staff will "inform the board of any and all matters staff believes to be sufficiently material to warrant the board's attention." We feel this level of discretion is appropriate as long as the board is acting prudently in its oversight role of staff.

Further, the policy document also includes language in the roles and responsibilities section pertaining to the process used to ensure adherence to the policy document (outlined in Section B.1. of this task area on pages 69 through 72.) The policy document states that the "Investment Compliance Department (ICD) is responsible for monitoring compliance with the policy, including guidelines established pursuant to it. If the ICD determines that an exception to the policy has occurred, the ICD shall notify staff, the CIO, the executive director, and the committee." To ensure monitoring and compliance with the policy document, the ICD submits and reviews compliance reports on a monthly basis with the relevant committee of the board.

A "good governance" structure defines the roles of the different parties that participate in the decision-making and operational processes of a system. The current approach utilized by OPERS, as outlined in the policy document, assigns the ICD with responsibility for monitoring compliance with the policy document. This is consistent with best practices among other large public pension funds. The best practice is for boards to operate at a high policy level and delegate decision-making authority for implementation related responsibilities to staff. Equally important is the monitoring of the duties that have been delegated. Thus, it is also a best practice for the board to understand and regularly monitor the authority it has delegated. The current process of the board is to review monthly compliance reports submitted by the ICD is consistent with best practices.

We suggest two minor amendments to the existing policy document in the recommendations provided below.

- ***Timing of Asset/Liability Study:*** The current language in the policy document states that the board will undertake a comprehensive strategic asset allocation review every three to five years by considering an asset/liability study. The policy document, in the roles and responsibilities section pertaining to the actuary, also states that the board shall consider review of the asset/liability study approximately every five years. While we find the stated periodic timing to be appropriate, there are events that may warrant the performance of an asset/liability sooner, such as changes in plan design or material shifts in the underlying assumptions. Therefore, we suggest modifications to the current language that call for consideration if material events occur.

- ***Liquidity Policy:*** The current language within the risk management section of the liquidity policy states, "OPERS has achieved a funding status of approximately 85%[69] funded." We believe that it is worthwhile to have context added to this statement, i.e., assuming it is referring to the DB Fund, which is not explicitly stated. Depending on the length of time the policy is in place and what transpires, the existing language could be no longer applicable. Therefore, we also suggest adding further clarification to the liquidity policy, such as the funded status "as of date" and whether the funded status is calculated based on market value or actuarial basis.

Recommendations

3.A.1. In the roles and responsibilities of actuary section of the document entitled "OPERS Board Policies Governing Investment Activities," we recommend modifying the existing language from "the board shall consider review of the asset liability study approximately every five years" to "the board shall consider review of the asset liability study every three to five years or when material changes to the liabilities take place (e.g., plan design changes, material changes in underlying assumptions, etc.)" to be consistent with the language elsewhere. This amendment applies to the investment objective and asset allocation policy for both the DB Fund and the HC 115 Fund.

3.A.2. In the liquidity policy contained in the risk management section of the document entitled "OPERS Board Policies Governing Investment Activities," we recommend adding more clarifying context to the statement regarding the funded value.

2. Process Used to Set, Monitor, Review, and Update the IPS

Background

The IPS documents accountability for all stages of investment policy development and implementation. It can reinforce the obligations of advisers to offer counsel and the obligations of principals to ultimately approve or disapprove of the policy, and it can also identify any pertinent statutory authority relevant to the investment policy. As such, it is a best practice to specify who is responsible for determining investment policy, executing investment policy, and monitoring the results of implementation of the policy. It is also a best practice to describe the process for reviewing and updating the IPS. A process for refreshing the IPS as investor circumstances or market conditions change should be clearly identified in advance.

AHIC reviewed the processes used to adopt, monitor, periodically review, and update the policy document. The review included the extent to which OPERS observes its policies. The review focused on the board policies covering the DB Fund and the HC 115 Fund. In addition to reviewing the board policies, we also interviewed OPERS' staff to expand our understanding of how the process is adopted and executed. This assisted in identifying any exceptions to compliance.

[69] Following the scope period, OPERS notified AHIC that the funded status has been updated to 80% in the 2018 liquidity policy documentation.

Findings and Conclusions

The document entitled “OPERS Board Policies Governing Investment Activities” provides the OPERS Board and staff guidance on the ongoing oversight and management of the DB and HC 115 Funds. Hence, it is important to ensure that this document is current and reflects all board-approved decisions. It covers the duties of the parties involved in the investment program, asset allocation, investment guidelines, and all of OPERS’ policies relating specifically to the investment program.

There is language in the document entitled “OPERS Board Policies Governing Investment Activities” that requires that the board be responsible for approving all the investment policies, including reviewing them on an annual basis. The board is also responsible for approving modifications to the policy document based on recommendations from the OPERS Investment Committee. In addition, the OPERS Investment Committee is responsible for monitoring activities and reviewing reports related to the policy document.

The board’s deliberative monitoring processes are effective overall. It is monitoring essential plan information as well as the performance of the duties it has delegated to staff and others, which is essential for fulfilling its fiduciary duties. From a review of the policy document, as well as conversations with staff, it appears that the policies are being followed and are in line with industry best practices.

Recommendations

None.

3. Process Used to Set, Monitor, and Review the Asset Allocation

Background

The primary importance of asset allocation over other investment decisions is a generally accepted principle in finance theory and practice. Several recognized industry research papers have documented that asset allocation is the primary driver of the level of investment returns and volatility of investment returns from year to year (though not necessarily returns relative to peers, which may be driven significantly by non-asset allocation factors such as active management results). Moreover, AHIC’s own total fund risk model results consistently attribute 90% or more of total fund return variability to asset allocation decisions. Whether or not one agrees on the exact percentage contribution that asset allocation contributes to investment returns, consensus exists among practitioners that the asset allocation decision needs to be documented in an investment policy.

To evaluate the effectiveness of the asset allocation process utilized by OPERS for both the DB Fund and HC 115 Fund, we reviewed OPERS’ supporting policy documentation, long-term asset allocation targets, and asset/liability inputs and outputs including capital market assumptions (forward-looking expectations of returns, risks, and correlations).

Findings and Conclusions

Policy Documentation

The OPERS document entitled "Board Policies Governing Investment Activities" (for the DB Fund and the HC 115 Fund) mandates that every three to five years the board will undertake a comprehensive strategic asset allocation review designed to assess the continuing appropriateness of its investment policy by taking into consideration a number of factors, including:

- Asset/liability study of future benefit payments, liabilities, and required funding;
- The appropriateness of the actuarial interest rate assumption;
- The prospective funded status of liabilities and future benefits; and
- Optimal diversification and comparisons with peer practices.

In addition to the comprehensive asset allocation review that is undertaken every three to five years, the OPERS Board also reviews the asset allocation "targets and ranges" on an annual basis.

The most recent comprehensive strategic asset allocation reviews for the DB Fund and HC 115 Fund were conducted in 2016 and the latest annual asset allocation review (for which we have supporting documentation) was conducted in early 2017. Both these reviews were done by the board's investment advisor, NEPC. We were informed that the OPERS Board has also made minor adjustments in asset allocation for 2018 (during their January 2018 meeting) following recommendations from NEPC in both the DB Fund and the HC 115 Fund. Since the asset allocation adjustments were minor and were adopted very recently following the end of the scope period, we used the asset allocation targets information as of December 31, 2017, in our analysis. This approach is also consistent with the defined scope of review time period.

We found that the asset allocation of the DB Fund and the HC 115 Trust Fund are consistent with the factors delineated above. While the required timeframe for performing comprehensive asset allocation or an asset/liability study is generally consistent with best practices, we also typically recommend that consideration be given to more frequent monitoring. Specifically, we recommend the inclusion of language stating when material changes to the liabilities take place (e.g., plan design changes, material changes in underlying assumptions, etc.), a strategic asset allocation review will be performed. The existing language in the policy document can be simply modified as below to create this additional flexibility:

> Modify the existing language from "Every three to five years the board will undertake a comprehensive strategic asset allocation review…" to "Every three to five years or when material changes to the liabilities take place (e.g., plan design changes, material changes in underlying assumptions, etc.), the board will undertake a comprehensive strategic asset allocation review…"

Long-Term Asset Allocation Targets

Table 3-1 below depicts the long-term asset allocation targets obtained from the document entitled "OPERS Board Policies Governing Investment Activities," and the actual allocations (as of 12/31/2017, obtained from the NEPC performance report) for the DB Fund and HC 115 Fund.

Table 3-1 OPERS Long-Term Asset Allocation Targets

	Defined Benefit Fund		Health Care 115 Trust Fund	
Asset Class	**Target Allocation**	**Actual Allocation**	**Target Allocation**	**Actual Allocation**
Public Equity	**39.0%**	**42.0%**	**43.0%**	**45.6%**
U.S. Equity	20.1	22.4	22.2	24.3
Non-U.S. Equity	18.9	19.6	20.8	21.3
Fixed Income	**23.0%**	**22.3%**	**34.0%**	**33.2%**
Core Fixed	9.0	8.4	16.0	15.5
Emerging Markets Debt	7.0	7.0	7.0	6.9
Floating Rate Debt	0.0	0.1	0.0	0.0
Securitized Debt	1.0	1.0	1.0	1.0
TIPS	2.0	1.9	6.0	5.9
High Yield	3.0	2.9	3.0	2.9
U.S. Treasury	1.0	1.0	1.0	1.0
Alternatives	**31.0%**	**28.1%**	**16.0%**	**14.0%**
REITs	--	--	6.0	6.0
Private Equity	10.0	10.8	--	--
Real Estate	10.0	8.8	--	--
Hedge Funds	8.0	7.4	6.0	5.8
Opportunistic	2.0	0.1	2.0	0.1
Commodities	1.0	1.0	2.0	2.1
Risk Parity	**5.0%**	**5.0%**	**5.0%**	**5.0%**
Global Tactical Asset Allocation	**2.0%**	**2.1%**	**2.0%**	**2.0%**
Operating Cash	**0.0%**	**0.7%**	**0.0%**	**0.3%**
Total	**100%**	**100%**	**100%**	**100%**

In 2016, OPERS performed separate asset/liability studies for the DB Fund and the HC 115 Fund to review and potentially reaffirm the funds' long-term target asset allocations. As part of the asset/liability studies, the board was provided analysis (by NEPC) intended to facilitate its evaluation of the relative tradeoffs associated with market risk. The analysis within the presentation included stochastic projections of the funded ratio over the next 20-year period and detailed deterministic projections of accrued liability, actuarial value of assets, actuarial funded ratio, and net cash flows (incorporating projected benefit payments, employer contributions, and employee contributions) over the next 10-year and 30-year periods. Each output was provided for multiple portfolios with varying levels of return and risk. The stochastic projections were also shown with a spectrum of outcomes ranging from the 5th percentile ("best scenario") to the 95th percentile ("worst scenario"). The asset allocation process took into consideration the actuarial characteristics and demographics. Additionally, the analysis also included scenario analysis (covering multiple economic scenarios based on high and low growth and inflation) and liquidity analysis for the various portfolios analyzed.

In addition to reviewing the work product generated by OPERS' investment consultant, we also interviewed OPERS staff to obtain their description of the process used to determine the asset allocations, its alignment with the analysis documentation, the policy document, and aggregated plan data. Our approach was to first focus on the adequacy of the process used by OPERS and then to compare the process to generally accepted industry standards of practice. We found that OPERS staff's verbal description was consistent with the documentation we reviewed. We also found that the process was consistent with industry standards. Consequently, we believe that the asset liability study performed for the DB Fund and the asset allocation review performed for HC 115 Fund were sound.

Reasonableness of Capital Market Assumptions

The reasonableness of underlying capital market assumptions driving the asset/liability study is critically important in ensuring that the study output reflects an unbiased prediction of the possible future range of outcomes. To gauge reasonableness, we first compare the assumptions used by OPERS investment advisor, NEPC, to those used by our firm, AHIC. We then compare both assumption sets to that of a broader industry universe.

Tables 3-2 and 3-3 below present a side-by-side view of AHIC's 30-year and 10-year capital market assumptions with NEPC's 30-year and five to seven year capital market assumptions for the broad asset classes for which we found commonality in terms of asset class description/definition. NEPC data is based on their 2016 annual capital market forecasts. AHIC updates its capital market assumptions on a quarterly basis. For this analysis, we used AHIC's capital market assumptions as of June 30, 2016.

Table 3-2 Capital Market Assumptions Comparison (30-Year Forecasts)

	AHIC (30-Years)		NEPC (30-Years)		Difference	
Asset Class	**Expected Return**	**Expected Risk**	**Expected Return**	**Expected Risk**	**Expected Return**	**Expect ed Risk**
U.S. Equity (Large Cap)	6.3%	17.0%	7.5%	17.5%	-1.2%	-0.5%
U.S. Equity (Small Cap)	6.8	23.5	7.8	21.0	-1.0	2.5
Non-U.S. Equity (Developed)	7.2	20.0	8.0	21.0	-0.8	-1.0
Non-U.S. Equity (Emerging)	7.5	30.5	9.5	27.0	-2.0	3.5
Core Fixed	2.9	5.0	3.9	6.0	-1.0	-1.0
Emerging Markets Debt (Local)	5.7	14.5	6.5	15.0	-0.8	-0.5
Bank Loans	4.4	7.5	6.0	9.0	-1.6	-1.5
TIPS	3.1	4.5	4.0	6.5	-0.9	-2.0
High Yield	5.4	12.0	5.8	13.0	-0.4	-1.0
Private Equity	8.5	24.5	9.5	23.0	-1.0	1.5
Real Estate	5.7	12.5	6.5	15.0	-0.8	-2.5
Hedge Funds	5.3	9.5	6.5	9.0	-1.2	0.5
Commodities	4.4	17.0	5.5	19.0	-1.1	-2.0
Cash	1.9	2.0	3.0	1.0	-1.1	1.0

Table 3-3 Capital Market Assumptions Comparison (AHIC 10-Year vs. NEPC 5–7 Year)

	AHIC (10-Years)		NEPC (5 to 7 Years)		Difference	
Asset Class	**Expected Return**	**Expected Risk**	**Expected Return**	**Expected Risk**	**Expected Return**	**Expected Risk**
U.S. Equity (Large Cap)	6.4%	17.0%	6.0%	17.5%	0.4%	-0.5%
U.S. Equity (Small Cap)	6.6	23.0	6.3	21.0	0.4	2.0
Non-U.S. Equity (Developed)	7.3	20.0	7.3	21.0	0.0	-1.0
Non-U.S. Equity (Emerging)	7.5	30.0	9.8	27.0	-2.3	3.0
Core Fixed	2.1	3.5	2.5	6.0	-0.4	-2.5
Emerging Markets Debt (Local)	5.7	14.0	6.5	15.0	-0.8	-1.0
Bank Loans	4.0	7.0	5.5	9.0	-1.5	-2.0
TIPS	2.4	4.5	2.5	6.5	-0.1	-2.0
High Yield	5.1	12.0	5.3	13.0	-0.2	-1.0
Private Equity	8.5	24.0	8.5	23.0	0.0	1.0
Real Estate	5.8	12.5	6.5	15.0	-0.7	-2.5
Hedge Funds	4.8	9.0	5.8	9.0	-1.0	0.0
Commodities	3.5	17.0	4.5	19.0	-1.0	-2.0
Cash	1.2	1.0	1.5	1.0	-0.3	0.0

As indicated by the above tables, both AHIC's 30-year and 10-year return forecasts are lower across nearly all the categories than those of NEPC's 30-year and 5 to 7-year return forecasts. In terms of risk forecasts, while the differences aren't uniform across categories, AHIC's risk forecasts are lower than NEPC, in general.

We then compared the NEPC assumptions with that of a broader universe of investment advisors. Horizon Actuarial Services, LLC performs an annual survey of independent investment advisors' capital market assumptions. While 35 investment advisors participated in the 2016 survey, only 12 investment advisors provided longer-term assumptions (horizons of 20 years or more). The results are intended to allow plan fiduciaries to understand how the capital market assumptions used in their analyses compare to peers. Expected returns of the survey are annualized returns over a 20-year investment horizon (geometric returns). Chart 3-1 below depicts the results of the Horizon Actuarial Survey of 2016 based on 12 investment advisors who provided longer-term assumptions (horizons of 20 years or more). Chart 3-1 also includes the 30-year return forecasts from NEPC.

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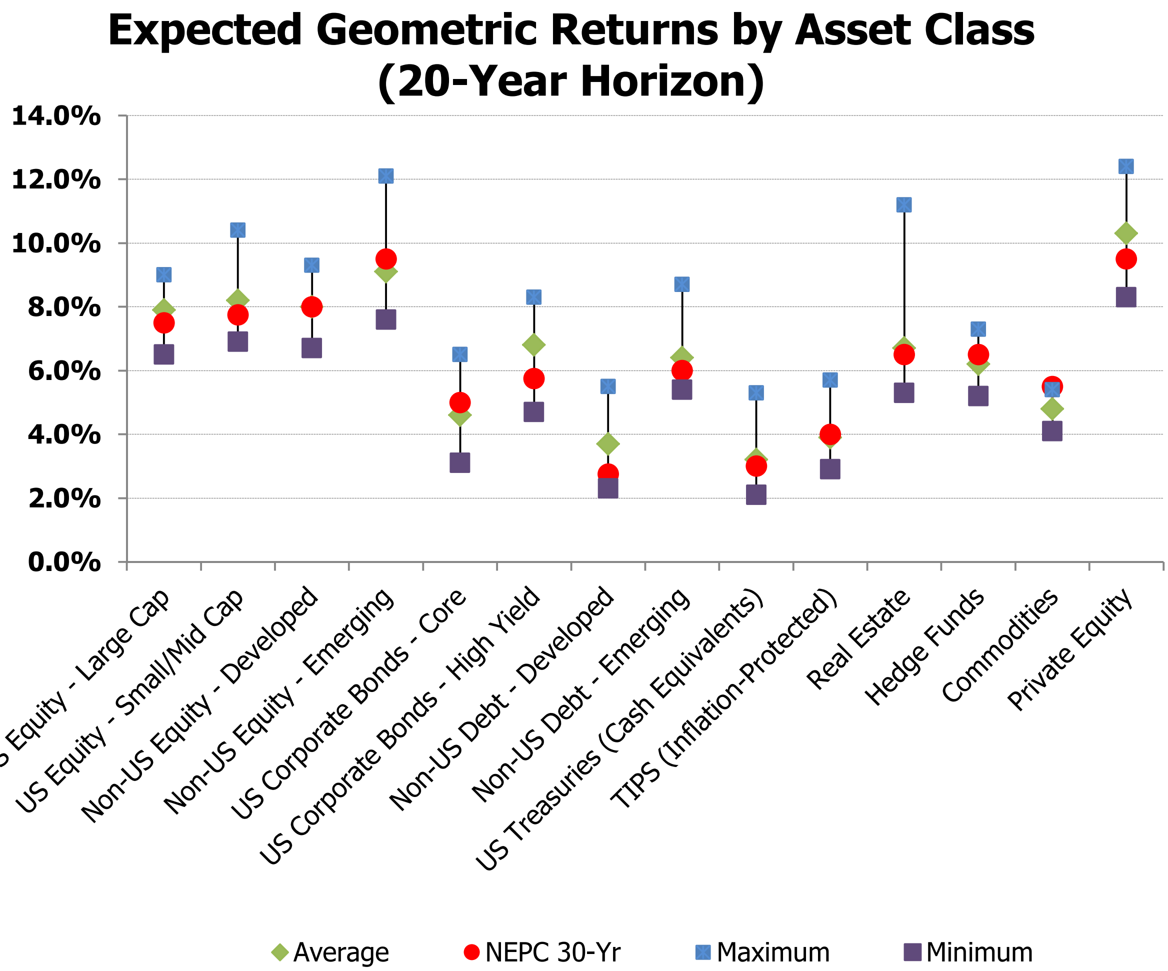
Chart 3-1 Expected Geometric Returns from Horizon Actuarial Survey



In general, NEPC's 30-year expected returns fall near the average peer for most categories. Because of this, we consider the NEPC assumptions used by OPERS to be reasonable and in line with expectations of institutional investors. Further, we believe that the expected returns, risks, and correlations used by NEPC within the 2016 asset/liability studies (for the DB Fund and HC 115 Fund) for evaluating policy asset allocations to be reasonable.

Expected Return Assumption

Given its importance in the process to set, monitor, and review the asset allocation, we have reviewed the reasonableness of the expected return assumptions for the DB Fund and the HC 115 Fund. We applied AHIC's current capital market assumptions (as of December 31, 2017) to the long-term asset allocation targets in place at the end of the scope period. Charts 3-2 and 3-3 below illustrate expected returns for the DB Fund and the HC 115 Fund using the AHIC's capital market assumptions over 5-, 10-, 20-, and 30-year periods.

Chart 3-2 DB Fund Expected Return Using AHIC's 30-Year Capital Market Assumptions

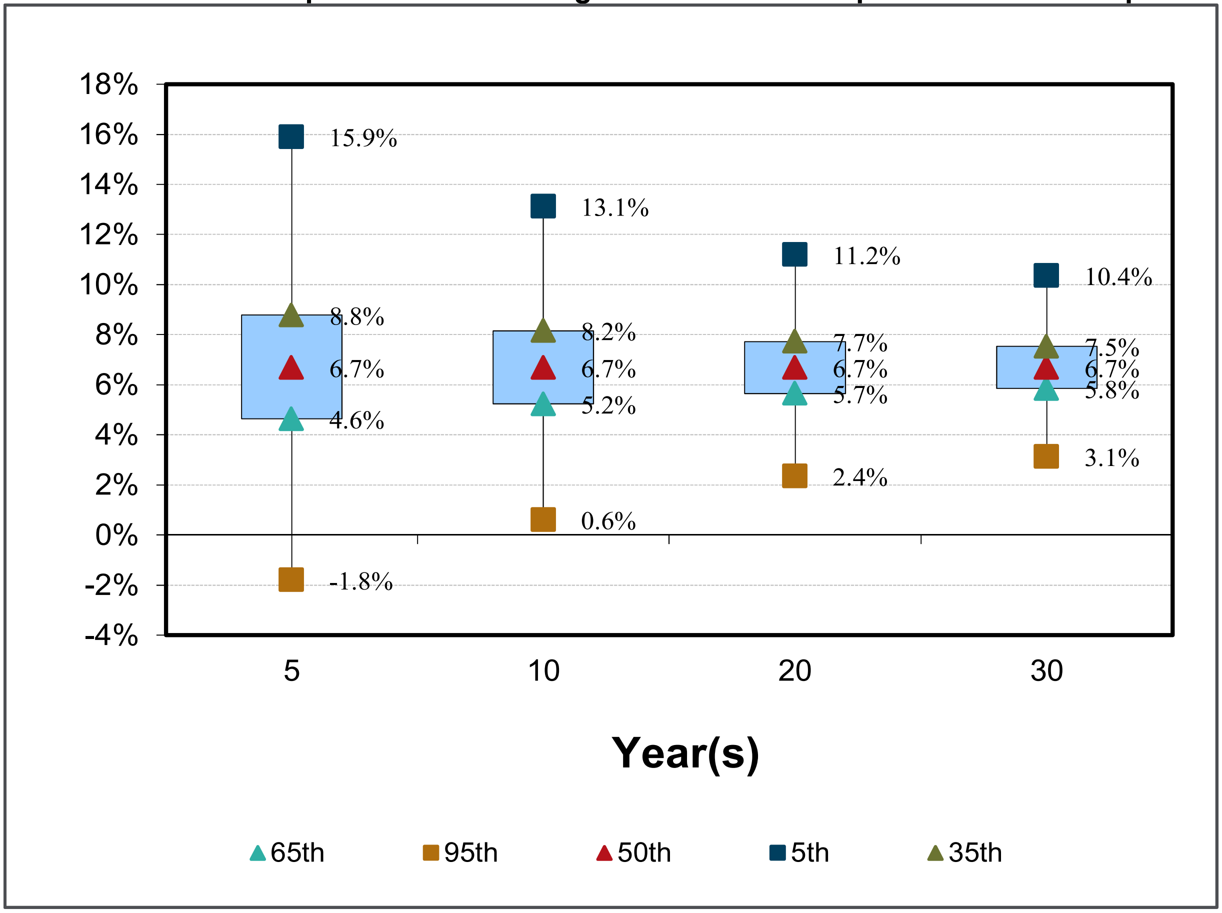


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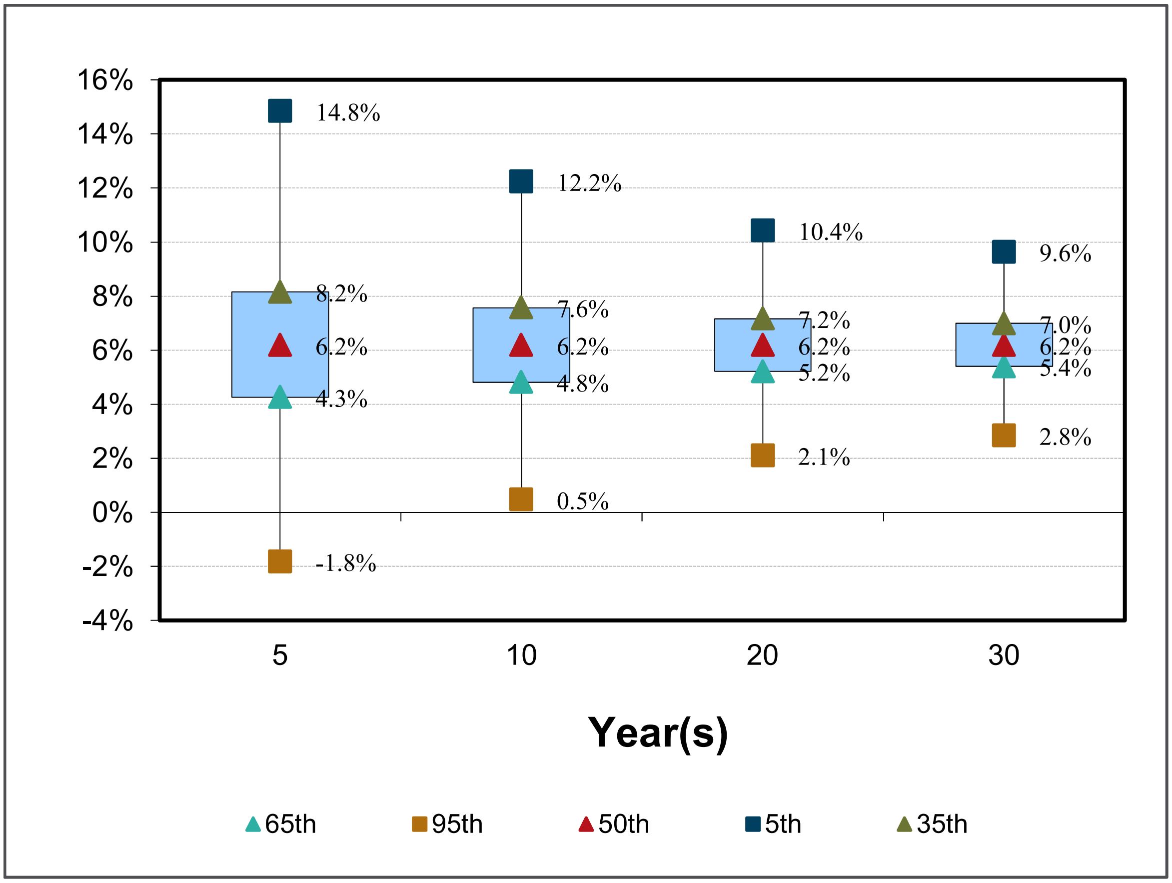
Chart 3-3 HC 115 Fund Expected Return Using AHIC's 30-Year Capital Market Assumptions



The distributions on the far right of Charts 3-2 and 3-3 depict the range of expected outcomes over a 30-year period. The top values of 10.4% (Chart 3-2) and 9.6% (Chart 3-3) represent the 5th percentile ("best scenario"). This means that there is a 95% chance that the 30-year annualized returns will be less than 10.4% or 9.6% respectively. Conversely, the bottom values in the charts represent the 95th percentile value ("worst scenario"). Put differently, there is a 95% chance that the 30-year annualized return will be greater than 3.1% (Chart 3-2) or 2.8% (Chart 3-3). The median expected returns are represented by the center values. Based on this, our expected returns are 6.7% and 6.2% for the DB Fund and the HC 115 Fund, respectively. These are approximately 1.2% (DB Fund) and 1.0% (HC 115 Fund) lower than the expected returns identified by OPERS and its investment advisor, NEPC, as part of the annual asset allocation review conducted in early 2017. The differences are in line with our expectations given that AHIC's capital market assumptions are lower than NEPC's for most asset classes.

We also reviewed the probability of OPERS achieving the actuarially assumed rates of return for the DB Fund (7.50%) and the HC 115 Fund (5.00%). We conducted the probability review using the AHIC capital market assumptions over 5-, 10-, 20-, and 30-year periods. The analysis is provided in Table 3-4.

Table 3-4 Probability of Achieving Actuarial Assumed Rate of Return

	Probability of Achieving Actuarial Assumed Rate of Return			
Return	**5-Years**	**10-Years**	**20-Years**	**30-Years**
7.50% (DB Fund)	44.0%	41.6%	38.2%	35.6%
5.00% (HC 115 Fund)	59.3%	63.1%	68.2%	71.8%

As shown above, using the AHIC capital market assumptions, we believe there is a 36% probability that the DB Fund will achieve its actuarially assumed rate of return over 30 years. Similarly, the probability that the HC 115 Fund will achieve its actuarially assumed rate of return over 30 years is approximately 72%. The probability is much higher for the HC 115 Fund given the conservative estimate of the actuarially assumed rate of return compared to the DB Fund.

Since 2006, OPERS has performed three actuarial experience studies, one every five years. Section 145.22(B) of the Ohio Revised Code requires that at least once in each five-year period, the OPERS Board shall have the actuary complete an experience study to update the actuarial assumptions used in the annual actuarial valuations. The purpose of an experience study is to assess the validity of the economic and non-economic assumptions used for the actuarial valuation, which is then used to determine the annual contribution. The most recent experience study was completed in 2016 by OPERS' actuarial consultant (Gabriel, Roeder, Smith & Company) covering the period 2011 through 2015, pursuant to actuarial standard practice requirements.

Following the recommendations per the most recent experience study, the OPERS Board has lowered the assumed investment rate of return for the DB Fund from 8.0% to 7.5%. The assumed investment rate of return for the HC 115 Fund remained unchanged from previous years at 5.0%. The assumed rate of return for the HC 115 Fund is lower than the DB Fund given the conservative investment philosophy that provides less risk and recognizes a shorter funding period than with pension assets.

However, we found that the financial projections of the HC 115 Fund anticipate potential insolvency in the future. Given this, we think it is worthwhile to consider adding more documentation within the investment objective and asset allocation section of the policy document. Aside from the more conservative investment philosophy and asset allocation that provides less risk and recognizes a shorter funding period than with pension assets, the existing language would not lead a reader to believe the asset guidelines differ much from the DB Fund. However, with materially different projected outcomes, we would think that there should be a starker contrast in the language compared to DB Fund. The additional documentation that we would suggest adding include more frequent monitoring of the assets and liabilities, monitoring of the liquidity policy including coordination with the actuary for updated future benefit payments, and stress testing analysis.

Recommendations

3.A.3. Modify the existing language in the document entitled the "OPERS Board Policies Governing Investment Activities" regarding periodic review under the asset allocation section from "every three to five years the board will undertake a comprehensive strategic asset allocation review…" to "every three to five years or when material changes to the liabilities take place (e.g., plan design changes, material changes in underlying assumptions, etc.), the board will undertake a comprehensive strategic asset allocation review…" for added flexibility. This amendment applies to the OPERS Investment Objective and Asset Allocation Policies for both the DB Fund and the HC 115 Fund.

3.A.4. Given that the financial projections for the HC 115 Fund anticipate potential insolvency in the future, add additional documentation and context regarding the HC 115 Fund to allow for a starker contrast with pension language. The additional language should be added to the Investment Objectives and Asset Allocation Policy section of the document entitled "OPERS Board Policies Governing Investment Activities."

4. Adequacy of Rebalancing Processes

Background

Rebalancing is an important form of risk control. Since asset allocation drives investment results, material deviations from long-term policy target allocations introduce risk that is undesirable unless the deviations are a deliberate part of a tactical asset allocation decision. Therefore, to minimize risk, investors, including public retirement systems, should maintain actual allocations as close as possible to policy allocations (through sourcing and targeting of non-investment related cash flows and rebalancing when necessary) subject to the transaction costs associated with rebalancing. In the absence of tactical asset allocation, best practices call for a disciplined rebalancing process with narrow ranges around policy targets. Our research suggests that narrow rebalancing ranges achieve the most efficient tradeoff between risk minimization and trading costs.

To evaluate the effectiveness of the portfolio rebalancing process utilized by OPERS, we reviewed the OPERS document entitled "Board Policies Governing Investment Activities" (the policy document) covering the DB Fund and the HC 115 Fund.

Findings and Conclusions

The policy document provides that the board sets target allocations (targets) to various asset classes and establishes a band of minimum and maximum allowable allocations (ranges) surrounding each asset class target. The policy document indicates that the purpose of the ranges is to appropriately and cost effectively balance the long term investment goals with the investment strategies pursued over shorter time periods. Additionally, the policy document provides that staff will ensure conformance with the asset allocation set by the board through monthly, or more frequent, review.

The policy document also provides detail for how the rebalancing process should be performed. In conducting rebalancing activities, the board expects staff to operate under the principles set forth below:

- Staff must initiate rebalancing transactions to bring all percentages to values inside the ranges or promptly seek board approval to remain outside the ranges;

- To implement the investment strategy, staff will manage the asset allocation nearer to or away from the targets, but within policy ranges. Quarterly performance reports to the board must also reflect actual allocations and variances from the targets; and
- The spirit of the IPS is to implement the investment strategy within the targets and asset allocation ranges at a reasonable cost, recognizing that overly precise management of asset exposures can result in transaction costs that are not economically justified.

Table 3-5 provides the targets and ranges of the high level asset classes outlined in the policy document for both the DB Fund and the HC 115 Fund.

Table 3-5 Asset Allocation Targets and Ranges for the DB Fund and HC Trust Fund

	DB Fund		HC 115 Fund	
Asset Class	**Target Allocation**	**Ranges**	**Target Allocation**	**Ranges**
Public Equity	**39%**	**31 to 47%**	**43%**	**34 to 52%**
U.S. Equity	**70	+/- 5%	**71	+/- 5%
Non-U.S. Equity		+/-5%		+/-5%
Fixed Income	**23%**	**16 to 30%**	**34%**	**24 to 44%**
Core fixed	9	6 to 12	16	11 to 21
Emerging markets debt	7	3 to 9	7	3 to 9
Floating rate debt	0	0 to 2	0	0 to 2
Securitized debt	1	0 to 2	1	0 to 2
TIPS	2	1 to 3	6	3 to 9
High yield	3	0 to 5	3	0 to 5
U.S. Treasury	1	0 to 2	1	0 to 2
Alternatives	**31%**	**22 to 40%**	**16%**	**11 to 21%**
REITs	--	--	6	3 to 9
Private equity	10	5 to 15	--	--
Real estate	10	5 to 15	--	--
Hedge funds	8	4 to 12	6	3 to 9
Opportunistic	2	0 to 4	2	0 to 4
Commodities	1	0 to 2	2	0 to 4
Risk parity	**5%**	**2 to 8%**	**5%**	**2 to 8%**
Global tactical asset allocation	**2%**	**0 to 4%**	**2%**	**0 to 4%**
Operating cash	**0%**	**0 to 3%**	**0%**	**0 to 3%**
Total	**100%**		**100%**	

The rebalancing approach described in the policy document generally addresses the tradeoff of tracking errors and trading costs (e.g., overly precise management of asset exposure can lead to lower tracking errors but incurs higher transaction costs), and clearly defines a prudent

[70] Reset quarterly based on the ratio of U.S. to Non-U.S. market capitalization of the MSCI All Country World – Investable Market Index (ACWI-IMI).

[71] Reset quarterly based on the ratio of U.S. to Non-U.S. market capitalization of the MSCI All Country World – Investable Market Index (ACWI-IMI).

process for rebalancing. We typically prefer and recommend narrow ranges (+/- 5% around targets or narrower) so as to minimize unwanted risk relative to long-term policy targets. The rebalancing ranges for all the underlying asset classes (excluding the broad categories) within the DB Fund and HC 115 Fund are narrower and consistent with what we typically recommend to other institutional investors.

Structure of Decision-Making for Portfolio Rebalancing

The current approach as outlined in the board policy document assigns staff with responsibility for monitoring, assessing, and making a final approval for all rebalancing decisions. This is consistent with best practice among other large public pension funds. Best practice is for a board to operate at a high policy level and delegate decision-making authority for implementation related responsibilities to staff. In such structures, the board approves the asset allocation targets and ranges around those targets when it approves the investment policy. The investment staff is then responsible for monitoring the portfolio and has the authority to rebalance based upon the ranges and approach outlined in the board-approved investment policy. Rebalancing activities are then reported to the board at the next regularly scheduled meeting as part of its review of the investment program. The structure of decision-making processes utilized for portfolio rebalancing at OPERS is consistent with the best practices outlined above.

The policy document language specifying that staff will ensure conformance with the asset allocation set by the board through monthly, or more frequent, review is also in line with best practice. Including strict time-based restrictions (e.g., monthly, quarterly, annually, etc.) on rebalancing activity can be counterproductive and introduces unnecessary risk to the portfolio. Standard institutional practice, and AHIC’s favored approach, is to rebalance when actual allocations deviate materially from target allocations rather than rebalancing at specified time intervals. The additional flexibility given to OPERS staff via monthly or more frequent review to ensure conformance with the asset allocation is consistent with best practice as well as our preference.

Recommendations

None.

B. Investment Oversight

1. Controls and Process Used to Review Investment Performance and Assess Compliance

Background

One of the critical responsibilities of the board is to build a governance operating model that clearly defines the organization’s people, process, and controls. The board’s primary role is optimally to provide high level policy approval and oversight; however, in some cases, as the ultimate governing fiduciary, more active involvement may be appropriate.

As it relates to investment performance, core responsibilities of the board that require more active involvement include:

- Approval and oversight of fundamental policies and procedures;
- Review and monitoring of investment performance; and
- Ensuring appropriate compliance process is in place.

As part of our review of this area, AHIC interviewed a range of OPERS' investment and operational personnel. AHIC also reviewed a wide range of policies, procedures, and reporting packages, including the following:

- The OPERS Board Governance Policy Manual (June 2017);
- The OPERS Board Governance Committee Charter;
- The OPERS Audit Committee Charter;
- The OPERS Personnel Committee Charter;
- The OPERS Budget Committee Charter;
- OPERS' budget policies and procedures;
- AHIC's "Governance and Oversight" questionnaire (due diligence questionnaire for governance and oversight);
- Investment accounting (risk analytics dashboard, monthly highlights, and observations);
- Quarterly update of annual investment plan and risk;
- Chief investment officer's report to the board (U.S. internal high yield bond portfolio update);
- NEPC's report to the board (quarterly market and fund performance review);
- NEPC's report to the board (internal fixed income investment staff due diligence);
- Investment compliance manager's report to the board (annual responsible contractor report and investment compliance summary);
- Assistant director of investment accounting, compliance, and risk's periodic compliance report;
- Investment plan update;
- The board investment compliance report; and
- Interview notes for pre- and post-trade compliance monitoring processes.

Best practice for monitoring performance of internal investments and external investment managers includes a range of processes, including the following:

- Monitoring investment performance on an ongoing and continual basis;
- Establishing compliance and mandate rules and limits; and
- Monitoring adherence to those limits through a series of systemic (and largely automated) guideline compliance reviews.

Findings and Conclusions

We found that OPERS' Governance and Oversight policies clearly define the roles and responsibilities of the board. In particular, the board has four broad areas of oversight and responsibility:

- Asset allocation;
- Asset management;
- Risk control and administration; and
- Monitoring and evaluation.

The board annually establishes and modifies asset allocation targets and ranges, as further described in Section A.3. of this task area on pages 58 through 67. In addition, the board annually approves the investment policies associated with carrying out investment functions within OPERS' investment division. This effort helps to ensure that appropriate investment policies and adequate risk controls are in place.

The board's monitoring and evaluation activities include establishing performance benchmarks, investment performance monitoring parameters, staff evaluations, and oversight in regard to retaining key investment related service providers including actuaries and other consultants. In addition, the board may appoint advisors unaffiliated with OPERS to assist with the investment program.

The OPERS Board Governance Committee develops and recommends the content of the OPERS Board Governance Policy Manual. The OPERS Governance Committee is the group responsible for reviewing, updating, and making recommendations to the full board regarding the following sub-committees' roles and responsibilities:

- Investment committee;
- Audit committee;
- Personnel and salary review committee;
- Budget and planning committee;
- Proxy policy and corporate governance committee;
- Health care committee; and the
- Enterprise risk committee.

As discussed earlier in Task Area 1.C. on pages 15 through 18, the OPERS Board Governance Policy Manual defines the board's roles and responsibilities in regard to monitoring and reporting. Examples of formal reporting include the following:

- Executive director monthly reports provide the status of major issues and system activities;
- Investment reports include asset allocation, compliance, and performance information;
- Committee reports provide updates of activities at the subcommittee level;

- Comprehensive annual financial reports, annual budget reports, and interim financial reports create a comprehensive framework for financial reporting; and
- Strategic planning status reports provide updates on specific initiatives.

In addition to the board level reporting, OPERS has implemented a broad range of tactical processes that allow for day-to-day monitoring of performance and alignment with mandate compliance restrictions, both for its internally managed strategies and for those outsourced to third party investment managers. OPERS' operations staff oversees more than 40,000 tests that are systematically performed each month with data provided by the Bank of New York Mellon (BNY Mellon), the recordkeeper, and OPERS' internal accounting system, Eagle Investment Accounting System (Eagle). These tests include critical reviews related not only to mandated compliance restrictions, but also to employee-level policies and procedures, such as material non-public information or personal trading restrictions. The OPERS ICD that oversees this testing program reports to the board with a monthly compliance summary.

During the review period, based on documentation provided, it was noted that the chairs of the OPERS Audit Committee and the OPERS Enterprise Risk Committees were vacant. We understand that the OPERS Audit Committee chair vacancy was due to unforeseen circumstances. Notwithstanding, OPERS would benefit from filling committee vacancies in a timely fashion. We were informed that in 2018 chairs were appointed to both committees.

We generally find that OPERS has established appropriate controls and has used appropriate processes to regularly review and monitor investment performance and assess compliance by external and internal investment managers. OPERS' robust approach exceeds that of many other retirement systems and aligns with best practices implemented by many commercial market participants, such as asset management firms.

Recommendations

See Recommendations 1.B.1. and 1.B.2. provided in Task Area 1 on page 15, regarding designation of an audit committee expert and use of an audit committee consultant.

2. Processes Used for Measuring, Evaluating, and Controlling Investment Program Transactions Costs

Background

Public retirement systems, analogous to investment services firms, have a responsibility to attempt to execute transactions in a manner that helps to ensure that they are acting in the best interests of the participants and beneficiaries that they serve. Best practices for transacting and assessing transaction costs have evolved over time and can range from requesting multiple broker quotes to assessing trading execution quality. This evolution has been supported by regulatory and technology changes; global regulators have applied greater scrutiny on managing transaction costs while technology improvements have enabled asset managers to more accurately measure transaction costs and quality.

Best practice is to implement a "compliance monitoring program" with written policies that govern execution and address the factors that need to be considered in order to achieve best execution, including the following: broker selection and oversight; soft dollar policies; and transaction cost analysis. The following are descriptions of best practices in each area:

a. Broker Selection and Oversight

It is a best practice to have a broker review committee (or equivalent) with cross-functional representation in place to screen all new brokers prior to utilizing them for execution. This approach helps to ensure that individual brokers can meet the needs of not only the front office, but also operations. The screening process should assess the new broker's financial health, its ability to provide the required service, fees, quality of execution, and settlement capabilities. All brokers should be added to the approved broker list and entered into the order and execution management systems to ensure traders cannot execute orders with counterparties that are not approved.

It is vital to monitor brokers' financial health, credit ratings, credit default swap spreads, and news on an ongoing basis in order for asset managers to be in the position to remove a broker if necessary. It is a best practice to review all broker relationships at least on an annual basis, including an assessment of their utilization. Idle brokers should be removed from the approved broker list.

b. Soft Dollar Policy

It is a best practice to have a written "soft dollar policy" which outlines the definition of soft dollars, the products and services which are permissible for purchase with brokerage fees, application of standards, disclosure guidelines, and the investment manager's responsibilities, whether internal or external. For professional investment managers regulated by the U.S. Securities and Exchange Commission, it is required that they always act for the benefit of clients and place client interests first.

c. Transaction Cost Analysis

Transaction cost analysis (TCA) is an essential tool used by asset managers in order to analyze the effectiveness of executed transactions. A sophisticated TCA tool will help the business to understand a number of factors such as cost, speed of execution, and settlement.

It is best practice to establish a best execution committee (or equivalent) to monitor and measure best execution. The committee should be responsible for assessing transactions on a periodic basis, evaluating brokers, and reviewing and updating policies. At a minimum, the committee should meet on a quarterly basis. Monthly meetings are considered a best practice. The discussion that occurred during the committee meetings should be documented in meeting minutes.

In order to assess OPERS' best execution capabilities, AHIC conducted onsite interviews with the OPERS trading and operations teams and reviewed the following documents:

- The broker dealer policy;
- The broker trade review procedures;
- The master broker list procedures;

- The broker review committee charter;
- The commission sharing agreement (CSA) and commission sharing broker statement procedures;
- The Charles River[72] new broker setup procedures;
- The Charles River initial public offering broker setup procedures;
- The broker setup procedures;
- The soft dollar policy; and
- The soft dollar broker expense eligibility procedures.

Findings and Conclusions

a. Broker Selection and Oversight

OPERS has clearly written policies and procedures in place around broker selection and oversight, which we consider to be in line with industry best practices.

OPERS has adopted two documents to ensure broker selection and monitoring is sufficient: the broker dealer policy and the broker review committee charter. The broker dealer policy clearly outlines the scope, purpose, objective, selection process, and monitoring of trading counter parties. The broker dealer policy also explicitly defines the responsibilities of OPERS' Board, investment committee, investment compliance department, and the broker review committee. It also establishes applicable reporting requirements. The broker review committee charter provides for oversight of broker-dealer selection, approval, and trading activities.

The broker trade review procedure defines the investment compliance department's control procedures and reporting responsibilities. The master broker list procedures govern the process of maintaining an independent master list of all approved brokers. Both procedures, in conjunction, ensure that all transactions are executed with approved broker-dealers and are in line with industry best practice.

The new broker set up procedures document clearly outlines, step by step, how new approved brokers should be set up in the system. This prevents traders from executing orders with counterparties that are not approved.

When assessing broker dealers, it is important to review not just the costs but also the quality of execution. Currently, OPERS has standing members from the investment department on the broker review committee. The broker review committee receives feedback from the operations and traders group. This feedback assists the committee in better assessing the broker-dealers' capabilities, responsiveness, and timeliness of trade settlements. The investment accounting operations, investment compliance, and investment risk departments all have representatives that attend the broker review committee in order to voice any concerns; however, they are not voting members of the committee.

[72]Charles River Associates is a leading global consulting firm that offers economic, financial, and strategic expertise.

b. Soft Dollar Policy

We believe OPERS' soft dollar policy achieves its defined purpose of minimizing the total transaction costs while maximizing the value of brokerage and research received. The responsibilities of all relevant departments involved with the implementation and oversight of the soft dollar policy are outlined in the document.

The OPERS Investment Committee is responsible for reviewing and updating the soft dollar policy and monitoring investment activities related to soft dollar arrangements. The investment compliance department is responsible for determining whether the proposed soft dollar expenses qualify under §28(e) of the Securities Exchange Act of 1934. Section 28(e) provides a safe harbor for persons who exercise investment discretion over beneficiaries' or clients' accounts to pay for research and brokerage services with commission dollars generated by account transactions.

The OPERS Broker Review Committee is responsible for overseeing the sharing arrangement program, the commission recapture program, and bundled and unbundled commissions.

The procedures outlined in OPERS' CSA Commission Sharing Broker Statement Procedures control the activities in relation to reviewing CSA broker statements prior to payments. The investment accounting operations team reviews invoices which are approved by the fund management team, and reconciles with statements from brokers. Any statement discrepancies are raised with the OPERS Broker Review Committee and the CIO.

We find that OPERS' soft dollar procedures are generally in line with market best practices for other industry participants and exceed those of many public plan peers.

c. Transaction Cost Analysis

The OPERS Broker Review Committee is also responsible for reviewing execution quality and cost. The committee meets on a monthly basis and has representatives from all investment departments.

The committee reviews transaction cost analysis reports in conjunction with other investment teams on a quarterly basis; transaction cost analysis reports are provided by MarketQA[73].

Investment compliance independently reviews the best execution and prepares a memorandum to document its analysis. Investment compliance staff also attends the committee meetings, listens to the information presented via the transaction cost analysis process, and voices any concerns in the meeting.

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[73] MarketQA is an analytics platform offered by Thomson Reuters to generate quantitative research and trading analysis.

Approaches to best execution continue to evolve. Asset managers that have a European footprint, for example, will need to prove best execution and testing for all trades under Markets in Financial Instruments Directive (MiFID II)[74], an emerging European regulation. While public funds do not fall under the reach of MiFID II, OPERS may anticipate that market practice best execution may ultimately evolve to impact non-commercial market participants. In that regard, many U.S asset managers with a European footprint have introduced firm wide 100% best execution testing.

Recommendations

3.B.1. In order to better assess the broker-dealers' overall capabilities, the OPERS Broker Review Committee should include voting representatives from both operations and trading/front office functions.

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[74] MiFID II is a legislative framework instituted by the European Union (EU) to regulate financial markets within the EU and improve protections for investors with the aim of restoring confidence in the industry after the financial crisis exposed weaknesses in the system. The regulation was rolled out on January 3, 2018, and introduced more reporting requirements and tests in order to increase transparency and reduce the use of dark pools and off-exchange trading.

3. Processes Used to Determine and Measure Investment Performance Benchmarks

Background

Industry best practice suggests that firms with established, strong operational and control frameworks will have an inherent operational advantage. Measuring and verifying investment performance are key processes for asset managers. In order to accurately measure portfolio performance, best practice requires:

- Written policies and procedures;
- A team independent from the investment team such as back office verifying prices;
- A valuation committee that meets at an appropriate frequency;
- An independent administrator or custodian for price verification;
- A qualified CFO or similar individual to oversee the process; and
- An appropriate portfolio accounting system and general ledger.

In order to appropriately measure investment performance, asset managers should have an appropriate internal shadow net asset value (NAV). It is an internal process to verify NAV calculated by a third-party. The process helps to verify the stated NAV accounting process in place. It helps to monitor investments and can also be utilized to verify holdings and pricing.

a. Data Collection

Asset managers are responsible for sourcing all data independently, including from administrators and the custodian(s). It is industry best practice for asset managers to maintain appropriate systems to hold relevant information including size of positions, the transaction cost price, current market value, and profit/loss. Systems should rely on automated data feeds, when possible, with additional functionality for manual data entry where required.

The availability of an asset's pricing sources is dependent on its pricing level. In the case of highly liquid instruments, multiple pricing sources are available and asset managers are able to collect data from multiple providers. The NAV of external investment managers should be provided by the underlying administrator in the form of statements.

b. Position and Price Verification

Trade reconciliation is a key process to ensure all positions are accounted for in order to accurately measure portfolio performance. Tri-party reconciliation is viewed as best market practice; the asset manager reconciles both the prices and positions with its administrator and custodian(s). The administrator is responsible for pricing the positions and calculating the NAV independently from the manager.

c. Benchmark Selection

A benchmark is a point of reference for measuring investment performance and often used as a tool to review asset allocation and risk of the portfolio. An appropriate benchmark, as noted by the CFA Institute, should include the following characteristics:

- Measurable;
- Investable;
- Appropriate;
- Specified in advance;
- Understandable; and
- Public.

In order to assess the processes used to determine and measure investment performance at OPERS, AHIC conducted onsite reviews with members of the OPERS operations team and reviewed the following documents and items:

- The Governmental Accounting Standards Board (GASB) Statement 72 reporting procedures;
- GASB Statement 72 committee charter;
- Trade pricing procedures;
- Daily verification of performance reporting procedures;
- Month-end reporting to BNY Mellon procedures;
- Monthly/quarterly DB Fund and HC 115 Fund performance procedures;
- Risk parity, global tactical asset allocation, and hedge fund month-end closing procedures;
- Real estate import procedures;
- Private equity import procedures;
- Price challenge procedures;
- Performance challenge procedures;
- Monthly pricing procedures;
- OPERS' board policies governing investment activities;
- Benchmark changes between 2007–2010;
- DB Fund benchmarks history between 2008–2017;
- HC 115 Fund benchmarks history between 2008–2017; and
- Benchmark changes timeline between 2011–2017.

Findings and Conclusions

Following the meeting between AHIC and OPERS' operations team, we found members of the OPERS team responsible for investment compliance as well as the wider operations team to have an excellent understanding of the policies and procedures surrounding data collection and position and price verification.

The OPERS GASB Statement 72 Committee is responsible for reviewing and determining the classification of assets and liabilities. The committee meets on an annual basis and is comprised of the executive director, CFO, CIO, deputy director of investments, assistant director of investment accounting and compliance, investment accounting operations supervisor, and the senior investment accounting analyst. The GASB Statement 72 reporting procedures document clearly defines the leveling process.

a. Data Collection

The investment accounting procedures control activities are related to the pricing positions in OPERS' accounting system, known as Eagle. The trade pricing procedures provide a guide on daily pricing procedures undertaken by the operations team. OPERS' front and middle office teams have developed a pricing hierarchy which is in line with industry best practices. The providers are recognized in the industry, such as Bloomberg, Barclays, and Markit Partners. Prices are collected automatically on a daily basis when applicable. Statements from underlying administrators of the external investment managers are received on at least a quarterly basis.

Due to the unique setup of OPERS (which has multiple custodian banks in addition to a recordkeeper), the custodial banks (JPMorgan and Fifth Third) use their own pricing vendors, which can be accessed by OPERS in the event that data is not available from the pricing vendors. This approach creates, to some extent, an additional control in that it requires pricing reconciliation among multiple parties (rather than just binary reconciliation between OPERS and a single custodian). The additional control, however, would likely not be considered valuable to most plan sponsors given the corresponding layer of operational complexity and inefficiency it presents. (These considerations are discussed in more detail in Task Area 3.D.1. on pages 98 through 109.)

AHIC found, notwithstanding OPERS' custodial arrangements, the process used to determine and measure investment performance to be appropriate. Although some instruments' pricing is manually entered into the system, OPERS' processes are generally in line with best practice.

b. Position and Price Verification

There are a number of systems in place at OPERS to support the wide array of asset classes. All positions and their current market values are reconciled in Eagle to BNY Mellon, OPERS' recordkeeper. OPERS utilizes eFront[75] alongside Eagle to maintain records related to private equity, real estate, and hedge funds. Tolerance checks are built into the system and if values fall outside of the thresholds, they are investigated by OPERS.

[75] eFront is a sub-ledger software system for less liquid assets such as private equity, real estate, and hedge fund asset classes.

BNY Mellon has adopted the same pricing hierarchy as OPERS; however, prices are sourced independently. OPERS completes reconciliation to BNY Mellon's records on a monthly basis and reconciles its trade data with the custodians on a weekly basis.

Fiserv Frontier software is an automated reconciliation tool that is used for all assets held in the portfolios. The software reconciles data held in Eagle to the custodial banks and to BNY Mellon on a daily basis.

As governed by the "performance challenge procedures," both OPERS and BNY Mellon are able to raise performance challenges to one another when either party identifies potential issues.

We find OPERS' processes around position and price verification of its holdings to be in line with best practices. In addition, BNY Mellon's independently sourced prices provide an additional layer to OPERS' price verification controls which is beyond that of many market participants.

While we generally find that the policies and procedures OPERS has in place align with best practices, we highlight that OPERS' frequent rotation of custodians is not in line with that of wider market participants. The rotation of the custodian creates a range of operational inefficiencies that impact its recordkeeping requirements. For example, it was noted that during a custody transition, OPERS' operations personnel could not rely on the custodian's records for six months following the transition due to an issue the bank encountered as it transitioned to the new custody and accounting platform. Had OPERS not had an internal accounting system at the time, OPERS would not have been able to reconcile its books and continue reporting activity. Consequently, at that time, OPERS thought it best to keep third-party recordkeeping separate from the custodian. Best practice is to automate processes wherever possible in order to limit the risk of manual errors. In this case, the manual entries were a one-time activity (due to the transition), but the potential for continual or ongoing custody transitions would subject OPERS' portfolios to ongoing exposure and risk of loss due to manual error (not to mention the inefficiency related to such a volume of manual errors). Therefore, OPERS should have control over its custodial relationship, which would allow it to limit changes (see recommendations in Section 3.D. in this task area on page 113).

OPERS' custody arrangements also create additional inefficiencies on an ongoing basis. OPERS' staff noted that its current custodians are not able to service all of its ideal custody service requirements. In particular, in addition to its custodians, OPERS' has retained BNY Mellon as a recordkeeper. While the recordkeeper role adds an additional layer of control and oversight to the accounting process, it also introduces the need to reconcile records to an additional party. AHIC also notes that since a custodian is usually the keeper of books and records, the use of an additional recordkeeper increases costs to the plan's participants (these items are reviewed in more detail in Section 3.D. in this task area on pages 98 through 113.)

c. Benchmark Selection

We reviewed a number of documents related to benchmarks. The Investment Objective and Asset Allocation (Fund) Policies component of the policy document clearly defines the asset classes and the benchmarks used by the board to set target allocations. All benchmarks have characteristics that are well-defined, measurable, and appropriate, with the exception of the opportunistic sub-asset class (within the DB Fund). Due to the unique nature of this asset class, the benchmark is set as "custom benchmark using the market weight of underlying portfolio benchmark." We believe there should be a static benchmark within the policy benchmark for the opportunistic sub-asset class that reflects the overarching investment goal of the portfolio. For example, if the goal of the portfolio is to improve the risk adjusted performance of the DB Fund, the appropriate benchmark could be the policy benchmark. Utilizing the market weight of the underlying strategy benchmarks could continue to be used as a secondary benchmark.

Recommendations

3.B.2. OPERS should utilize a static benchmark for the opportunistic sub-asset class within the DB Fund policy benchmark that reflects the overarching goal of the sub-asset class.

4. Evaluate the Basis and Methodology for the Compensation of External Investment Managers

Background

Investment managers typically can have two types of fees: (a) management fees and (b) performance fees. It is important to note that a number of industry studies have found no correlation between fund performance and the fees charged. For example, the United Kingdom's Financial Conduct Authority (FCA) issued its asset management market study in June 2017. The study supports that there is no linear relationship between fund charges and performance. Furthermore, the regulator encourages investors to focus on the effect charges have on their investments.

The European Securities and Markets Authority found that gross returns of European Union domiciled funds are reduced by an average of 13% due to fees.[76] External managers may also charge subscription and redemption fees, which further impacts returns. As institutional investors have allocated more assets to the alternative asset classes, the total fee amount paid to external managers in performance based investment fees has increased. For this reason, it is essential for institutional investors to understand the relationship between performance fees and returns. Paying for performance fees can be a great way to align interests if these fees are structured appropriately. If alternative asset managers (e.g. hedge funds, private equity, and real estate funds) charge performance fees on nominal returns without a hurdle,[77] performance fees could be charged even if the manager underperforms the benchmark. In other cases, where a performance fee is charged above a benchmark return or another hurdle, the FCA study in 2017 found that fund objectives are not always clear and performance is not always reported against an appropriate benchmark.

Institutional investors should understand all the fees related to an investment before hiring an external manager, and these fees should be considered on a case by case basis and take into

[76] Giacomo Massa, Julia Loder, and Fran Hespler, "The impact of chargers on mutual fund returns," *EMSA Report on Trends, Risks and Vulnerabilities*, No. 2 (2017).

[77] The hurdle rate is the minimum rate of return on investments required by the fund manager. In the case of alternative asset managers (hedge funds, private equity), the hurdle rate refers to the rate of return that the fund manager must exceed before collecting incentive fees.

account the strategy, return target, and the manager's resources. The use of passive investments has grown significantly in the past decade. Passive investments, or indexing, involve replicating a particular benchmark or index, rather than making active investment decisions. Management fees for passive investments are usually significantly lower than for active investments. Passive investment strategies can be an attractive solution for institutional investors to gain market exposure because of this lower fee structure.

In order to determine whether an investment organization has a reasonable basis and methodology in place for compensating external investment managers, it is important to evaluate two aspects of compensation:

1. Whether the fees are in line with the market; and

2. Whether the organization ensures that the correct fees are paid.

Although the majority of fund prospectuses outline the fees received by the investment managers, some products may have complex fee structures that may lack clarity. Separately managed accounts may have their own fees negotiated, which often include their own complexities (hurdle rates or other items). For these reasons, it is essential to understand all fees related to the investment prior to investing in a strategy.

Management fees can vary significantly by asset class. Since investment management fees can have a material impact on net investment performance, it is essential to compare both prospective and current investment managers with lower cost alternatives.

Best practice in the market is to have a high watermark if a performance fee is in place. High watermarks ensure that investment managers will not be compensated for volatile poor performance. While it is common to have these provisions in place, some managers still do not have high watermarks or only apply these when the investor meets certain conditions, such as a minimum investment amount.

Claw back provisions are often used by private equity funds. A claw back provision defines the rights of investors to reclaim a portion of the performance fee paid to the general partners (in cases where subsequent losses were observed) in order to avoid paying excess carried interest. These provisions are common and best practices among private equity managers.

It is market practice that invoices received from investment managers are reconciled and verified to ensure the fees are accurate, using either a system or spreadsheet. Once the invoice is received, organizations should review their own books of records, reconciling the total assets held with the investment manager during the relevant time period, the applied fees, and the NAV.

In order to assess the basis and methodology for the compensation of external managers, AHIC reviewed the fees paid by asset class relative to the Greenwich 2017 U.S. Institutional Market Trends survey[78] and the following documents:

- Private markets procedures;
- Public market fee procedures; and
- Private markets year-end fee procedures.

Findings and Conclusions

Evaluating the appropriate level for investment management and performance based fees can be a difficult endeavor. Items that need to be considered include:

- Asset class;
- Strategy;
- Resources of the firm;
- Expected alpha level and alpha consistency;
- Ability to implement through a low cost, passive alternative;
- Peer fees;
- Fees for similar investment strategies;
- Level of assets being invested; and
- Investment vehicle alternatives.

Table 3-6 below compares OPERS aggregate fees to the results of the Greenwich 2017 U.S. Institutional Market Trends survey, where asset classes were comparable. The table excludes the risk parity and global tactical asset allocation asset classes.

Table 3-6 Fee Comparison

OPERS vs. Greenwich 2017 U.S. Institutional Market Trends Survey							
Asset Class	OPERS Average Assets (Externally Managed)	Base Management Fee (bps)	Performance Based Fee (bps)	Total Fee	Greenwich Average Management Fee (bps)	Greenwich Performance Fee (% outperform)	OPERS Outperform 2017 (%)
Equities*	$ 17,793,946,624	40	--	40	36	--	--
Fixed Income	$ 9,368,412,674	34	--	34	26	--	--
Hedge Funds	$ 7,047,406,418	133	119	252	140	16	-0.14
Private Equity	$ 9,397,555,872	130	93	223	147	18	3.9
Real Estate	$ 7,647,059,803	78	31	109	98	--	1.5

[78] Greenwich Associates, "2017 U.S. Institutional Market Trends" (January 2018), pages 79-81.

As shown in the table above, the OPERS fees are generally in line with peers, with some asset classes being slightly higher and others being slightly lower. The public asset classes are slightly higher, while the base fee of the private asset classes are slightly lower. This could potentially be explained by the level of passive management used by OPERS relative to peers within equities and fixed income. Additionally, the inclusion of internally managed assets would likely reduce the OPERS fee in bps[79] terms. One item of note includes the hedge fund allocation, which paid a meaningful level of performance based fees during 2017, while underperforming the asset class benchmark by approximately 0.14%.

Another commonly cited survey for peer fee information is CEM Benchmarking (also referenced in 2.A.1. on page 35). OPERS has participated in annual CEM studies for more than a decade. These exercises provide detailed fee and manager expense information over time for both internally and externally managed funds. This data is compared to relevant peers of comparable size, comparable time-periods, and within the public plan universe. AHIC has reviewed these reports, and OPERS fees are generally in line with peers in that analysis as well.

Investment implementation decisions can have a material impact on the level of investment management fees. An actively managed portfolio implemented quantitatively should likely have lower fees than a fundamentally implemented portfolio. Peer surveys will not adjust for these types of factors; therefore, peer analysis has shortcomings. We believe that investment management fees should be evaluated on a case by case basis. As part of our review, OPERS provided AHIC with a hedge fund fee review performed in April of 2018. The analysis evaluated hedge fund fees over time and across strategies. It also evaluated the level of management fees and incentive fees by strategy. OPERS had not recently performed this type of analysis across the other asset classes.

Additionally, we received OPERS' internal process for negotiating fee terms with external managers, as well as their most favored nation language included in investment management agreements. We find this process and practice to be in line with peers.

Investment management fees are an area of scrutiny for public pension funds. Ongoing documented diligence (like analyses provided for the hedge fund portfolio) allows public pension plans to articulate how they evaluate fees and ensure they are appropriate and competitive. To better articulate the basis and justification for compensation of external investment managers, we believe fee reviews, like the one performed on the hedge fund portfolio, should be performed for each asset class. Performing a full investment management fee study would assist OPERS in providing a basis for the compensation of external managers. It would assist in communicating to stakeholders the underlying value proposition of each investment and why fees vary from one investment to the next.

Assessing the Fees Paid to External Managers once an Invoice Is Issued

OPERS has clearly written policies and procedures in place around external managers' fee reconciliation and payment which we consider to be in line with industry best practices.

[79] Basis point (bps) is a common unit of measure for interest rates and other percentages in finance. One basis point is equal to one-hundredth of a percentage point (.01%).

The Public Market Fee Procedures document clearly defines how management fees should be reconciled for global bonds, domestic and international equity, determining the maximum tolerance level that OPERS allows, and how payments should be made. This policy is in line with industry best practices.

The Public Markets Procedures document also outlines a number of processes that surround private market investments, including but not limited to account opening and termination, cash flow, stock distributions, market value adjustments, and management and performance fees verification.

We noted that private equity fees currently do not have a verification process due to the nature of the fee itself while real estate fees will be verified only for separate accounts. It is unclear what components of the fees are verified and how OPERS reconciles the fees with the managers. We understand that OPERS has been working closely with its managers to compile the information and disclose at a more detailed level than it has historically. We also understand the challenges with regard to clearly documenting private market fees and expenses and these challenges are not unique to OPERS. We recommend OPERS continue its work in clarifying the process for verifying real estate and private equity fees.

Recommendations

3.B.3. Perform a fee analysis on each asset class as part of ongoing oversight and as a tool in communicating to stakeholders the underlying value proposition of each investment and why fees vary from one investment to the next.

3.B.4. Clarify the process for verifying real estate and private equity fees and document how the process should be performed.

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5. Process Used to Monitor and Mitigate Professional Conflicts of Interest

(The topic is also addressed in Task Area 1.G. on pages 25 through 28.)

For purposes of this section of the report, AHIC focused on OPERS' professional conflicts of interest processes regarding related parties, segregation of duties, and employee background checks.

Background

AHIC considered whether OPERS has policies and processes in place to address the following areas related to professional conflicts of interest:

- The status of related persons working together within OPERS or employees who have relatives with external service providers;
- The segregation of duties within OPERS' organizational structure; and
- Employee background checks.

Findings and Conclusions

a. Segregation of Duties

We found that OPERS has generally established an organizational structure which segregates the roles and the responsibilities of front office staff from those in operations and control functions, with the exception of the investment risk function reporting to the CIO.

Functionally, investment risk is monitored independently from OPERS' portfolio team, in that OPERS has dedicated risk management personnel who oversee risk analysis and reporting. However, these individuals report through the investment structure, which has the potential to introduce conflicts of interest should the CIO attempt to influence risk management staff.

Traditionally, institutional investors have considered that complete segregation of investment risk management from the front office requires not only dedicated risk management personnel, but an organizational structure which preserves its segregation by having the function report outside the investment team. However, other groups consider risk management an active part of investment decision making and prefer to have investment risk personnel more closely embedded with the investment team in order to help ensure they are holistically aware of investment decisions, including the context and consideration of risk.

OPERS has an additional risk management group, reporting through the CFO, which provides a check and control to the risk management function reporting through the CIO. The second risk management group is responsible for a range of activities, including post-trade calculations and reporting to the board. This approach creates a corresponding control to the risk management group that resides within the investment reporting structure and aligns with best practices.

b. Background Checks

OPERS conducts background checks on new employees prior to hire; however, OPERS does not currently conduct them on a recurring basis unless an existing employee is moved to a new role.

Conducting background checks on a recurring basis, at least for key or select personnel, is a best practice. It would allow OPERS to identify concerns that may occur after hire. Ongoing background checks can also provide an independent check on employees' outside activities or other matters of concern that can create an actual or appearance of conflicts of interest. This practice is increasingly gaining traction among institutional investors. Additionally, some organizations have started conducting background checks prior to contract execution and renewal for key service provider personnel assigned to them.

c. Related Employees

OPERS' policy with respect to related employees is in the manual for OPERS' associates. The policy indicates that the relatives of current OPERS associates may not be considered for employment; in the event that two OPERS associates marry or enter into a domestic partnership, they may not work in the same unit or be supervised in any manner by one another. The policy also indicates that the executive director may authorize exceptions to the provisions of the policy. AHIC determined that there are currently four couples employed by OPERS that are identified as married. We noted that, as described to us, one couple appears to work in business units that may be closely related (member counseling and member assessment). OPERS indicated that it has reviewed the status of these individuals to ensure the organization is in compliance with its stated policies.

Recommendations

3.B.5. We recommend conducting recurring background checks on OPERS' employees who are designated as performing key or sensitive roles.

6. Investment Manager Selection Process

Background

Public retirement systems have traditionally invested in equities and bonds; however, in recent decades, they have diversified their portfolios to include alternative investments. Alternative investments generally include: hedge funds, private equity, and real estate. These asset classes have lower correlation to traditional asset classes and therefore have the potential to add significant value to the portfolio. Since alternative investments require specialized skills and resources, most public retirement systems add such exposure to their portfolios through external investment managers. There are, however, several funds in Peer Group A that manage alternative assets internally. In addition, many pensions also allocate portions of their traditional equity and fixed income investments to external investment managers.

Since public retirement systems often use external investment managers, having a clearly defined manager selection process is vital. The manager selection process has two components: investment due diligence (IDD) and operational due diligence (ODD). IDD is carried out to assess an external investment manager on the basis of its investment strategy, while all non-investment related aspects of the investment manager's business should be reviewed as part of the ODD process. The ODD process helps to ensure that investors are not exposed to unnecessary operational risk.

IDD should be based on both quantitative and qualitative factors. Investors should review a number of aspects to understand the investment managers' strengths and weaknesses and how the fund will add value to the overall portfolio. It is important that investors employ a robust, repeatable, and focused process to IDD, ensuring that appropriate investment managers will continue to be selected over time.

As part of the manager selection process, IDD should include, at a minimum, the following stages:

- **Establish the criteria**: It is crucial that the investment team establish clear criteria that they are looking to achieve from their allocation to an external investment manager. Factors to examine include: the required level of return, acceptable levels of investment risk, asset classes, regions, and investment styles.
- **Initial screening evaluation**: With tens of thousands of investible managers in the market, screens are an invaluable tool to focus the manager selection process. Third-party software and data providers such as Bloomberg, Thompson Reuters, eVestment Alliance, and Factset allow for the qualitative analysis and comparison of funds across a range of relevant factors.
- **Onsite meetings**: An onsite meeting, with portfolio managers, analysts, and product specialists is a key component of the IDD process. This approach allows investors the ability to look past metrics to understand how a manager's investment process supports its investing decisions and how it accounts for the resulting performance.
- **In-depth assessment**: It is a best practice for investors (in the case of a public retirement system, the staff or the investment consultant) to produce detailed IDD reports to highlight their findings and document the IDD process. Standardized reporting can help the investment team to make informed and consistent decisions as to whether to allocate to a specific manager.

As part of the IDD process, investment managers, internal and external, should be monitored on an ongoing basis in order to help ensure that outcomes are consistent with the manager's stated investment discipline and that returns are consistent with expectations. This analysis should be based not only on an historical assessment but should also incorporate a forward looking analysis.

It is also essential to evaluate the risk management capabilities, especially when non-traditional asset classes are reviewed, as their characteristics cannot always be captured by traditional risk management tools such as value at risk.

In addition to the IDD process, it is an industry best practice to have a robust ODD framework in place. The ODD function should be independent from the investment team, i.e., a different reporting line. This framework should cover both new investment managers as well as the ongoing monitoring of prior investments. As part of the manager selection process, ODD should, at a minimum, include the following stages:

- **Document and legal review:** Constitutive documents such as the prospectus, offering memorandum and application forms should be subject to legal review, preferably by an external lawyer. Other documents that should be reviewed include financial statements and due diligence questionnaires. For separately managed accounts, these investments will be governed by investment management agreements or similar documents, which will provide the investor with additional capabilities to negotiate terms directly.
- **Background checks:** It is a best practice to engage a specialist external service provider to carry out background checks on key individuals under the underlying investment manager position. This process is a key component to verifying the biographies of appropriate personnel and checking additional information such as criminal records and credit records. Background checks are often focused on pre-investment ODD and are often implemented through a risk-based approach.
- **Onsite visit:** An onsite meeting with relevant subject matter experts is a key component of the ODD process. Onsite meetings provide the opportunity to review the manager's processes and staff competencies first hand as well as to review key policy and procedure documentation. Discussions should cover (among other areas): corporate governance; the trade lifecycle; the reconciliation process; valuation policies and procedures; the compliance program; business continuity and disaster recovery plans; and information technology security.
- **Key service provider review:** Reviewing the investment manager's service providers such as administrator, the custodian(s), prime brokers, and independent directors is also critical to fully evaluate the operational risk profile of an investment manager.

Should the ODD team find aspects of the investment manager's organization or operational framework weak or below expectations, it is a best practice to either work with the manager to remediate risks or to otherwise preclude the manager (or a specific product of the manager) from becoming an investment in the portfolio.

It is an industry best practice to review investment managers on an ongoing periodic basis, depending on the complexity and risk of their organizations and investment programs. A schedule should be managed and maintained both by the IDD and ODD teams to ensure the ratings remain current.

In our review, we conducted meetings with OPERS' investment and risk management teams to understand OPERS' investment manager selection and operational due diligence framework. We also reviewed a number of documents that support the process:

- The ODD instructions;
- The ODD document request list;
- The ODD questionnaire and document request;
- The external public markets manager rating process;
- The global equity committee charter;
- The global fixed income committee charter;

- The OPERS external public market search process;
- The private equity due diligence and monitoring process;
- The real estate committee charter;
- The selection real estate manager search process flowchart; and
- The public alternatives risk framework.

Findings and Conclusions

OPERS Investment Division is divided into four groups: External Public Markets, Private Equity, Private Real Estate, and Public Alternatives.

a. External Public Markets

The external public markets manager oversight framework and external public markets manager selection procedures documents clearly outline the procedures that OPERS follows when selecting a new investment manager and its continuous oversight. The external public markets team (EPM team) is responsible for the manager selection process.

OPERS' external public market search process outlines the steps the EPM team takes prior to selecting a manager, including manager screening, evaluation of questionnaires, and preliminary manager due diligence. If the preliminary evaluation is successful, new investment manager recommendations are discussed in the OPERS Global Equity Committee (GEC) and the OPERS Global Fixed Income Committee (GFIC). If the manager is approved, ODD will be conducted by the risk management team separately and the EPM team will conduct onsite meetings with the prospective investment manager.

OPERS has a dedicated senior operational risk analyst who sits within the investment risk management team. The position is responsible for conducting operational due diligence reviews. The investment risk management team is independent from the investment department, which is in line with best practices.

The GEC is comprised of the following staff: the CIO; the deputy CIO; equity portfolio managers; and senior operational risk analyst. The GEC meets on a biweekly basis. The GFIC is comprised of the following staff: the CIO; the deputy CIO; fixed income portfolio managers; the lead portfolio manager external public markets; and senior operational risk analyst. The GFIC meets on a monthly basis. In general, the GEC is more tactical and the GFIC is more strategic, which accounts for the difference in meeting frequency.

The EPM team monitors the sub-managers' performance and has at least quarterly calls in place with each of them. The assessment of existing investment managers is based on quantitative and qualitative factors. The investment manager rating criteria is clearly defined. The team provides scores that are reported to the GEC and GFIC on a quarterly basis.

Although traditional asset classes such as equities and fixed income are less complex and more transparent than alternatives, AHIC believes that OPERS should implement an "investment manager review schedule." The schedule will ensure all external investment managers are reviewed onsite on a periodic basis, thereby allowing OPERS to update its ODD. The rotational schedule can be based upon the manager rating and perceived risk of the investment manager. Many market participants target a review period of at least every 24–36 months. OPERS' current approach is not unique, as many market participants take a risk-based approach to ongoing operational monitoring in order to optimize resource allocation to this effort. To that extent, OPERS' current approach aligns with market practice but is not a best practice.

b. Private Equity

The private equity team is responsible for assessing any new private equity managers and monitoring the existing portfolio. The document entitled "Private Equity Due Diligence and Monitoring Process" outlines the steps to be taken by the team when selecting a new manager, including: (a) initial review; (b) further review; (c) preliminary due diligence; (d) final due diligence; and (e) closing process. We found that both IDD and ODD are carried out by the private equity team. During the onsite visit, the team meets the private equity fund's senior management and the meeting lasts six to eight hours.

The OPERS Private Equity Committee is responsible for discussing and approving all new opportunities and monitoring existing managers. The OPERS Private Equity Committee is comprised of the CIO, deputy CIO, the senior portfolio manager for private alternatives, and all members of the private equity team.

OPERS engages Pavilion, an external consultant group, at the final stage to carry out its own due diligence on the proposed investment manager. In the event the private equity team disagrees with Pavilion's decision, ultimate approval resides with OPERS and the Private Equity Committee. The monitoring activities of private equity managers include cash flow management, quarterly reviews of performance, and semiannual or annual onsite reviews (depending on whether the fund is within or past its legal term). We noted that OPERS routinely secures a seat at the fund's limited partner advisory board, which is in line with market best practices.

We noted during the review that the ODD process is embedded within the IDD process and conducted by the investment team for private market products, including private equity. While OPERS' approach generally aligns with market practice, AHIC finds that best practice would be to separate the ODD process from the IDD process for all asset classes, including private market investments. OPERS has indicated that its private equity due diligence consultant already includes ODD in its process and may (for a fee) perform more detailed ODD if assigned a due diligence mandate.

To be in line with best practices, the risk management team should perform the ODD process independent of the investment team. In general, we find that ODD expertise is more portable than IDD expertise, so OPERS should not have to develop or hire dedicated private markets ODD experts to facilitate such a program. OPERS could also engage its external consultant to conduct detailed ODD for each mandate.

c. Private Real Estate

The real estate team is responsible for assessing new managers and monitoring the existing portfolio. The selection process is similar to the private equity manager selection process and consists of the following steps: meeting with the manager at OPERS; preliminary due diligence; onsite due diligence; legal due diligence; reference checks; and a final due diligence report. We noted during the review that both IDD and ODD are carried out by the real estate team.

Similar to private equity, OPERS seeks to have a seat at the fund's limited partner advisory board, which is in line with industry best practices. The OPERS Real Estate Committee is responsible for selecting and monitoring external real estate managers. It is comprised of the CIO, deputy CIO, the senior portfolio manager for private alternatives, and all real estate staff.

The real estate team requests external valuations at least on a yearly basis for both segregated accounts and open ended funds. We noted that in case of closed end funds, OPERS requires the valuation process be approved by an external auditor.

An external consultant is not utilized for the real estate portfolio. Based on the size and current limited complexity of OPERS' real estate program, we consider OPERS' internal staffing to be appropriate. However, we do find that most public retirement systems do have an external consultant for their real estate programs. If OPERS would choose to supplement its internal expertise through an external consultant, the scope of services could be designed based on need, as OPERS would likely not require a full service real estate consultant.

We noted during the review that the ODD process is embedded within the IDD process and conducted by the investment team for private market products, including real estate. While OPERS' approach for real estate generally aligns with market common practice, AHIC notes that the best practice would be to separate the ODD process from the IDD process for all asset classes, including real estate investments. Further, to be in line with best practices, the risk management team should perform the ODD process independent of the investment team. As noted earlier, in general, we find that ODD expertise is more portable than IDD expertise, so OPERS should not have to develop or hire dedicated private markets ODD experts to facilitate such a program.

d. Public Alternatives

OPERS' public alternatives risk framework, hiring, and monitoring document outlines the framework for hedge funds, risk parity, and global tactical asset allocation strategies. The public alternatives team is responsible for manager selection, including researching and recommending investment managers to the OPERS Public Markets Alternatives Committee (PMAC). All investments and allocation changes have to be approved by the PMAC.

OPERS engages Aksia, an external consultant, to provide a recommended list of investment managers within this asset class. Aksia rates the funds for both IDD and ODD. Aksia has a global footprint, focusing on hedge funds, private credit, and opportunistic funds. The firm is independent, has relevant expertise, and capabilities to provide support to OPERS.

The public alternatives team undertakes a number of stages of review on all investment managers, including introductory calls, a meeting at OPERS, preliminary due diligence, onsite interviews, and final due diligence reviews. OPERS also conducts ODD on the funds, which is the responsibility of the risk management team (similar to the external public markets process). The staff of the public alternatives team conducts calls with investment managers on a quarterly basis to review performance, positions, and organizational changes. The external consultant also assists in the monitoring and provides feedback to OPERS.

The staff of the public alternatives team quarterly scores funds on a qualitative and quantitative basis. The manager rating criteria framework is outlined in the public alternatives risk framework document.

We find OPERS' IDD process broadly aligns with industry best practices. Each Investment team (external public markets, private equity, private real estate, and public alternatives) is responsible for the research and selection of external investment managers, utilizing specific knowledge and skills to select appropriate investment managers for the respective portfolios. Each asset class has its own approval committee involved throughout the process, helping to ensure a collaborative and consistent selection process. In addition, OPERS engages specialty external consultants to supplement its knowledge and functional work in areas where it may not have internal resources or expertise. Committee approval is required before investing in any external investment manager, and the CIO must be present at such meetings.

Recommendations

External Public Markets

3.B.6. We recommend that OPERS implement an investment manager review schedule to ensure all external managers for its external public markets program are reviewed onsite on a periodic basis to update its ODD.

Private Market Products

3.B.7. We recommend OPERS' risk management team perform the ODD process independently of the investment team for its private market program. ODD expertise is more portable than IDD expertise. Consequently, OPERS should not have to develop or hire dedicated private markets ODD experts to facilitate the program. As an alternative, we recommend OPERS engage its external consultant to conduct detailed ODD for each mandate.

Public Alternatives

None.

C. Investment and Fiduciary Risk

1. Board Awareness of Risk Associated with the Asset Allocation

Background

As previously noted, asset allocation is widely considered to be the most important decision in the investment process. Investment governance, including the decision making responsibilities and oversight activities, is the structure which ensures that assets are invested to achieve the asset owners' investment objectives within the risk tolerance and in compliance with all applicable laws and regulations.

One of the important factors that ensures the effective investment governance is the reporting framework. A well-maintained reporting framework within a successful investment organization should address the decision makers' level of understanding of risks and returns that are associated with asset allocation policies and procedures.

Considerations in regard to promoting and ensuring awareness of risks associated with asset allocation include the following:

- The board should review asset allocation on an annual basis and seek to understand the risk/return profile of the investment program;
- The board should perform an asset liability study every three to five years (or when circumstances change) to understand the relationship between investment risk, funded status volatility, and liquidity;
- The board should seek external advice from consultants at an appropriate frequency to supplement the expertise of internal staff and that of board members;
- The board should participate in regular meetings that include content related to asset allocation (generally three to six months);
- Reporting from relevant employees within OPERS (such as investment and risk staff) should be distributed at an appropriate frequency and should be consistent from period to period;
- The board should also review macroeconomic reports; and
- Ideally, some members of the board should be individuals who have an investment background.

To ensure that the OPERS Board has an appropriate level of understanding of the risks that are associated with its asset allocation, AHIC has reviewed the following documents and conducted a number of interviews with investment staff. Documents reviewed include the following:

- Investment Plan Update (for the period ending September 30, 2017);
- AHIC's "Governance and Oversight" questionnaire (due diligence questionnaire for governance and oversight);
- New Trustee Orientation (investment section);
- Various board policies and guidelines governing investment activities; and
- NEPC reports to the board (e.g., Q3 2017 Investment Performance Review and the Strategic Asset Allocation Review).

Findings and Conclusions

The process to determine investment strategy and memorialize that strategy in the investment policy is outlined in Section A.1. of this task area on pages 54 through 57. The board establishes and modifies asset allocation targets and ranges based on the advice and recommendations of the board's consultants and investment staff.

The policy document provides a summary of the roles and responsibilities of the key parties involved in the investment program. According to the policy document, the board sets target allocations to various asset classes that are designed to meet OPERS' long-term investment objectives and establishes ranges of allocations.

The board's responsibilities regarding the asset allocation include the following:

- Establishing and modifying asset allocation targets;
- Establishing and modifying asset allocation; and
- Approving asset class policies.

The board reviews asset allocation targets and ranges annually. It also undertakes comprehensive strategic asset allocation reviews every three to five years to assess the appropriateness of the policy. In addition, internal investment staff provides the board with monthly performance reporting, and the board receives quarterly updates from an outside consultant (NEPC) regarding risk and return analysis for each plan, asset class, and fund.

Currently, we observe that the deputy CIO's day-to-day responsibilities are more tactical investment activities while the CIO's role, as a member of OPERS leadership team, is more actively involved in board level interaction. We find that this type of management approach is frequently implemented. The current CIO has announced that he will retire in June and the deputy CIO will become OPERS' new CIO. Consequently, the deputy CIO has started to be included in leadership team activities, which we believe to be a prudent approach and consistent with good succession planning.

Some public fund peers identify active risk parameters for the board. This process facilitates the board's understanding and ability to determine how these active risk parameters influence the risk management process; however, the board should not necessarily explicitly budget active risk parameters. Rather, OPERS' staff should have the discretion to monitor, evaluate, and implement active risk decisions in response to market opportunities or challenges.

We were informed that new board members receive training related to risks and returns that are associated with the asset allocation from both internal investment staff and outside consultants.

While the policy document and NEPC's Quarterly Market and Fund Performance Review do not discuss the risks associated with asset allocation, the annual investment plan (addressed in Section A.3. of this task area on pages 58 through 67) contains forecasted total risk distribution, active risk with minimum and maximum ranges for each asset class, and an investment plan. The new board member orientation materials also cover asset allocation modeling and basic risk allocations. NEPC's strategic asset allocation review report (addressed in Section A.3. of this task area on pages 58 through 67) to the board also includes information related to the total fund risk/return relationship.

Overall, the process for educating the OPERS Board on asset allocation and the quality of information provided by staff and the outside consultants appears thorough and comprehensive.

As the board is critical to the operations and oversight of an organization, its awareness of risk offers a unique opportunity for its members to interact with and influence internal investment staff and outside consultants. The global financial crisis has sparked an active dialogue about the involvement of the board with respect to strategic risks and operational decisions. Building a risk intelligent board with strong investment and risk related information will be a critical element of a successful board. Board composition should be considered to ensure that members with strong investment backgrounds are included in order to help elevate the board's capabilities in this regard.

Recommendations

None

2. Investment Risk Factors

Background

Investing the plan's assets to achieve the return needed to fund member benefits involves assuming a certain level of investment risk. Without taking planned and appropriate risks, the volatility of the cost of plan benefits could increase, jeopardizing the sustainability of the plan. To address the appropriate level of risks that are assumed by OPERS' plans, board policies clearly define the board's roles and responsibilities regarding risk control and administration.

To assess the adequacy of OPERS' risk analysis and controls, AHIC has conducted interviews with a range of investment staff and has reviewed the following documents:

- The document entitled "OPERS Board Policies Governing Investment Activities";
- The OPERS 2016 Comprehensive Annual Financial Report (CAFR);
- The quarterly investment risk dashboard review;
- Risk analytics dashboard highlights and observations;
- Periodic compliance report;
- Quarterly alternative investment update;
- Investment risk inventory and framework; and
- Risk system reconciliation procedure.

AHIC has also considered OPERS' internal audit reviews and the implementation of its testing program.

Findings and Conclusions

As noted previously, asset allocation is the primary driver of risk within an investment program. Task Area 3.A.3. on pages 58 through 67, evaluates the process used to determine asset allocation. In addition to the asset allocation and asset liability work performed, the board receives a risk analytics dashboard to assist in the further evaluation of risk.

The investment accounting and compliance department reports the investment risk analytics dashboard monthly to both the OPERS Board and the OPERS Investment Committee. This board report contains a broad range of risk statistics (such as tracking error, standard deviation, Sharpe ratio, and information ratio) as well as stress tests, value at risk information, and contribution and concentration to risk statistics by asset classes, sector, and country. It also includes counterparty exposure and financial market stress indicators.

The above risk-related analyses were performed and reported for the DB Fund and the HC 115 Fund.

Stress testing includes two scenarios, with the first scenario being less severe and the second being a more severe simulation of risk conditions. A scenario two stress test includes the following: a) 10% decline in global equity; b) flattening of the yield curve/global credit spread of 100 bps; c) 10% decline in commodity prices; and d) 20% increase in volatility. The investment accounting and compliance department report to the board also includes the Federal Reserve's Financial Stress Index and the Chicago Board of Options Exchange's Volatility Index for reference.

A periodic investment compliance report is prepared to update the OPERS Board and the OPERS Enterprise Risk Management Committee (ERM Committee) on recent compliance activities. The investment compliance department periodically presents the OPERS Board and ERM Committee with an overview of its activities, including highlights regarding compliance trends and areas of interest or focus for the department. These reports are:

- A report on the results of compliance monitoring regarding investment policies and portfolio guidelines, violation incidents with brief cause analysis and mitigation results, and any changes in portfolio guidelines;
- A monthly report is prepared for policy and guideline exceptions;
- A quarterly report is prepared for portfolio guideline additions and changes;
- A semi-annual report for Iran-Sudan and reporting for the U.S. Office of Foreign Assets Control; and
- An annual report is prepared for insurance, material non-public information, personal trading, and contractor policies and procedures.

The investment accounting and compliance department establishes comprehensive and detailed policies and procedures for various risk factors along with detailed mitigation manuals.

Alternative investment portfolios, which include private equity, real estate, and hedge funds, have a separate outside consultant that provides the board with periodic updates and advice on risk.

OPERS has established a target allocation and implemented a formal policy for each asset class that contains asset class objectives and risk controls. In general, we find that OPERS' investment risks are well monitored and its reporting process aligns closely with best practices. The same policies state that the OPERS Investment Committee is responsible for reviewing the policies and recommending changes to the board for its approval. The board is responsible for ensuring adequate investment policies, risk controls, and compliance. To accomplish this, the board reviews the various risk reports and takes appropriate action if needed.

OPERS' current stress testing scenario conditions (global equity price, yield curve shape, commodity price, etc.) are not driving forces or risk sources of deteriorated markets. They are outcomes of the market. In addition, OPERS' stress tests incorporate two scenarios. Scenario one for less deteriorated markets and scenario two for more deteriorated markets.

The current stress test conditions used by OPERS (equity price level, composite level, etc.) are generally the results of adverse market conditions rather than the drivers of the market conditions. We believe that OPERS' stress testing conditions could be enhanced by incorporating more fundamental macroeconomic variables. Such variables would include the following drivers of market conditions: nominal and real gross domestic product; unemployment rate; treasury rates; and BBB[80] corporate yield, among other macro-economic factors. Additionally, changing the two scenario model to a three scenario model (baseline, adverse, and severely adverse) could allow for additional insight into how the portfolio behaves in adverse market conditions.

OPERS' investment compliance monitoring and review process is generally above market practice. To enhance the capability of OPERS' staff and the compliance monitoring framework that is already implemented, we recommend separating the investment compliance function from the investment accounting and compliance department. Additionally, we recommend OPERS establish an independent functional group that reports elsewhere in the organization, such as to the general counsel. Compliance functions primarily as a check to the front office or investment teams; however, it is also a check to operational functions. Just as investment personnel may make mistakes or have conflicts of interest, so might operations personnel. Further, separating the compliance function from both investment and operations personnel may help to preserve the independence of the compliance role. To mitigate this risk, OPERS maintains a robust internal audit team.

Recommendations

3.C.1. We recommend that OPERS change its two scenario stress test model to a three scenario model that includes baseline, adverse, and severely adverse scenarios.

3.C.2. We recommend that OPERS separate its investment compliance function from the investment accounting and compliance department and establish an independent functional group that reports elsewhere in the organization, such as to the general counsel or executive director.

D. Custody Policy

1. Ability to Oversee Custodial Functions in Light of Current Relationship and Adequacy of Custodian's Breadth of Services Given OPERS Needs

Background

Virtually all U.S. public retirement systems have exclusive authority and control, and thus oversight, over their custodian bank(s). There were limited exceptions to this general rule; however, currently we are aware of only two states where the public retirement system does not control the custodial relationship: Ohio and Pennsylvania.

[80] BBB is the last tier of investment grade rating from the Standard & Poor's rating tiers.

Traditional custody services consist of asset servicing activities across a wide range of transaction, accounting, reconciliation, and securities movement processes. Historically, this process was heavily paper based and required a significant amount of manual interaction. Through the industry's dematerialization of securities and technological advancement, these basic services have become increasingly automated among the industry's leading custodians.

Custodians have grown their service offerings over the years to include value-added services such as cash sweep, foreign exchange, securities lending, and advanced analytics to support their clients' investment functions. It is within these value-added services that larger custodian banks stand apart from the smaller domestic custodians.

To evaluate the effectiveness of the various custodian banks and securities lending agents utilized by the TOS and OPERS, we reviewed the current custody service arrangements with Fifth Third, JP Morgan and BNY Mellon (serving as the master recordkeeper). The key areas of focus include the breadth of services provided by each custodian and each custodian's ability to address OPERS' needs, such as: structure and focus of the custodians, technology, cash management, and auxiliary services (foreign exchange, securities lending, and advanced investment analytics).

In order to review the current service model, we leveraged information from the documents that were provided by OPERS and the TOS, which included:

- Fee invoices;
- Service level descriptions; and
- Custody agreements.

We also obtained information from interviews with OPERS and the TOS staff, interviews with the current custodian service providers, and from publicly available information such as OPERS' CAFR and pension system websites.

Findings and Conclusions

In this report, where appropriate, we have provided comparisons of the current providers along with a peer custodian data point. The peer custodian data represents industry best practices for funds the size of OPERS. The peer custodian information is representative of Northern Trust and State Street, as well as OPERS' vendors BNY Mellon and JP Morgan. The custodians that make up the peer group are the service providers commonly used by large public fund systems.

a. Current Service Model

Under the current model, the TOS and OPERS are collectively receiving all the services needed from the providers, but this arrangement is inefficient and not in line with peer public funds.

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Table 3-7 Comparison of Service Models

Current Service Model	Fifth Third	JP Morgan	BNY Mellon	3rd party
Domestic custody	Yes	Yes*	Yes *(in shadow capacity to Fifth Third)*	
Global custody	No	Yes	Yes (*in shadow capacity to JP Morgan)*	State Street**
Master recordkeeper	No	No	Yes	-
Fund accounting (401a)	No	No	Yes	-
Foreign exchange	No	Yes, mostly restricted markets	No	Varies based on OPERS discretion
Short-term investment fund for cash sweep	Yes	No	No	3 used for domestic: custom Ohio fund, and funds from Morgan Stanley & Goldman Sachs
Securities lending	No	No	No	eSecLending & Key Bank
Investment performance	No	No	Yes	-
Investment compliance	No	No	Yes	Supplements six other specialized systems
Investment risk reporting	No	No	Yes	-
GASB Statement 72	Uses leveling information but does not use market value	Uses leveling information but does not use market value	Source of market values used for reconciliation with OPERS	-

** JP Morgan also provides custody for U.S. assets and cash held in any account that also hold non-domestic assets.*
*** State Street is currently the custodian for pledged collateral for derivative contracts due to a contractual disagreement with JP Morgan in 2013. JP Morgan agreed to reimburse OPERS for the custody costs charged by State Street.*

As shown in Table 3-7, the delivery of services required by OPERS is currently split across several custodian vendors. The TOS and OPERS have been able to make this arrangement function; however, the limitations and complexities of this arrangement require a higher level of risk and greater oversight.

Common and industry best practices are for an entity, whether public or corporate, to utilize a single custodian for all of the services outlined in Table 3-7. Due to the multiple custodians (Fifth Third and JP Morgan) for OPERS, a recordkeeper (BNY Mellon) is required to combine all of the accounting data into one source. Additionally, the recordkeeper relationship reduces the impact on OPERS that results from the relatively frequent custodian changes.

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b. Service Capabilities of Current Banks

We found that each custodian bank is suited to perform the distinct roles they are currently hired to fulfill. Table 3-8 below indicates the custodians' overall service capabilities and the utilization of third parties where applicable.

Table 3-8 Comparison of Custodian Capabilities

Custodian Capability	Fifth Third	JP Morgan	BNY Mellon	Peer Custodians[81]
Domestic custody	Yes	Yes	Yes	Yes
Global custody	Subcontracts with BNY Mellon	Yes	Yes	Yes
Master recordkeeper	Not available	Yes	Yes	Yes
Fund accounting (401a)	Subcontract with Empower	Yes	Yes	Yes
Foreign exchange	Yes	Yes	Yes	Yes
Short-term investment fund for cash sweep	No, 3rd party	Yes	Yes	Yes
Securities lending	Subcontracts with eSecLending	Yes	Yes	Yes
Investment performance	Subcontracts with Clearwater	Yes	Yes	Yes
Investment compliance	Subcontracts with Clearwater	Yes	Yes	Yes
Investment risk reporting	Subcontracts with Clearwater	Yes	Yes	Yes

JP Morgan, BNY Mellon, and other "top tier" custodians are capable of consolidating and delivering all the custody services required by OPERS. Given current Ohio laws, aggregating these services is prohibited from being considered.

c. Data Reliance

An essential component for a successful custody bank relationship is the client-facing reporting system. Under the current structure, OPERS and the TOS rely on multiple custodians based on the specific daily and periodic data that is required. The reliance on multiple providers can be cumbersome, risky, and inefficient. This is why the industry best practice is to rely on a single custodian.

Table 3-9 presents details on key data points currently required by OPERS and the TOS. It also indicates which vendor is relied upon for each specific deliverable.

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[81] "Peer Custodians" information is representative of Northern Trust, State Street, BNY Mellon and JP Morgan.

Table 3-9 Comparison of Key Data and Reporting Needed

Data/Reporting Needed	Fifth Third	JP Morgan	BNY Mellon	Peer Custodians
Daily domestic transactions	Yes	Yes*	Yes**	1 Custodian
Daily non-domestic transactions	No	Yes	Yes**	1 Custodian
Daily consolidated transactions	No	No	Yes	1 Custodian
Daily domestic holdings	Yes	Yes*	Yes**	1 Custodian
Daily non-domestic holdings	No	Yes	Yes**	1 Custodian
Daily consolidated holdings	No	No	Yes	1 Custodian
Domestic cash	Yes	Yes*	No	1 Custodian
Non-domestic cash	No	Yes	No	1 Custodian
Daily consolidated cash	No	No	Yes	1 Custodian
Monthly statements	Yes	Yes	No	1 Custodian
Annual statements	No	No	Yes	1 Custodian
GASB Statement 72 Reporting	Yes***	Yes***	Yes***	1 Custodian
Performance reporting	No	No	Yes	1 Custodian
Risk reporting	No	No	Yes	1 Custodian, w/ 3rd party and supplement(s) as needed
Investment compliance	No	No	Yes	1 Custodian, w/ 3rd party and supplement(s) as needed

**JP Morgan also provides custody for U.S. assets and cash held in any account that also hold non-domestic assets.*
*** Available but not used as the primary source of information.*
****GASB 72 leveling information is gathered from Fifth Third and JP Morgan, while BNY Mellon's market values are used by OPERS as the source for pricing reconciliation.*

BNY Mellon, as master recordkeeper, delivers the majority of the accounting information needed by OPERS on a daily and monthly basis. Fifth Third and JP Morgan are relied upon for their cash and transaction reporting. The majority of their custodial capabilities are not utilized. In practice, redundant work is being performed across the three custodians.

When compared to peer public funds and industry best practices, this structure is highly atypical. Other peer public funds utilize a single custodian as the consolidated source for reporting. The current arrangement is the result of the TOS's and OPERS' best efforts to function under the requirements of R.C. 135.03.

d. Custodian Profiles

When considering the suitability of custody providers, best practices include reviewing each bank's core lines of business, revenue generation, staffing, and reinvestment into the trust/custody business in order to gain insight into the strength of the organization, as well as other factors that may influence the stability of the organization's custody business.

Organizations that derive a significant portion of their revenues from the custody business line are likely to make the necessary investments to continue automation and technology improvements.

Table 3-10 Comparison of Custodian Profiles

Corporate Profile	Fifth Third	JP Morgan	BNY Mellon	Peer Custodians
% of revenue from custody	<1%	4%	74%	65–85%
% of staff dedicated to custody	1%	6%	60%	50+%

As shown in Table 3-10, BNY Mellon and the peer custodians demonstrate a significant percentage of both their staff and revenue that are attributable to the custody and institutional investment services business. This indicates a greater level of stability due to the banks' overall reliance on this business line for their total revenue and allows the bank to continually develop the business unit. JP Morgan and Fifth Third are both retail banks with large vertical service offerings. As a result, the staffing and revenue attributable to custody are diluted by their other lines of business.

e. Custodian Client Base

When a custodian has a large book of complex clients, it allows the custodian to benefit from economies of scale and function more efficiently than firms that have smaller clients. Furthermore, banks with larger custody businesses accrue more experience and tend to maintain state-of-the-art operations, which is important as the custody business has become an increasingly technology-driven business.

In addition to the total market value of custody assets, when assessing suitability, it is equally important to consider the typical size of the custodian's clients. In our experience, clients should be similar in size to a provider's existing relationships, as large clients with complex needs require a certain level of technology and expertise.

Table 3-11 Comparison of Total Custody Client Base

Total Custody Client Base	Fifth Third	JP Morgan	BNY Mellon	Peer Custodians
Total # of institutional custody clients	1,990	989	4,300	2,200+
$MV of institutional custody clients	$0.30T	$13.2T	$21.3T	$15.0T+
Average size of institutional custody client	$0.15B	$14.1B	$5.0B	$6.8B+

BNY Mellon, JP Morgan, and the other peer custodians are among the world's largest custodians, with significant assets under custody. Fifth Third, like other smaller domestic custodians, has a comparable number of institutional custody clients; however, the average client size ($150 million) is considerably smaller. Of note, without the OPERS assets included, Fifth Third's total custody assets are roughly 33% lower ($0.20 trillion) and the average client size drops to $100 million.

Table 3-12 provides a further comparison of each custodian's clients based on the clients' market value.

Table 3-12 Comparison of Custodians U.S. Clients by Size

U.S. Clients By Size	Fifth Third	JP Morgan	BNY Mellon	Peer Custodians
U.S. clients w/assets under $500M	98%	54%	42%	40–55%
U.S. clients w/assets between $500M and $1B	1%	8%	13%	5–15%
U.S. clients w/assets above $1B	1%	37%	45%	35–50%

JP Morgan, BNY Mellon, and the other peer custodians are focused on servicing large clients with complex needs and continue to build out the tools and automation needed to service these needs. Regional banks, such as Fifth Third, are traditionally focused on custody clients with under $500 million in assets and have developed capable custody solutions for clients with basic custody needs.

f. Experience with Public Funds

A custody provider should have sufficient expertise with a particular client type and size to be able to meet their specialized needs. Table 3-13 compares the public fund client base at each of the custodians.

Table 3-13 Comparison of Custodians Public Fund Client Base

Public Fund Client Base	Fifth Third	JP Morgan	BNY Mellon	Peer Custodians
Total number of public funds	148	122	168	240
Market value of public fund clients	$0.19T	$1.45T	$1.65T	$1.50T
Average size of public fund client	$1.3B	$11.9B	$9.8B	$6.3B
Public funds as a % of total number of custody clients	7.4%	12.3%	3.9%	10.9%
Public fund assets as a % of total custody assets	62.6%	10.4%	7.7%	10.0%

All of the custodians, as well as the peer custodians, have a significant number of public fund custody clients, demonstrating a broad exposure to the market segment. Fifth Third's public fund assets make up 62.6% of their custody assets. However, excluding OPERS assets, Fifth Third's total public fund custody assets are almost 50% lower ($0.10 trillion) and the average public fund client size becomes $646 million.

g. Experience with Defined Contribution Plans

A custody provider should also have expertise with similar plan types. This is especially true for plans with unique requirements, such as defined contribution (DC) plans. Table 3-14 compares the DC client base at each of the custodians and for the peer custodians.

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Table 3-14 Comparison of Custodians Defined Contribution Client Base

Defined Contribution (DC) Client Base	Fifth Third	JP Morgan	BNY Mellon	Peer Custodians
Total # of DC clients	N/A	13	60	100+
$MV of DC clients	N/A	$467B	$320B	$500B+
Average size of DC client	N/A	$35.9B	$5.3B	$5.0B
DC clients as % of total # of custody clients	N/A	1.3%	1.4%	5%
DC assets as % of total custody assets	N/A	3.4%	1.5%	5%

The requirements of DC plans require custodians to invest heavily in operational structure and technology to meet the needs of these plans. Daily valued assets, typically needed by a DC plan, require meticulous operational structures, a large client base to benefit from scale, and straight through processing. Fifth Third has several DC clients; however, these clients are serviced through an outsourced arrangement with Empower.

h. Technology

Institutional custody is primarily a technology-based business that coincides with human capital. Custodians' delivery of data between systems should be automated and fully integrated to increase straight-through processing, minimizing the potential for errors. Transactions from the portfolio management system should go simultaneously to the accounting system, removing manual activity and reducing risk.

Considering that the custody business is an increasingly technology-oriented business, technology spending and budgets are an indication of the custodians' commitment to the business and their ability to continue to provide superior service to remain competitive in the marketplace. As noted previously in this section of the report, organizations that derive a significant portion of their revenues from the custody business line are likely to make the necessary investments to continue automation and technology improvements.

In Table 3-15, we examine several aspects of the technology for each of the banks used to deliver services to OPERS and compared it to the technology used by the peer custodians.

Table 3-15 Comparison of Technology Investment by Custodians

Technology Investment	Fifth Third	JP Morgan	BNY Mellon	Peer Custodians
2017 technology spend	$132M	$9,500M	$680M	$600M
2017 technology spend on custody	$11M	$630M	$680M	$600M
Three-year future custody tech budget ('18-'20)	$33 M	$1,890M	$1,800M	$2,000M
Number of staff dedicated to custody technology	49 individuals + contract staffing	2,899	2,900	2,750-3,000

BNY Mellon, JP Morgan, and the peer custodians have internally-developed custody systems that are supported by a large team of technology staff worldwide. This gives them the ability to maintain and enhance their systems periodically as the needs of the business demand. Their system infrastructure and technology spend on custody far exceed those of the other "domestic" bank options available to OPERS.

i. Cash and Foreign Exchange

Cash Movement**:** In practice, the TOS' role as custodian is primarily related to authorizing cash movements in support of OPERS' investments. This arrangement is not in line with industry best practices and there is no tangible benefit derived from the TOS fulfilling these responsibilities. In our experience, these functions would most efficiently be performed within OPERS.

Within the current responsibilities, OPERS monitors the cash throughout the day in support of their investment functions, creating cash movement requests that are routed to the TOS for approval. The TOS' primary daily interactions with the custodians are to monitor and approve the requests for cash movement by OPERS. All wires and cash movements flow through the TOS for futures, limited partnerships, and free deliveries of securities as collateral. Any transactions that are delivery versus payment would not involve the TOS.

Cash movements are performed either through standing instructions or via manual processes with Fifth Third and JP Morgan. Manual processing of cash movements is a suboptimal approach as it can lead to a higher chance of error and a delay in cash movement. Across the industry, peer clients utilize the custodians' online cash movement technology to automate the process and reduce risk. The TOS has stated that they would like to be able to use the cash movement technology of the custodians. But, the domestic custodian does not currently have the capabilities to offer online entry for wire initiations.

Table 3-16 examines and compares the cash movement capabilities for each custodian and the peer custodians.

Table 3-16 Comparison of Custodians Cash Movement

Cash Movement	Fifth Third	JP Morgan	BNY Mellon	Peer Custodians
Online cash movement tool (moving cash between OPERS custody accounts)	Yes	Yes	Yes	Yes
Online cash movement to external vendors	No	Yes	Yes	Yes
Supports multiple approvers and signers	N/A	Yes	Yes	Yes
Approver and signer within different entities	N/A	Yes	Yes	Yes

Fifth Third, like most of the other domestic custodian options, can only accept direction for wires and trades via fax or email. BNY Mellon, JP Morgan, and the other peer custodians offer secure online cash movement capabilities via their online system. This capability provides for the assignment of multiple user roles, including "initiator" and "approver." There is also the option to set up multiple approvers for a single transaction and the ability for the creator and approver to be from two separate entities.

Cash Reporting: AHIC reviewed the current and projected cash reporting available from the custodians, as the quality of this information can impact the daily management of cash.

Table 3-17 Comparison of Cash Forecasting by Custodians

Cash Forecasting	Fifth Third	JP Morgan	BNY Mellon	Peer Custodians
Cash forecasting reports	Yes	Yes	Yes	Yes
# of days projected	5 days	14 days	180 days	90+ days
Availability of cash forecasting reports	4 times daily	Near real-time	Near real-time	Near real-time
Online ad-hoc cash forecasting report tool	Yes	Yes	Yes	Yes

All the custodians provide satisfactory cash reporting. However, the larger global custodian banks offer more advanced reporting solutions with a more frequent refresh of cash position details and an extended horizon for cash forecast reporting.

Cash Sweep**:** OPERS is currently using three different funds (Morgan Stanley, Goldman Sachs, and an OPERS customized short-term investment fund) for the overnight investment of idle cash. JP Morgan also holds small amounts of U.S. cash in the accounts that they custody, and this cash is swept into JP Morgan's overnight sweep vehicle. The decision on which cash sweep vehicle to use is primarily an investment decision. However, custodians frequently consider revenue that is derived from cash sweep as part of their overall service offering when proposing custody fees. The inclusion or exclusion of short-term investment income can have a direct impact on proposed fee levels.

Foreign Exchange: JP Morgan is currently performing the foreign exchange activity for all assets in restricted markets, and OPERS has discretion over directing the foreign exchange activity for the freely convertible currencies.

j. Securities Lending

OPERS does not utilize the custodians to serve as the securities lending agent. Instead, OPERS utilizes two third-party lending agents, eSecLending and Key Bank. OPERS is also managing their own cash collateral. Upon review of the investment guidelines of this fund, we found increased credit and duration risk when compared to the type of 2a-7 prime fund[82] that is typically used for the reinvestment of securities lending cash collateral.

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[82] Money market funds are a type of mutual fund registered under the Investment Company Act of 1940 and regulated under rule 2a-7 of the Act. Money market funds pay dividends that reflect prevailing short-term interest rates, are redeemable on demand, and, unlike other investment companies, seek to maintain a stable NAV, typically $1.00. This combination of principal stability, liquidity and payment of short-term yields has made money market funds popular cash management vehicles for both retail and institutional investors. There are many kinds of money market funds, including ones that invest primarily in government securities, tax-exempt municipal securities, or corporate debt securities. Money market funds that primarily invest in corporate debt securities are referred to as prime funds.

Table 3-18 Collateral Re-Investment

Collateral Re-investment Guidelines	Traditional 2a-7 Type Fund for Reinvestment	OPERS Securities Lending Collateral Fund
No maturity greater than	397 days	Maximum of 25% invested in instruments with average life longer than two years
Weighted average life not to exceed	120 days	
Weighted average maturity not to exceed	60 days	90 days
Issuer concentration	Maximum of 5%	Maximum of 5%
% of total assets in illiquid securities	Maximum of 5%	NA
% of total assets that must be daily liquid	Minimum 10%	Minimum 10%

The investment of cash collateral, and the policies around credit risk and duration, are an investment decision. So, the appropriateness of this fund profile should be based on OPERS' risk profile.

OPERS has also taken on the responsibility of lending a portion of the mortgage-backed assets. The role is split with Key Bank. This arrangement is uncommon within the industry. OPERS' peers, with the exception of the Pennsylvania Public School Employees' Retirement System, leverage their current custodian for securities lending. As a result, peers do not take the risk and infrastructure requirements in-house in order to lend securities.

AHIC does not typically recommend third-party lending due to increased expenses. These expenses include trading costs, administration fees of the program, and, generally, the marginal upside in net revenue. Prior to the increase in automation within the custodial industry, it was more common to have the custodian also act as lending agent. Automation has advanced since the late 2000s, and since it is common to have near real-time connectivity among firms, we have seen an increase in third-party lending agents being utilized. Some clients have decided to avoid the concentration risk associated with having a single entity for both services. However, most peer clients still prefer a common custodian and lending agent. This simplifies the relationship by only having a single entity to oversee in managing both custody and securities lending.

The decision to use third-party securities lending agents is primarily an investment decision. The decision is driven by the agents' ability to support the client's lending and reinvestment guidelines. Potential revenue from lending can have a material impact on the custody fees proposed by the banks, frequently sending direct custody fees well below standard market rates.

k. Value-Added Services

Included in the master recordkeeper contract with BNY Mellon, OPERS is receiving additional value-added services. These services include investment performance, risk analytics, and investment compliance monitoring. OPERS is following the industry best practice by using the custodian that holds their consolidated accounting book of record (BNY Mellon) for these services. While there are variances between the service levels of the larger custodians (JP

Morgan, BNY Mellon, and the peer custodians), each can deliver the services through enhanced in-house solutions.

Fifth Third offers an outsourced solution for their clients that require these services, Clearwater. Similarly, other “domestic” bank options available to OPERS under R.C.135.03 use outsourced advanced analytics to create a basic service proposition for these services. These are also frequently provided through Clearwater.

I. Overall Adequacy of the Custodians’ Breadth of Services

Based upon our review of the current custody arrangement, and as compared against the custody model utilized by peer public fund systems, we have found that OPERS is currently functioning materially lower than their potential operating efficiency.

The current custodial arrangement is a result of the best efforts from both the TOS and OPERS to operate under the current legal requirements. However, the structure hinders efficiency and introduces risk with too many sources of information, redundant work, and reconciliations.

Currently, given the requirements of R.C.135.03, there is only one eligible bank that is capable of supporting the consolidated custody model. This results in a non-competitive environment. To facilitate the optimization of the custodian operating model, AHIC recommends amending the law requiring an in-state bank to allow the inclusion of out of state global custodians that are capable of providing all the services required by OPERS.

2. Level of Custodial Fees

Background

Custodians assess their fees predominantly using a combination of fees driven by the market value of the assets, the number of accounts required, and the volume of transactions. Asset-based fees (also called safekeeping fees) are typically a basis point charge on the total value of assets under custody and cover the cost associated with the actual safekeeping of the assets. Account-based fees are based on the number and types of accounts held at the custodian bank and cover the cost of portfolio accounting and routine reporting. Transaction fees are charged each time a security is bought or sold and are used to cover the costs associated with clearing and settlement. The actual transaction fee in any given year can vary based on trading volume. In lieu of an itemized custody fee schedule, some custodians can offer a flat fee that helps clients estimate their future custody expenses and keep fee levels stable. However, a flat fee model provides less transparency into the appropriateness of fees over time.

To evaluate the appropriateness of the fee levels currently being paid in the current custodial service arrangements with Fifth Third, JP Morgan, and BNY Mellon (serving as the master recordkeeper), our review included:

- Historical fee documentation provided by OPERS;
- Fee invoices;
- Custodian fee schedules;
- Interviews with the current custodians;

- Publicly available information such as the CAFRs; and
- Pension system websites.

Findings and Conclusions

a. Current Fees

Under the current custodial services structure, custody fees are being paid to three different custodians (Fifth Third, JP Morgan, and BNY Mellon) in order to receive all the custodian services required to support OPERS' investment book of record. The combined custody/recordkeeping fees in 2016 were $7.8 million, which is equivalent to 0.86 bps. This fee level materially exceeds what we would expect a public fund with the size and complexity of OPERS to pay.

Table 3-19 below provides a comparison of the custody fees against a peer group of other public funds.

Table 3-19 Comparison of Public Fund Peer Group Custody Fees

State	Retirement Assets	Name of the Plan/System that was Reviewed	Market Value of Plan/System	Basis Points
California	$761B	California Public Employees' Retirement System	$326.5B	0.24 bps
New York	$453B	New York State and Local Retirement System	$197.6B	0.001 bps
North Carolina	$100B	North Carolina Retirement System	$100B	0.20 bps
Ohio	**$191B**	**Ohio Public Employees Retirement System**	**$90.6B**	**0.86 bps**
New Jersey	$73B	New Jersey Division of Pensions and Benefits	$85.4B	0.07 bps
Pennsylvania	$100B	Pennsylvania Public School Employees' Retirement System	$53.2B	0.47 bps
Illinois	$156B	Teachers' Retirement System of the State of Illinois	$49.2B	0.43 bps
Michigan	$84B	Michigan Public School Employees Retirement System	$48.3B	0.26 bps
Tennessee	$53B	Tennessee Consolidated Retirement System	$47.0B	0.43 bps
Connecticut	$39B	State of Connecticut, Office of Treasurer	$32.5B	0.54 bps

Source: State Issued Certified Annual Financial Statements, public fund websites, and OPERS.

When compared against the peer group in Table 3-19 above, the current custody fees are nearly 200% higher than the average basis point fees charged to the peer public fund systems (0.29 bps).

There are two major differences between the peer group in Table 3-19 and OPERS that are driving this disparity in fees.

1) The peer group has their services consolidated at a single custodian. By combining their services with a single provider, the TOS and OPERS can benefit from lower fees due to economies of scale. Further driving the fee differential, the peer group does not need the recordkeeping function (BNY Mellon) needed by OPERS in the current model.

2) The peer group utilizes their custodian as securities lending agent. The custodian receives revenue from their portion of the lending split, which artificially reduces the stated fee in bps shown above and results in a comparison that is not completely apples to apples. This is the difficulty in using peer data for custody fee comparison. For example:
   - New York State and Local Retirement System only pays $21k in direct custody fees due to the offsetting $18M that the custodian made from securities lending.
   - New Jersey Division of Pensions and Benefits only pays $590k in direct custody fees due to the offsetting $2.8M that the custodian made from securities lending.

It is AHIC's opinion that consolidating all custody services (domestic and global) and custody related services (cash sweep and foreign exchange) with a single provider under OPERS' authority would also remove the need for a master recordkeeper and may result in fees that could range from 0.4–0.5 basis points. This represents a reduction of 0.37–0.47 basis points. This reduction is shown in dollar terms in Table 3-20 below.

Table 3-20 Estimated Fee Savings with Consolidation

Estimated Fee Savings with Consolidation	Fees
Current annual fees	$7.8M
Estimated annual fees if consolidated	$3.5–4.5M
Estimated fee savings if consolidated	$3.0–$4.0M
Total estimated fee savings if consolidated over a 5 year contract	**$15-$20M**

We have spoken with multiple global custody providers used by peer public funds, and we are confident that their suite of services would cover all of OPERS' custody needs if services were to be consolidated to them. A better understanding of the potential fee savings experienced through custodial service consolidation would be obtained by issuing a blind bid or custody RFP[83].

b. Fee History

The current elevated level of custody fees is directly related to the existing custody structure. The segmented approach for vendor selection and oversight allows for isolated decisions to be made regarding individual custodian vendors without consideration for downstream effects on the broader custodian structure.

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[83] Request for Proposal.

As shown in Table 3-21, custody fees have nearly doubled since the custodian conversion in 2013.

Table 3-21 Fee History

Historic Fees	Domestic Custody	International Custody	DDA Account	Tax Reclaim	Recordkeeping	Total Fees
2016	$929,674	$2,946,794	$39,433	$278,770	$3,618,700	**$7,813,372**
2015	$971,965	$3,989,080	$41,350	$234,612	$3,607,145	**$8,844,152**
2014	$949,836	$4,532,018	$42,000	$70,500	$2,150,750	**$7,745,105**
2013	$902,679	$2,421,356	$44,506	-	$1,275,000	**$4,643,541**
2012	$835,900	$1,911,690	$35,009	-	$1,200,000	**$3,982,599**
2011	$914,848	$958,745	$90,517	-	$1,125,000	**$3,089,111**
2010	$117,929	$3,835,461	$83,296	-	$890,588	**$4,987,275**
2009	$4,095,026		$92,799	-	$734,633	**$4,922,459**
2008	$4,397,745		$91,050	-	$654,333	**$5,143,129**
2007	$1,051,440	$2,695,519	-	-	$623,541	**$4,370,501**

The fee increases over the last five years contrasts sharply with the current fee environment we have observed in the industry, where custody fees are going down for most clients.

The following are the key drivers for the elevated fee levels stemming from several events in 2014:

- In 2013, JP Morgan informed OPERS that it would no longer provide tax services for capital gains in 14 markets, thereby requiring OPERS to contract with another provider for the services at an average cost of approximately $250,000 per year;
- JP Morgan's fees for international custody were significantly higher than the previous international custodian (State Street); and
- Since it no longer held any assets for other state funds through the TOS, BNY Mellon informed OPERS that they would raise the recordkeeping fees. As a result, the recordkeeper fees increased 300% over the next three years.

These types of issues are rarely experienced by other public funds following the industry best practice of consolidating services with a single custodian. Under a single provider model, the single custodian receives a higher level of cumulative fees, resulting in a more economical fee schedule, allowing a greater flexibility to provide customized service levels, and to make contractual exceptions for the client.

c. Overall Level of Fees

As shown in Table 3-19 on page 110, the current structure has resulted in fees that far exceed the public funds' peers that only require a single bank to support their custodial services. Consolidating service providers to a single custodian should lower fees; however, in order to truly realize the complete benefits of consolidating service providers, all three of the following laws must be removed or amended: R.C. 145.26, 145.11(C), and R.C. 135.03. The amendment of R.C. 135.03 will technically allow a single custodian bank to be utilized. However, OPERS has indicated that they will retain a master recordkeeper as long as the TOS retains the authority to select and negotiate custody contracts.

OPERS believes maintaining a master recordkeeper relationship provides additional risk control and stability for the organization. The relationship allows OPERS to maintain consistent processes during the TOS directed changes in the custodial relationships. Custodial changes can be disruptive to the investment program and could have unintended impacts. For example, a custodial change that took place in 2006-2007 resulted in the custodian being unable to provide accounting statements to OPERS and the TOS for six months. Consequentially, OPERS was forced to rely on their internal accounting system. This created an unacceptable level of accounting and reporting risk.

If OPERS retains a master recordkeeper relationship, there would continue to be multiple vendors performing overlapping services and higher fees. For this reason, we recommend the amendment of R.C. 145.26, 145.11(C), and R.C. 135.03 concurrently.

We note that during our interview with the TOS, we requested they provide detail on the value proposition they bring to OPERS. After following up, we were still not provided this information.

Recommendations

3.D.1. Amend Ohio law, R.C. 145.26 and 145.11(C), to remove the TOS' custodian role and grant OPERS exclusive authority and control over the custodian relationship, including selection, negotiation of the contract's scope of services and fees, and terminations.

3.D.2. Amend Ohio law, R.C. 135.03, to remove the requirement that the custodial bank must be located in Ohio.

3.D.3. Contingent upon granting OPERS exclusive authority and control over the custodian relationship and removing the in-state bank requirement, we recommend, to the extent possible, consolidating service providers to a single custodian that can provide all custody and custody-related services required by OPERS.

3.D.4. Re-examine cash movement security protocols with the banks to identify a more automated and electronic solution.

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Task Area 4: Legal Compliance

Background

Public retirement systems are governmental entities that are subject to state and certain federal laws and regulations, including certain provisions of the U.S. Internal Revenue Code (IRC), the application of the Health Insurance Portability and Accountability Act (HIPAA),[84] the Family and Medical Leave Act (FMLA),[85] and applicable state ethics and conflicts requirements. Ensuring that processes are in place to adhere to applicable state and federal laws, regulations, and administrative rules is vital. Following the law and plan documents is a fiduciary responsibility.

Findings and Conclusions

As noted earlier in this report, the obligation of the board and executive director to ensure compliance to applicable state and federal laws is affirmed in OPERS' board governance documents and OPERS' administrative rules.

A. Legal Compliance and Adherence to IRS Regulations

OPERS is a tax qualified governmental plan under IRC §401(a). OPERS must satisfy the IRC requirement in both form and operation in order to maintain its tax qualified status. Failure to do so could result in taxability of plan contributions. OPERS has obtained a tax determination letter from the IRS of each OPERS plan. OPERS' tax determination letter, dated November 20, 2014, is available to the public on the OPERS website. This IRS documentation provides assurance of OPERS' tax qualification status regarding each of the benefit plans. The current OPERS tax determination letter expires on January 31, 2019. The OPERS legal division uses external tax counsel to assist it with monitoring tax law changes and advising it on whether modifications are needed to the form or operations of the benefit plans. This approach is consistent with best practices.

OPERS' administrative rules, §145-1-21, entitled the "Federal Tax Compliance Provisions," establishes specific actions that must be taken to safeguard conformity with federal tax requirements and maintain OPERS' tax qualified status. OPERS also has a number of processes in place to ensure its operations are consistent with the requirements necessary to maintain its tax qualified status. For example, the benefits division has instituted controls to confirm that contributions are in compliance with IRC limitations for the various benefit plans OPERS administers. This verification process includes the qualified excess benefits arrangements and the voluntary employees' beneficiary association. OPERS also publishes an annual income tax guide for benefits recipients to promote compliance. During the 2017 review period, OPERS did not receive any communications from the IRS expressing concerns regarding plan operations or tax compliance issues.

With regard to HIPAA, OPERS has adopted detailed policies and procedures in its compliance manuals, one for active and another for retired members, to make sure it is operating in a manner that safeguards the extensive information collected for purposes of the OPERS Employees Health Coverage Plan. OPERS has also adopted a policy and process for purposes

[84] The Health Insurance Portability and Accountability Act governs data privacy related to medical information.
[85] The Family and Medical Leave Act guarantees employees up to 12 weeks of unpaid leave without the threat of job loss.

of administering FMLA. We found the policies and processes used by OPERS in this area to be reflective of best practices.

Recommendations

None.

B. Internal and External Legal Counsel

Documentation received regarding 2017 staffing levels in the legal division reflected 24 employees. Ten of the 24 are dedicated to legal. The other employees within the legal division were responsible for OPERS' communications functions. At the end of 2017, the communication functions were transferred from the legal division to the external relations division. We find this to be a better alignment for purposes of the communication functions. The legal division will continue to review the content of communications to the public to confirm legal sufficiency.

Legal division staffing is allocated between two units, benefits and transactional. Attorneys in the benefits unit handle benefits, disability, and health care related issues, as well as oversight of the administrative rules. Attorneys in the transactional unit handle investment-related matters and all departmental contracts.

The AGO is the statutory legal advisor to OPERS. While this is a common structure among public retirement systems, and has been workable for OPERS, as noted in Task Area 1.A.1. on pages 8 through 9 of this report, we do not believe it is the best practice.

There is a dedicated assistant attorney general (AAG) assigned to OPERS. OPERS pays for a portion of the assigned AAG's compensation. The AAG attends board meetings and is available to advise OPERS and its legal division. The AAG is used primarily for non-complex benefit matters. Given the complexity of the tax and investment issues OPERS encounters, OPERS has access to several highly regarded external law firms through the AGO. For example, there is a firm used for fiduciary and tax matters and several for investment transactions. This type of pass-through access is a common practice among public funds, though not optimal. We found OPERS' uses of external legal counsel to supplement the expertise of the internal legal division, and the AGO, to be appropriate.

Recommendations

(See Recommendation 1.A.1. on page 11, suggesting a statutory amendment to vest authority in the board to independently select its legal advisers or in the board's discretion to use the AGO for legal advice and representation.)

C. Ethics Training

We found that ethics training for OPERS' management staff was last provided in 2016. The training was provided by a professor from Arizona State University's W.P. Carey School of Business. Training was not provided during 2017. It is expected that ethics training will be presented to staff in 2018. It is our understanding that responsibility for ethics training is within the purview of OPERS' general counsel.

Consistent with R.C. 171.50, the board receives ethics training as a component of the required orientation and continuing education program developed for the five retirement systems. Ethics is addressed during the joint training session for the five retirement systems, typically held every three years. Ethics and the roles and responsibilities of the board members, which include fiduciary responsibilities, are addressed during these joint training sessions. Board members are not required to engage in annual ethics and fiduciary training.

For staff, we were informed that ethics is covered during onboarding of new associates and a training course regarding OPERS' ethics policy is provided through the OPERS online learning management center. Additionally, ethics is discussed periodically during leadership team meetings throughout the year. Leadership team members are then asked to provide updates to their staff members with respect to the issues or topics covered.

We were informed that fiduciary training is not provided to the OPERS management staff. Given that some members of the management staff are fiduciaries, it is important for them to receive training regarding their fiduciary duties and responsibilities. The absence of established periodic fiduciary training for staff members that are fiduciaries is inconsistent with best practices.

Engaging in some form of fiduciary and ethics training on an annual basis is the best practice for boards and staff members that are fiduciaries.

(Board and staff compliance with legal requirements is addressed in Task Area 1.A.2. on pages 9 through 11.)

Recommendations

4.C.1. Establish a requirement that provides for annual ethics and fiduciary training for the board and staff members who are fiduciaries.

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Task Area 5: Risk Management and Controls

A. Adequacy of the Framework Used to Identify and Respond to Risks

Background

Risk management and internal controls are designed to help organizations assess, establish, and enhance the integrity of their financial reporting process and the control environment of their operations. The ability of management to make informed decisions and achieve organizational goals greatly depends on the design and effectiveness of risk management and internal controls.

An effective, comprehensive, and well-integrated risk management framework with an appropriate internal control structure will allow senior leadership to better understand the organization's true risk exposure, invest the prerequisite time and attention to achieve a full spectrum of risk awareness, and effectively coordinate and communicate its risk management processes. This framework involves understanding the full range of risks that fundamentally underlay all operations and developing strategies and processes to mitigate and continually monitor risks.

The goal of the framework is to enable the organization to reduce overall risk exposure and build risk assessment processes to routinely assess the effectiveness of existing internal controls as well as to provide a basis for moderating their design for optimal cost and efficiency.

AHIC has evaluated the essential components of OPERS' risk management framework and control structure with the following critical areas and sub-categories:

- Risk governance, including risk policies and procedure and organizational structure;
- Risk infrastructure, including risk assessment methodologies, system and data management; and
- Risk management process, including risk response monitoring, and reporting.

Along with the above areas, the following principles of the risk management framework were assessed:

- Integration of the risk management framework and support throughout the organization;
- How the types of risks are defined, as well as the roles and responsibilities of risk management leadership and staff;
- The involvement of senior leadership;
- Business line level ownership of the risk management program; and
- Methods for providing assurance to internal and external stakeholders.

In order to accomplish our assessment, AHIC has reviewed a range of documents, policies, and procedures, in addition to conducting a range of interviews among staff members from various departments within the organization. Our review of documents included the following:

- The ethics policy;
- OPERS' organizational chart;

- AHIC's "Governance and Oversight" questionnaire (due diligence questionnaire for governance and oversight);
- Board members' biographies;
- Board orientation material;
- The enterprise strategic planning model;
- The enterprise risk committee meeting agenda;
- Committee charters (board, governance, audit, budget);
- The corporate governance policy;
- Job descriptions for critical staff;
- The enterprise risk management policy and update;
- The enterprise risk management dashboard;
- OPERS' operational risk management documentation;
- The annual policy attestation procedures;
- Compliance rules and policy matrix for OPERS; and
- The risk level review procedure.

Findings and Conclusions

1. Risk Governance

a. Documentation of Scope

OPERS' corporate governance policy, which defines the scope and purpose of risk governance, clearly states the defined risks associated with the corporate governance program. These risks include:

- Operational risk;
- Implementation risk; and
- Headline risk.

The same policy also defines the requirements of the corporate governance strategy. The requirements include:

- Identification and assessment of the specific risks;
- A review of operational procedures; and
- Participation and advice from OPERS' corporate governance working group.

The best practice is to clearly define the scope and requirements of the risk management framework. OPERS' corporate governance policy aligns with best practices in this regard.

b. Participation by Leadership

Engagement of senior leaders or "tone at the top" can be an important part of ensuring an organization's guiding principles and values are shared throughout the organization. It can be one of the most critical ingredients in an effective risk management framework. At OPERS, we have found that the board members, the executive director, the CFO, and other directors and senior executives are fully aware of the importance of the risk governance framework. This group continually participates in ongoing risk discussion. A number of documents are used to inform these discussions, including board orientation materials, annual investment plans, fiduciary audit gap analysis reports, continuous audit reports, and the enterprise risk management monthly updates. Furthermore, these senior leaders play essential roles within OPERS' risk management framework. The best practice is for senior leadership to be actively aware of and involved with risk governance. OPERS' leadership demonstrated alignment with best practice through its knowledge and understanding of the risk governance framework.

c. Defined Responsibilities, Oversight, and Procedures

OPERS operates under two distinct risk management frameworks: operational risk management (ORM) and enterprise risk management (ERM). The ORM framework applies to the investment management activities of OPERS. The ERM framework applies to risks that may affect the organization more broadly. AHIC views the ERM framework as the foundation of OPERS' overall risk management framework. This is because it defines essential components and principles. It also provides detailed processes related to risk management. Policies and processes within both the ORM and ERM frameworks clearly define and document procedures related to risk identification, risk assessment, risk management, reporting, and communication. This documentation includes:

- The operational risk management framework;
- The operational risk management charter;
- The enterprise risk management committee charter; and
- The enterprise risk management updates.

OPERS' approach to defining responsibilities, oversight, and procedures aligns with best practices.

While continuous and comprehensive, the OPERS ERM framework appears to be in the process of being integrated, as opposed to already integrated, with the organization's strategic planning and other projects. In our opinion, this is due to the nature of a newly created reporting line.

d. Segregation and Authority of Personnel

The best practice is to segregate risk management personnel, including the reporting structure, from the functional areas for which they have oversight responsibility. In addition, personnel should be senior and experienced enough to bring an appropriate level of authority to the role. Currently, OPERS' enterprise risk management is essentially run by the enterprise risk and intelligence manager. The position reports to OPERS' director of membership operations, who is a member of senior management. This demonstrates that OPERS recognizes the importance of senior executive level ownership in a risk management program.

We found that OPERS has established a strong risk governance framework with comprehensive risk oversight policies, procedures, and segregation.

2. Risk Infrastructure

The best practice is for an organization to develop a risk register of potential risks in order to help it to identify, monitor, and mitigate risks. OPERS' risk assessment process starts with identification of risk event types, categories, and the goals of risk mitigation. Each risk event is logged in a risk register and assessed based on the measures of likelihood, impact, and velocity. These measurements produce risk scores, which are used to determine the magnitude of each risk in the register. Many organizations implement their risk assessment analysis using only two variables: frequency of risk events and impact to the organization. OPERS considers a third variable, velocity, to measure the priority of risk response and provide a risk score that is further nuanced than a two-factor approach. OPERS' use of a three variable model exceeds market practices.

In addition to development of a risk register, an organization's risk management process should be holistic and continuous, including consistent terminology from the risk identification stage through the risk assessment, monitoring, and reporting stages. While OPERS' risk register aligns with best practices, AHIC has identified modest inconsistencies between certain risk categories within the OPERS risk identification process and the risk categories within risk assessment. We found, based on OPERS' enterprise risk management policy document, that the risk types and categories within the risk identification process are not directly aligned with the categories in the impact analysis portion. Table 5-1 demonstrates examples of potential inconsistencies of risk types and terminologies between the risk identification stage and the risk assessment stage.

Table 5-1 Risk Inconsistencies

Risk Identification Stage	Risk Assessment Stage
Risk Type	Risk Category
Environment	Strategic
Organization	Reputational
Products and Services	Financial Operations
Expenses	Financial Investments
Revenues	Operational
Service Delivery	Compliance/Regulatory

Consistent terminology over the course of the risk management process will help OPERS to clearly identify the risk owners of each risk type. It will also help OPERS to effectively utilize its resources to mitigate and monitor the risks. More broadly, risk types or categories should be consistently identified. The identification can be in terms of functional risk types (e.g., operational, compliance, etc.) or source risk types (e.g., organization or environmental). The best practice is to keep the risk type and terminology consistent from the early stages of risk identification through the assessment, monitoring, and reporting stages.

OPERS' application and infrastructure administration team in the IT department provides sufficient data and systems support to the enterprise risk and intelligence team and the investment accounting compliance team. This conclusion is supported by our series of interviews with staff from these teams and AHIC's review of related policies and procedures.

Two critical components of an organization's risk infrastructure are its risk assessment and its systems and data. The purpose of the risk assessment is to identify, analyze, and manage risks relevant to achieving the objectives of a given process, program, activity, or system. Effective systems with accurate data enable the risk assessment program to provide necessary information to decision makers. While OPERS maintains appropriate applications and systems, it could further benefit if all stages of the risk management process utilize consistent terminology regarding risk types and categories. These stages include risk identification, risk assessment, monitoring, and reporting. This approach would help to avoid inadvertent misalignment between risk drivers and risk solutions, which has the potential to contribute to unjustified risk budgeting or inaccurate risk mitigation steps.

An organization can develop specific strategies for aligning internal control objectives to the enterprise risk management program. In AHIC's opinion, the components of the Committee of Sponsoring Organizations of the Treadway Commission's (COSO[86]) 2013 Internal Control and Integrated Framework (the COSO Framework) are the best model for an enterprise risk management program. The COSO Framework requires organizations to have assessments on 17 principles across five components to determine whether the organizations have effective internal controls.

Table 5-2 summarizes the principles by component of the COSO Framework.

Table 5-2 Internal Control Components and Principles

Internal Control Components and Principles				
Control Environment	**Risk Assessment**	**Control Activities**	**Information and Communications**	**Monitoring Activities**
1. Demonstrates commitment to integrity and ethical values	6. Specifies suitable objectives	10. Selects and develops control activities	13. Uses relevant quality information	16. Conducts ongoing and separate evaluations
2. Exercises oversight responsibilities	7. Identifies and analyzes risk	11. Selects and develops general controls over technology	14. Communicates internally	17. Evaluates and communicates deficiencies
3. Establishes structure, authority, and responsibility	8. Accesses fraud risk	12. Deploys through policies and procedures	15. Communicates externally	
4. Demonstrates commitment to competence	9. Identifies and analyzes significant change			
5. Enforces accountability				

OPERS' risk management framework is already strong. However, we believe that OPERS should consider adapting the COSO Framework to further develop the risk management

[86] COSO is a joint initiative of the five private sector organizations (the American Accounting Association, the American Institute of Certified Public Accountants, Financial Executives International, the Institute of Management Accountants, and the Institute of Internal Auditors) to provide thought leadership through the development of frameworks and guidance on enterprise risk management, internal control, and fraud deterrence.

program. The five control components and 17 principles reflecting in the COSO Framework would be beneficial to OPERS because it would remove the controls function from the management and monitoring process and establish it as a stand-alone process. Additionally, it would place information and communication processes before monitoring activities. This would allow OPERS to incorporate other stakeholders' positions and assessments.

OPERS has indicated that it has researched ERM programs within the pension industry and has pragmatically developed its ERM framework to include components from multiple ERM frameworks. These include COSO, ISO 31000,[87] and the Risk Management Society's Risk Maturity Model. OPERS' approach exceeds the approach used by many peer funds. However, to reflect best practices, we believe the COSO framework should be used by OPERS to develop the ERM program.

3. Risk Management Process

Once risks are properly assessed, OPERS continuously manages and monitors key risks to ensure they are mitigated effectively. Risk management staff utilizes key risk indicators as early warning signals. A quarterly update report from the ERM team is produced by OPERS' director of member operations (who has strategic planning and member benefit responsibilities) and OPERS' enterprise and intelligence manager (who has enterprise risk management and oversight responsibilities). Both individuals report to the board on a quarterly basis.

OPERS recently moved the risk management and compliance functions from its investment team to its investment accounting team. The enterprise risk officer position appears to remain vacant or have been eliminated.

OPERS' investment-related compliance function is embedded within its finance team as a part of the investment accounting mandate. Compliance responsibilities were added to OPERS' assistant director of investment accounting, who reports to OPERS' CFO.

In our opinion, OPERS maintains an effective and comprehensive risk management process that is integrated into core operations of the organization. OPERS also maintains a cross-functional risk management process and related reporting. OPERS has a high level of engagement with senior leadership and other supporting groups within the organization regarding its risk management process.

Recommendations

None.

Risk Infrastructure

5.A.1. OPERS should ensure that all stages of the risk management process, from risk identification to risk assessment, monitoring, and reporting, utilize consistent terminology of risk types and categories.

[87] ISO 31000 is a family of standards relating to risk management codified by the International Organization for Standardization.

5.A.2. To align with best practices, we recommend OPERS consider adopting the COSO Framework in developing its risk management program.

Risk Management Process

None.

B. Financial Controls and Integrity of Financial Statements

Background

Under ERISA, OPERS' responsibilities include plan administration functions such as maintaining financial books and records of the plan and filing a complete and accurate annual report. It is important that an organization establish safeguards for the plan to ensure that fiduciary responsibilities are adequately met, including implementing effective internal controls over financial reporting. Effective internal controls should be based on a systematic and risk-oriented approach. This type of approach will help to ensure that there are adequate individual controls in areas with high risk and that controls are not excessive in areas with lower risk.

An organization's level of financial statement integrity can be directly linked to the performance of the audit committee and evidenced by the internal audit report, as well as the independent external auditor's report. While the specific duties of an audit committee can vary depending on the organization's governance structure, these committees are typically expected to oversee the integrity of the financial reporting progress.

AHIC's evaluation included the design of internal controls with a focus on the audit committee and the organization's monitoring and reporting activities. Control deficiencies are often identified as a result of evaluating the design of internal controls and sub-optimal effectiveness of the audit committee, along with reports from internal and external auditors.

When assessing the design of a control, we examined the following:

- The effectiveness of the audit committee (composition, responsibilities, and decision making);
- Whether there was a detailed description of how the internal control function is expected to be performed;
- The adequacy of internal control function staffing and reporting lines;
- The oversight of internal controls over financial reporting;
- The comprehensiveness and outcomes of the internal audit report; and
- The outcomes of external auditor's report.

AHIC conducted a number of interviews with staff from various departments within OPERS and reviewed the following documents:

- The 2016 OPERS CAFR;
- OPERS' audit committee charter;

- The GASB Statement 72 charter;
- The GASB Statement 72 reporting procedures;
- Board committee assignments;
- Board member biographies and years of services;
- The internal audit department charter;
- The 2017 annual internal audit plan;
- OPERS' fiduciary internal audit gap analysis;
- OPERS' Fiserv Frontier audit executive summary;
- OPERS' internal audit ethics policy audit summary report;
- OPERS' private equity audit procedures;
- OPERS' real estate audit procedures;
- OPERS' monthly board report procedures; and
- OPERS' monthly board observation memo procedures.

Effectiveness of Audit Committee

According to common audit literature (including Deloitte's Audit Committee Resource Guide), the three essential components of an audit committee include the following:

- The audit committee charter;
- Independence and qualification of audit committee members; and
- Financial literacy and expertise.

Based on OPERS' audit committee charter, we found that its objectives, authority, and responsibilities are comprehensive and clearly defined. For example, the committee charter reflects the administrative rule requiring that internal auditor be selected, evaluated, and report to the OPERS Audit Committee. This reporting relationship is consistent with best practices. However, OPERS' committee charter provides that the committee has authority over appointing, compensating, and oversight of OPERS' public accounting firm(s). This is not the case. Currently, the AOS has authority over the selection and oversight of OPERS' independent financial auditor. This is not consistent with best practices.

Findings and Conclusions

1. Adequacy of Internal Control Description

OPERS' internal audit department charter clearly indicates the objectives, scope, authority, and responsibilities of the department. It also provides detailed descriptions of the process. The internal audit plan for 2017 was prepared and presented according to International Standards for the Professional Practice of Internal Auditing and OPERS' internal audit department charter. Risk areas and descriptions for risk assessment, as well as independence of the internal audit department, are clearly identified and indicated within the audit plan. Performance measures are presented with specific thresholds. However, responsibilities and accountability in the charter document do not always appear to be organized in the same manner as the scope of the work for the internal audit department. In particular, terminology is not always consistent between the two, which could lead to confusion.

Best practice is to align control staff's responsibilities with the scope of control objectives. While AHIC has observed slight inconsistencies or vague descriptions of scope and staff responsibilities, OPERS' control activities descriptions are, overall, well developed and maintained.

OPERS' internal audit department charter appears to be based on language developed and distributed by the Institute of Internal Auditors (IIA). IIA suggests that the responsibilities of internal audit should incorporate, or be aligned with, the scope of an audit designed to examine and evaluate the adequacy and effectiveness of the organization's governance, risk management, and internal controls.

The responsibility section in OPERS' internal audit charter closely resembles the charter model that IIA developed. Within OPERS' charter, the section on the responsibilities of the chief audit executive (CAE, also referred to as OPERS' director-internal audit) appears to have been inadvertently extracted from the IAA model and inserted into OPERS' charter in the wrong section. This insertion makes it appear that what should be the responsibility of the entire internal audit department is only the CAE's responsibility. This language may unintentionally limit the department's overall role and responsibilities by relying exclusively on the CAE rather than empowering the broader internal audit team as a whole.

2. Adequacy of Internal Control Staffing and Reporting Line

The internal control function is currently staffed with 11 full-time employees from different units within OPERS. The internal control function appears to be adequately staffed. Staffing includes: six internal audit staff members; three investment compliance staff members; one enterprise risk and intelligence staff member; and one administrative assistant. The investment compliance staff is part of the investment accounting and compliance team, reporting to the CFO. Enterprise risk and intelligence staff reports to the director of membership operations, who reports to the executive director. All internal audit staff report to OPERS' director-internal audit. OPERS' director-internal audit reports to the executive director and the board through the audit committee. It is a best practice for the internal auditor position to report directly to the board through the audit committee.

For reference, the organizational charts for these functional areas appear below.

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Chart 5-1 Finance Division

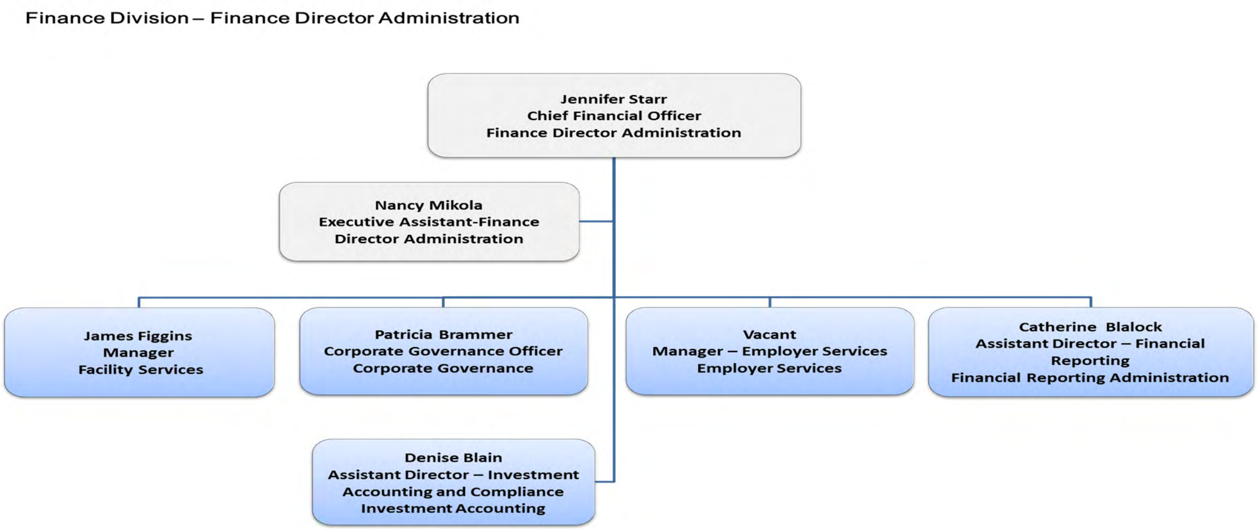
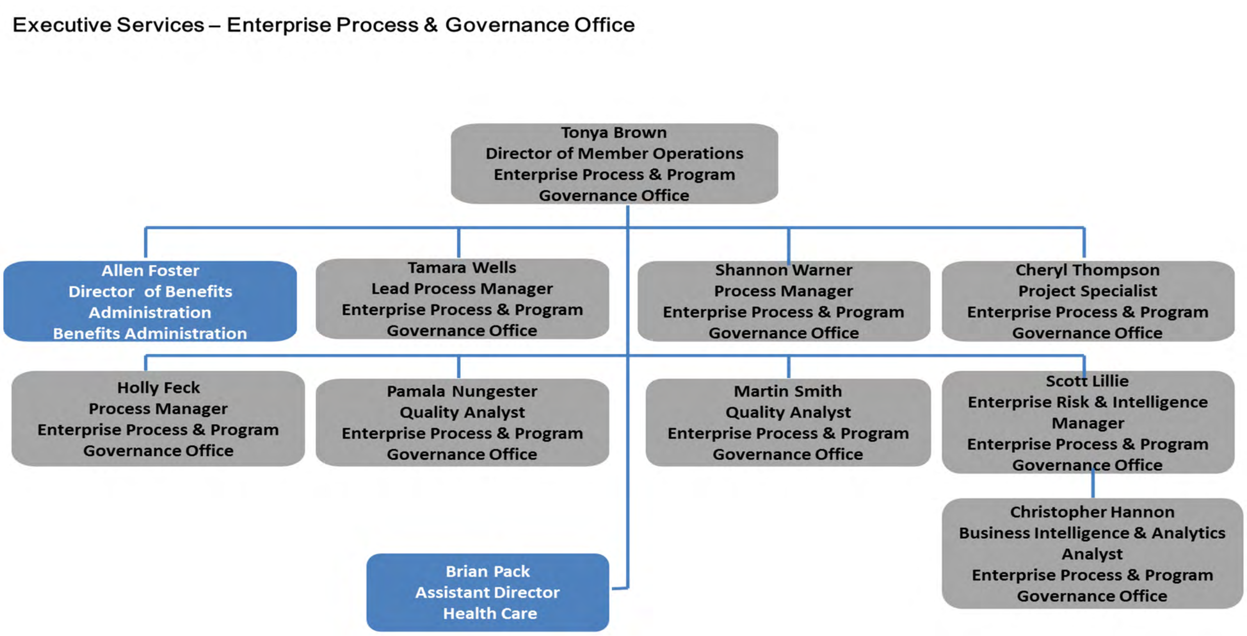


Chart 5-2 Executive Services



Traditionally, enterprise risk management teams have been implemented to focus on value protection and risk functions, and were tasked with identifying threats to an organization's business objectives or strategies. Increasingly, this has involved looking for obvious external threats while also assessing fundamental challenges to how business is conducted. ERM should be tightly embedded in management's core business processes where identifying and managing strategic risks is an integral part of strategy setting and execution. This level of integration can help the organization more effectively achieve its goals with minimum costs.

The ERM functions are currently assigned to one staff person. OPERS' ERM could provide more strategy-related insights if ERM were handled by a team of staff, as opposed to a single individual. As OPERS' ERM function is relatively new, we would anticipate that staffing levels will be considered on an ongoing basis as the program gains traction.

3. Oversight of Internal Control over Financial Reporting

Financial reporting oversight is a control specifically designed to address the risks associated with financial reporting. The control is needed in order to reasonably assure that an organization's financial statements are reliable and prepared in accordance with proper accounting principles. The risks of fraudulent financial reporting and material misstatements should be key considerations in the design and operation of oversight activities.

Oversight of financial reporting is a key responsibility of the OPERS Audit Committee. The charter used by the OPERS Audit Committee clearly identifies the committee members' roles and responsibilities and OPERS' financial statements appear to be fairly represented and prepared in accordance with government auditing standards. However, it is important for the financial expertise of individual committee members to align with industry best practices. To effectively oversee the financial reporting processes and ensure the integrity of financial statements, the audit committee should be familiar with the processes and controls that management staff has established and understand whether the processes and controls are designed appropriately. Therefore, it is critical that a sufficient portion of the audit committee members have adequate accounting and audit backgrounds. The ability of the OPERS Audit Committee to provide more effective oversight and control to management staff would be enhanced if it were comprised of members with strong accounting or audit experiences. (The need to enhance audit committee expertise was discussed in Task Area 1.B. on pages 11 through 15.)

4. Comprehensiveness and Outcome of Internal Audit Report

The independence of the internal audit staff, audit staff's access to all of OPERS' functions, and the staff's overall authority are clearly identified in the internal audit department charter. Based on the documents AHIC was provided, the areas of internal audit testing appear to be comprehensive. It was noted that there were 12 outstanding audit recommendations from the previous year's internal audit report. Based on the report entitled "Status of Prior Audit Recommendations," eight of the 12 recommendations have internal target implementation dates of December 2017 or January 2018. The status of these outstanding audit recommendations is not within the scope period for this review. However, we note that they all appear to be works in progress with updated timelines for implementation.

Each of the five Ohio retirement systems is required to undergo a fiduciary performance audit every ten years.[88] It is a best practice to examine the status of prior fiduciary audit recommendations as part of the next subsequent performance audit. Following the issuance of this report, this is a practice OPERS may want to consider for purposes of transparency and accountability. Transparency and accountability are tenets of good governance.

[88] R.C. 171.04(F).

5. Outcome of External Independent Auditor's Report

CliftonLarsonAllen, an independent accounting firm, performed OPERS' financial statement audit for the period ending December 31, 2016. Certain supplemental information such as the schedules of changes in net pension liability, member and employer contributions, investment returns, and notes to financial statements that are required by the GASB were included in the section of the annual report entitled "Management's Discussion and Analysis." OPERS received an unqualified opinion.

Recommendations

Adequacy of Internal Control Description
None.

Adequacy of Internal Control Staffing and Reporting Line
None.

Oversight of Internal Control over Financial Reporting
None.

Comprehensive and Outcome of Internal Audit Report
None.

Outcome of External Independent Auditor's Report
None.

C. Adequacy of Accounting Process

Background

Many organizations have been actively assessing ways to optimize accounting processes through enhanced governance and policies and by leveraging data and transaction management. Today's complex business and regulatory mandates have created an environment where organizations struggle with the time intensive requirements to manage an effective and strategic accounting process that may be driven by ineffective processes or systems that have been neglected over time. This challenge has been consistently observed in public and private organizations.

To assess the adequacy of accounting treatment and its processes at OPERS, AHIC has divided its focus into two areas:

- Corporate accounting with respect to financial reporting; and
- Investment accounting with respect to middle/back office function.

Financial controls and the integrity of financial statements were addressed previously in Section 5.B. on pages 123 through 128 of this task area. Therefore, AHIC's review in this section is focused on the following areas:

- Accounting policies;
- Defined ownership for each accounting step; and,

- Level of manual process and human intervention.

Investment accounting, as part of the middle/back office function, is a primary focus of AHIC's analysis for this area. This is because it is one of the critical areas where volume and complexity of transactions, as well as ever changing compliance rules, can create a high level of potential risks for the organization.

Other areas of focus include:

- Accounting systems; and
- The flow of investment accounting.

In addition to reviewing documents, AHIC's review also included interviews with the CFO, assistant director of investment accounting and compliance, director of information technology, and interim director-internal audit.

Findings and Conclusions

OPERS' investment accounting and compliance department, headed by an assistant director, is primarily responsible for middle/back office accounting procedures. The department has developed 139 comprehensive operating manuals for the relevant areas of investment accounting that include allocation of net asset value, daily collateral movement procedures, and swap reset procedures. We reviewed a range of these policies and procedures and spoke about specific processes with a range of interview candidates as part of our review.

These manuals also include GASB Statement No. 72, fair value measurement and application. GASB Statement No. 72 specifies a hierarchy of valuation classifications based on whether the inputs to the valuation techniques used in each valuation are observable.

The investment accounting and compliance department has also developed comprehensive and detailed period-end closing procedures and monthly process manuals for other critical accounts. OPERS' accounting processes and procedures largely align with best practices. In particular, we found that its level of documentation supersedes that of other peers we have observed.

Recommendations

None.

D. Adequacy of Internal and External Audit Procedures

Background

Internal auditing is an independent, objective assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes.

Financial statement audits by an external independent audit firm is a fundamental pillar of the capital markets, helping stakeholders and investors understand the true state of an organization's business and make informed decisions. Today's complex business environment and regulations demand insights from the financial statement audit. Many audit firms invest in cutting edge technology and innovation to provide strategic opportunities by identifying problems and areas of improvement. This will allow decision makers to incorporate the audit results, which should improve their strategies, operations, and performance.

To assess the adequacy of internal audit procedures at OPERS, AHIC conducted interviews with the interim director-internal audit and the IT internal auditor and reviewed the following documents:

- OPERS' internal audit department charter;
- The fiduciary internal audit gap analysis;
- The Fiserv Frontier audit executive summary;
- The 2017 annual internal audit plan; and
- The high level 2018 internal audit plan and budget for board orientation.

The external auditor's audit plans and procedures, as well as its methodologies and innovative technologies, are considered proprietary information. Therefore, AHIC's evaluation of the adequacy of external audit procedures can be only assessed based on the audit report from the external auditor and information from the OPERS Audit Committee charter. AHIC reviewed the following documents to assess the adequacy of external audit procedures:

- Charter for the OPERS Audit Committee; and
- The 2016 OPERS CAFR.

Findings and Conclusions

The risk assessment and audit planning approach are adequately presented in the OPERS 2017 Annual Internal Audit Plan. The internal auditor divided OPERS' functions into the following five auditable areas: investments transactions; vulnerability; accounting/reporting complexity; adequacy and effectiveness of governance; and time since last audit. A specific risk score was assigned. The risk score is based on the feedback from risk assessment surveys and staff's judgment. Based on the score, the internal audit department prioritizes its risk mitigation projects.

Internal audit functions are often faced with increasing demands and diminishing resources to meet those demands. Innovative methodologies to help keep pace are often required. Recent internal audit trends are aligned directly, or closely, with information technology and its capabilities. These include: the use of audit analytics; implementation of digital and cybersecurity risk audits; and an "Agile" Internal Audit approach.

1. Audit Analytics

AHIC recognizes that adopting analytics within the internal audit function has been limited. However, many leading accounting firms indicate that analytics can be the single most powerful booster of the efficiency and effectiveness of the internal audit function. AHIC recommends that OPERS considers adopting the audit analytics approach. One example of using analytics, rather than setting fixed audit objectives, is to use data in the audit scoping stage to highlight unusual patterns or unexpected outliers. Comprehensive data mining applications, as well as highly trained staff, are prerequisites for implementing an audit analytics approach.

2. Digital and Cybersecurity Risk

Many organizations' internal audit departments retain traditional mindsets and methods while external audit services provided by top accounting firms can employ more agile and automated techniques. For example, some groups use key risk themes or drivers to assess risks of digital programs within a separate cybersecurity risk framework. Some utilize co-sourcing, upskilling, and dedicated service providers to develop a framework in this area. OPERS has taken the latter approach in the cybersecurity risk area. OPERS' internal audit annually outsources a cybersecurity related audit.

3. The "Agile Internal Audit" Approach

Organizations are increasingly adopting "Agile" methods of managing projects and processes. An "Agile Internal Audit" is the mindset that an internal audit function will adopt to focus on stakeholder needs, accelerate audit cycles, drive timely insights, reduce wasted effort, and generate less documentation. The "Agile" approach can require a change of values and shift of focus. Some examples include:

- Frequent communications between risk owners and stakeholders, rather than perfect communication after a long process;
- Quick iterative activities, rather than long-term activities;
- Timely, relevant, short documentation and reporting, rather than comprehensive documentation; and
- Responding to emerging needs, rather than following a preset audit plan.

Instead of formal audit plans, the "Agile Internal Audit" approach maintains a backlog of audit risks within the projects, i.e., a list of areas to be audited. This approach considers the risk areas that stakeholders believe are particularly valuable in terms of internal audit producing a useful conclusion. A critical difference between traditional internal audit and the "Agile Internal Audit" is the development and management of the list of areas to be audited.

OPERS indirectly employs an "Agile" approach by prioritizing high risk areas of focus and alternating audit frequency. AHIC recommends considering adopting a more comprehensive "Agile Internal Audit" framework. This will facilitate OPERS' ability to respond better to risks that may affect the organization.

Conceptually, the "Agile" approach is not difficult to understand. It suggests a more tactical approach that can respond more deftly to issues that arise. However, implementing it may require certain guidance and direction. Although OPERS has developed a detailed audit plan and implemented a range of audits, adopting the "Agile" approach without external oversight may not be viable. AHIC recommends that OPERS hold initial discussions with external audit or consulting firms to better understand its implications and adoptability.

AHIC notes that the Auditor of the State recently approved an extension of CliftonLarsonAllen's engagement as an independent audit firm for an additional two years. The extension was believed to be necessary due to the implementation of GASB Statement 75. The last audit period of OPERS' records by CliftonLarsonAllen will be for the fiscal year ending December 31, 2019, conducted in 2020.

Based on the information available to us, the external audit procedures appear to be adequate.

Management provides a response, action plan, and target implementation date for all accepted recommendations. These recommendations are tracked and reported to senior management and the OPERS Audit Committee. In addition, OPERS' internal audit procedures provide instructions for follow-up.

Recommendations

5.D.1. We recommend that OPERS consider adopting the audit analytics approach.

5.D.2. To better respond to risks that may affect it, we recommend that OPERS consider adopting a more comprehensive "Agile Internal Audit" framework.

E. Adequacy of Recordkeeping Processes

Background

A range of large organizations have faced litigation or enforcement actions from regulators regarding records management or electronic communications, including books and records management malpractice. To avoid potential risks associated with mismanagement of books and records, the best practice is to establish a team to oversee books and records. The team may include legal, compliance, risk, records management, accounting, and IT professionals in order to provide structure for the records inventory and its maintenance plan.

Record retention requirements vary from organization to organization and are impacted by differing rules and requirements depending on local regulations and other factors. In the absence of specific rules and requirements, a seven year retention policy is generally considered the best practice among market participants.

Findings and Conclusions

OPERS' investment accounting and compliance team maintains manuals for procedures and controls of records. A team of 12 staff, including a supervisor and eleven specialists, are dedicated to records imaging. The staff reports to the manager of facility services. This manager of facility services reports to the CFO. OPERS appears to have appropriate staffing levels and documented processes related to its records management process and controls that are consistent with best practices.

Recommendations

None.

Task Area 6: IT Operations

A. Assessment of OPERS' Policies, Processes, and Oversight

Background

Technology is a key component of asset management and has important effects on business operations. It is an integral part of the investment process, including trading, operations, compliance, and risk management. Effective technology infrastructure can support business growth and help protect an organization from a range of risks, including fraud and cyberattacks. A successful IT framework requires established policies to ensure a commonality between employees and operational procedures. These policies and procedures should aim to target the organization's IT infrastructure, operations, physical security, cybersecurity, and vendor management.

Continued and growing reliance on technology in order to conduct critical day-to-day business functions further requires policies and procedures surrounding business continuity and vendor management. A comprehensive business continuity plan (BCP) will prepare an organization to respond to disruptions and threats and enable the business to continue operations in the case of a disrupting event. A model BCP outlines the steps to be taken in case offices are not available or systems are disrupted. These steps should include the location of disaster recovery sites, remote work capabilities, and the systems recovery periods.

Effective vendor management is considered a key component of the IT operations surrounding asset management. Businesses that rely heavily on vendors or outsourced service providers can experience additional technology complexity that requires careful consideration. Implications can include increased cybersecurity threats at the provider level. Many service providers are strategic partners. The best practice is for all vendors to be selected and monitored according to a defined plan, which includes onsite due diligence reviews and audits when warranted.

As the companies' technology evolves and increases in complexity, it is important to establish strong governance and oversight of the technology solutions in place. The business should be aware of its shortcomings where IT is concerned and have robust procedures in place to either manage or mitigate situations that may arise as a result. Periodic risk assessments and audits are consistent with best practices. In addition, organizations should maintain a comprehensive incident log and a cyclical policy review process.

In order to asses OPERS' polices, processes, and oversight related to IT, AHIC conducted interviews with staff from the IT and internal audit departments and reviewed the following:

- Business continuity and disaster recovery;
- Information technology security policies;
- Data classification and protection standards matrix;
- Information technology change policy;

- Information application diagram; and
- Description of systems and applications.

The following topics will be used to address the discussion points mentioned in the background:

- Physical and application architecture;
- Vendor selection, review, and oversight;
- Operations, incident management and change control; and
- Availability and business continuity.

Findings and Conclusions

OPERS' IT department has 150 employees. These employees represent 25% of OPERS' total staff. IT is divided into two sub-departments. One is focused on pension administration and the second supports investments. Pension administration requires more customized IT products. The investment staff primarily utilizes third-party vendor products.

OPERS also has a dedicated information security team in place with five members who focus on cybersecurity. OPERS has documented IT security policies with outlined escalation procedures in the event of a breach.

Cross training among employees ensures different personnel can function as primary and secondary backup on different systems. This approach mitigates potential keyman risk.

1. Physical and Application Architecture

The building is staffed with 24/7 security; cards are required for access to the office suites. There are 98 cameras throughout the building which are monitored live. Physical security surrounding the office building and access to the location were found to be in line with expectations. AHIC has no recommendations regarding physical security.

Due to the increased complexity of OPERS' investment strategy, over the last ten years, OPERS has implemented a number of new asset classes. In order to support OPERS' various asset classes, the investment IT team has implemented a range of new systems. These new systems must also be supported. The additional systems have added operational complexities which carry risks. These risks include cybersecurity, maintenance issues, and increased training time for staff. OPERS is currently looking to upgrade or replace its accounting system. During the review process, we observed that interviewees expressed differing views on which systems should be consolidated. At this stage of the process, such differences of opinion are natural.

AHIC recommends that OPERS considers implementing a single platform to cover the full spectrum of their investment process across multiple asset classes that allows multiple departments to consolidate their systems. The new system should be evaluated by a range of functions. These functions include trading, compliance, risk analytics, fund accounting and operations. Utilizing the same platform would enable multiple teams to make informed decisions, address problems quickly, and reduce manual processes.

2. Vendor Selection, Review, and Oversight

The responsibility for vendor and application selection falls on cross functional groups. These groups include IT, accounting, and investments. The business requirements are defined by a broader group of users. Evaluations of systems and applications are undertaken by the IT director. On a periodic basis, the IT director assesses whether the current systems are utilized and adequate. In addition, the groups are charged with ongoing professional management and staying abreast of the industry. Two informational tools used by the staff are Cutter Associates Research[89] and Gartner, Inc.[90] This helps the group to develop current solutions to meet the needs of the investment staff. While these efforts generally align with best practices, OPERS may consider using a periodic request for information (RFI) process to further and more formally assess vendors and applications currently in place to other solutions in the market.

OPERS selects an external vendor annually to conduct penetration testing of its network. The selection is governed by a formal RFP process. The internal auditor controls the RFP process and works with security heads to determine focal points. This approach aligns with best practices. However, there is no forced rotation in place and the same vendor can be used in consecutive years. While this has not occurred in the past, there is no policy requiring rotation. As potential threats are always evolving, it is important to ensure that penetration testing of internal and external network access is considered from as many perspectives as possible. Rotating providers creates a means to broaden OPERS' range of perspectives. Rotation is considered a best practice. OPERS' current practice could be strengthened by establishing a policy that prohibits the same vendor from being used in consecutive years.

OPERS' broader vendor selection process includes a review of vendors for its own data security policies and procedures. The process relies heavily on whether the vendor has internal controls testing. This approach generally aligns with best practices.

OPERS should consider reviewing service providers on a periodic basis, including an onsite review in order to ensure a sufficient level of service is provided. The IT environment is fast-paced and ever changing. The best practice would be to compare IT vendors and applications currently in place to other vendors in the market using a periodic RFI process. This would enable OPERS to keep up to date with latest developments, especially in the cybersecurity area. Without adequate comparisons to other vendors, OPERS may lag behind the industry trends or pricing, making itself vulnerable to cyberattacks or face other limitations or inefficiencies.

3. Operations, Incident Management, and Change Control

AHIC's review found that the current recovery time objective (RTO) for priority one incidents is inside 24 hours, while the RTO for priority two incidents is categorized as seven days, and

[89] Cutter Associates Research is a leading provider of operations and technology research and expertise to the investment management industry.
[90] Gartner, Inc. is a global research and advisory firm that provides insights and tools regarding IT, finance, legal, compliance, and human resources.

priority three within 30 days. We found that incidents are increasingly being classified as priority one. This creates ambiguity between important versus less important incidents.

Users are able to report incidents to a centralized service desk. Incidents are logged automatically. The Cherwell[91] incident management system provides a centralized facility for the purpose of maintaining an incident log and CollabNet[92] reports are used to manage the associated work.

OPERS conducted an investment area business impact assessment (BIA) in 2011 and the results have been incorporated into its disaster recovery and business continuity plans. A broader, all organization BIA is currently underway and scheduled for completion later in 2018. Issues, priorities, and demand are regularly discussed in ongoing cross-functional investment risk committee meetings. OPERS is conducting an updated business impact assessment to analyze and potentially reassign priority levels for incident categories. AHIC believes this will be beneficial to OPERS.

Loss of data or trading downtime has the potential to severely impact OPERS' operations. OPERS moved the Charles River trading application into the cloud over a year ago. It no longer resides in OPERS' data centers. Historically, OPERS indicated that trading downtime has been minimal or nonexistent for its trade order systems. It is critical for OPERS to ensure that IT maintains a culture of limiting trading downtime as a priority. The IT investment team maintains an overnight on-call list to ensure all investment systems, including trading systems, receive the proper and necessary attention. OPERS also has direct cell phone access for personnel supporting the trading system for trade issues that occur during the day.

OPERS has developed a help desk solution to record, prioritize, and dispatch appropriate personnel through Cherwell. In addition, issues and system enhancement requests are logged within OPERS' CollabNet system. Using this system, the demand is further prioritized and managed. This approach aligns with best practices.

4. Availability and Business Continuity

OPERS has developed a comprehensive business continuity plan (BCP) outlining the disaster recovery (DR) sites, IT recovery windows, DR workstations, and alternative workstations. Although the BCP does not specifically describe how employees should respond to business disruptions, our discussions with individual staff members lead us to the view that employees are familiar with the desired processes in place.

The DR strategy centers around a dual site approach incorporating a remote working location for employees. Virtualized architecture is utilized where possible, allowing for flexibility in the movement of technology components. OPERS conducts BCP and DR tests on a periodic basis, which are updated annually. During AHIC's onsite interviews, severe weather conditions were experienced that suspended OPERS' operation. We observed that OPERS' staff was able to demonstrate BCP plans in operations.

[91] Cherwell Software is a technology company that specializes in IT service measurement products.
[92] CollabNet is a software development and delivery solutions provider.

OPERS' policies and processes align with industry best practices in this area.

Recommendations

6.A.1. We recommend that OPERS continue its current effort to consider implementing a single technology platform within its application infrastructure to cover the full spectrum of the investment process across multiple asset classes, which will further allow for multiple departments to consolidate their systems.

6.A.2. We recommend that OPERS adopt a requirement establishing that a different external service provider be selected for penetration testing every year.

6.A.3. In regard to its disaster recovery and business continuity planning, AHIC recommends that OPERS complete the business impact assessment it currently has underway in order to analyze and potentially reassign priority levels for incident categories.

B. Evaluation of Processes Used to Define and Mitigate High-Risk IT Areas

Background

Cybersecurity is a key area of focus in the financial industry due to the increasing number of cyberattacks on market participants. With the increasing use of technology, organizations face greater challenges regarding the required levels of security, compliance, and data protection. Effective cybersecurity policies and procedures help to protect the firm and its employees from loss of data and reputational damage. Organizations can build strong cybersecurity defenses and resilience against cyberattacks through a range of processes. Examples of these processes include:

- Backup and data recovery;
- Phishing and social engineering tests;
- Employee training;
- Maintenance of IT infrastructure and patching;
- Vulnerability assessments and penetration testing;
- IT internal audit testing;
- Access rights reviews; and
- Appropriate vendor management.

Internal auditors can play an integral role within the organization to help ensure technology risks are mitigated by conducting risk reviews and assessments on a periodic basis. Then the internal auditors can work with the IT department to ensure shortcomings of the tests are addressed.

Information security is also a critical component of technology, needed in order to help protect confidential data and sensitive information. The information security policy should outline the scope of the program, data classification efforts, and a process for escalation of breaches.

It is essential that access levels are considered and that segregation of duties are required and implemented for both systems and physical aspects of the business. Physical security measures, such as magnetic cards and coded keypads or biometrics such as fingerprints, prevent unauthorized visitors on the premises. This helps to eliminate theft and protect company assets. Use of access cards and closed circuit televisions align with industry best practices.

Access to systems should be controlled by role or business function and should be based on a least permissions possible basis. Where possible, multi-factor authentication should be used. Ideally, the authentication factors should consist of “something known” (such as a password), and “something owned” (such as a token). Integration of business systems to key IT infrastructure (such as active directory, identity management, or federation services) should be encouraged. This ensures application access is controlled as well as human resource functions and processes. For example, if an employee leaves the company and goes through off boarding, application access should be automatically disabled without someone manually needing to enter the application to restrict the access.

Application and role membership access within applications should be reviewed at least annually and, where possible, dual authorization controls put in place to ensure multiple reviews of changes to permissions.

In order to assess how higher risk IT areas are addressed at OPERS, AHIC conducted interviews with select IT and internal audit department personnel. AHIC also reviewed and assessed the following documentation:

- IT security policies, and
- The data classification and protection standards matrix.

Findings and Conclusions

OPERS’ internal audit division has a dedicated person undertaking assessments within the IT function. An annual risk assessment focusing on IT is undertaken to outline the audit plan. This approach aligns with best practices.

The enterprise risk group (ERG) is a newer function at OPERS. It was developed two years ago to oversee and manage risk from the top-down. Between the ERG’s top-down approach and internal audit’s bottom-up approach, OPERS has a well-defined risk management framework for IT which aligns with best practices.

Employees’ permissions and application access is reviewed annually to ensure staff members have access to the correct systems. There are periodic tests in place to confirm that employees who depart OPERS have their access rights terminated from all systems.

OPERS’ employees indicated that they consider the biggest cybersecurity risk to be the loss of personal data. Personal data maintained within OPERS’ systems includes information of a nature that could create financial implications if the group was subject to a cybersecurity breach. Breaches can range from small (single pieces of data related to single individuals) to large (many pieces of data across many individuals). OPERS has policies and procedures to address beaches. All incidents are responded to according to standards set within the policies.

We noted during the review that OPERS has started to initiate phishing training for its employees. This program is in the early stages. OPERS’ IT security department has implemented a new facility to provide annual, mandatory security training specifically pertaining to phishing and nefarious attempts to dupe an end user into executing a payload or divulging sensitive information. The service also provides test phishing emails that allows for any user who may fail the test to be routed to an educational session.

The use of removable media by staff is still allowed. Although it is monitored by Forcepoint[93], endpoint solutions and autorun features are disabled. A data loss prevention layer of the IT security architecture monitors and blocks the ability to save personally identifiable information and sensitive data to removable media devices. Attempts are logged and procedurally pursed with users and their management chain. All data movements destined for external addresses are filtered through the data loss prevention rules and must be encrypted.

At OPERS all laptops are encrypted, all mobile devices use encrypted stores (i.e. Blackberry WORK, BoardVantage), and users are unable to copy data out of the encrypted store. In addition, autorun is disabled as required by IT policy. This prevents an automatic start of programs from USB drives.

While OPERS' approach to removable media generally aligns with best practices, some market participants restrict use even further. OPERS should consider restricting removable media to all but certain members of staff that require it as part of their job function. If further restrictions to removable media are implemented, the IT team should also retain the right to approve or deny removable media access to corporate infrastructure, including workstations in the office and company laptops. Access rights could be authorized for specific folders and a specific period of time rather than being reviewed on a yearly basis.

Recommendations

6.B.1. We recommend that OPERS consider further restricting employees' use of removable media.

6.B.2. We recommend that OPERS adopt a policy that requires forced rotation for penetration testing service providers.

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[93] Forcepoint is a company that develops and markets cybersecurity software to prevent employees from viewing inappropriate or malicious content or leaking confidential data. It also sells firewall, cloud access, and cross-domain IT security products.

Appendices

Appendix A – Recommendations Matrix

Fiduciary Performance Audit of the Ohio Public Employees Retirement System
For the Audit Scope Period of January 1, 2017 through December 31, 2017

Number	OPERS Fiduciary Performance Audit Report Recommendations	Page Number
	Task Area 1: Board Governance and Administration	
	A. Governing Statutes and Compliance	
1.A.1.	Seek a statutory amendment to vest authority in the OPERS Board to independently select its legal advisers or to use the AGO's office, in its discretion, for legal advice and representation.	11
1.A.2.	Seek a statutory amendment to vest authority in the OPERS Board to select its own independent financial auditor.	11
1.A.3.	Establish a single cumulative annual report to the OPERS Board that certifies OPERS was in compliance with key legal and administrative rules for the fiscal year.	11
1.A.4.	Establish a chief compliance officer position, which reports to senior leadership but is also authorized to go directly to the OPERS Audit Committee.	11
	B. Board Composition	
1.B.1.	Amend OPERS' governing statute to require that one of the board appointees have financial audit or internal controls expertise.	14
1.B.2.	As an alternative to amending the statute, we recommend that OPERS retain a consultant that is a qualified "audit committee financial expert" to advise the OPERS Audit Committee.	15
	C. Documentation of Responsibilities and Reporting Lines	
1.C.1.	OPERS should consider adopting a strategic planning policy.	18
1.C.2.	To reduce keyman risk, OPERS should consider reducing the number of executive director direct reports.	18
	D. Board Education and Associated Costs	
1.D.1.	Establish a board education and associated costs quarterly tracking and reporting process, which discloses the following information to the board: (a) when a new board member attended the statutorily required new member orientation and whether follow-up orientation was offered to the new member; (b) the attendance status of members with more than one year at continuing education sessions; and (c) the total travel expense for each board member, by name, year to date. The total travel expense report for each board member should also include the dates and locations of all trips, the names of the seminars or conferences attended, and details as to the total costs of the trips, including for example airfare, lodging, meals, and registration fees.	21
1.D.2.	Include a notation of meeting agendas that designates the sessions which have been approved for purposes of continuing education.	21
1.D.3.	Compile an annual list of recommended external educational opportunities for board member training.	21

Number	OPERS Fiduciary Performance Audit Report Recommendations	Page Number
	G. Conflict of Interest Policies and Procedures	
1.G.1.	Amend R.C.145.093 to add language requiring that any amendments to OPERS' Ethics Policy must be consistent with applicable law and subject to review by the Ohio Ethics Commission and the Ohio Retirement Study Council.	28
1.G.2.	Add language to the OPERS Ethics Policy that specifies those doing business with OPERS are subject to the purview of the policy.	28
	H. Communications	
1.H.1.	We recommend the addition of no contact, "black-out period" language to the OPERS Board Communications Policy.	31
1.H.2.	We recommend the addition of language to the OPERS Board Communications Policy to include its current protocol of requiring staff to inform the executive director prior to initiating ex parte communications with a board member.	31
1.H.3.	We recommend the addition of language to the OPERS Board Communications Policy regarding the parameters of board members' use of social media regarding OPERS matters.	31
1.H.4.	We recommend expanding the information provided on the OPERS website to include links to board committee assignments, the OPERS Board Governance Policy Manual, a comprehensive organizational chart, meeting minutes for at least the last three years, and the executive director's monthly reports to the board.	31
1.H.5.	We recommend that separate committee minutes be maintained for each committee meeting and published on the OPERS website.	31
	I. Succession Planning	
1.I.1.	Develop a written succession planning policy that establishes the philosophy and processes OPERS uses, particularly as it relates to mitigating keyman risk.	33
1.I.2.	Use best efforts to limit the use of interim candidates in a vacant position to no more than six to nine months.	33
	Task Area 2: Organizational Structure and Staffing	
	A. Staffing, Hiring, and Performance Evaluations	
2.A.1.	Explore ways to diminish turnover.	37
2.A.2.	Explore ways to further enhance OPERS' engagement score and its employee experience score.	37
2.A.3.	Update the board's self-evaluation policy to require a more formalized annual self-evaluation process, including the use of a third-party facilitator.	43
2.A.4.	Consider the use of a third-party facilitator for purposes of the executive director's evaluation.	43
	B. Customer Satisfaction Evaluation Process	
2.B.1.	We recommend that OPERS consult with CEM and its peers to determine what, if anything, can cost effectively be done to enhance OPERS' call outcomes service score.	47
	C. Compensation	
2.C.1.	OPERS should continue to conduct regular compensation reviews to ensure compensation levels remain competitive and fair.	50

Number	OPERS Fiduciary Performance Audit Report Recommendations	Page Number
2.C.2.	OPERS should evaluate each individual position's market competitiveness and internal fairness in relation to the roles and responsibilities of each position.	50
2.C.3.	OPERS should evaluate whether offering near median maximum total cash levels relative to the performance required to earn maximum total cash is adequate to attract, retain, and motivate the talent required for OPERS' long-term success.	50
	D. Monitoring and Maintaining Staff Qualifications and Continuing Education	
2.D.1.	Develop a tracking system to monitor adherence to required personnel qualifications and certifications.	53
	Task Area 3: Investment Policy and Oversight	
	A. Investment Policy	
3.A.1.	In the roles and responsibilities of actuary section of the document entitled "OPERS Board Policies Governing Investment Activities," we recommend modifying the existing language from "the board shall consider review of the asset liability study approximately every five years" to "the board shall consider review of the asset liability study every three to five years or when material changes to the liabilities take place (e.g., plan design changes, material changes in underlying assumptions, etc.)" to be consistent with the language elsewhere. This amendment applies to the investment objective and asset allocation policy for both the DB Fund and the HC 115 Fund.	57
3.A.2.	In the liquidity policy contained in the risk management section of the document entitled "OPERS Board Policies Governing Investment Activities," we recommend adding more clarifying context to the statement regarding the funded value.	57
3.A.3.	Modify the existing language in the document entitled the "OPERS Board Policies Governing Investment Activities" regarding periodic review under the asset allocation section from "every three to five years the board will undertake a comprehensive strategic asset allocation review…" to "every three to five years or when material changes to the liabilities take place (e.g., plan design changes, material changes in underlying assumptions, etc.), the board will undertake a comprehensive strategic asset allocation review…" for added flexibility. This amendment applies to the OPERS Investment Objective and Asset Allocation Policies for both the DB Fund and the HC 115 Fund.	66
3.A.4.	Given that the financial projections for the HC 115 Fund anticipate potential insolvency in the future, add additional documentation and context regarding the HC 115 Fund to allow for a starker contrast with pension language. The additional language should be added to the Investment Objectives and Asset Allocation Policy section of the document entitled "OPERS Board Policies Governing Investment Activities."	67
	B. Investment Oversight	
3.B.1.	In order to better assess the broker-dealers' overall capabilities, the OPERS Broker Review Committee should include voting representatives from both operations and trading/front office functions.	76
3.B.2.	OPERS should utilize a static benchmark for the opportunistic sub-asset class within the DB Fund policy benchmark that reflects the overarching goal of the sub-asset class.	81

Number	OPERS Fiduciary Performance Audit Report Recommendations	Page Number
3.B.3.	Perform a fee analysis on each asset class as part of ongoing oversight and as a tool in communicating to stakeholders the underlying value proposition of each investment and why fees vary from one investment to the next.	85
3.B.4.	Clarify the process for verifying real estate and private equity fees and document how the process should be performed.	85
3.B.5.	We recommend conducting recurring background checks on OPERS' employees who are designated as performing key or sensitive roles.	87
3.B.6.	We recommend that OPERS implement an investment manager review schedule to ensure all external managers for its external public markets program are reviewed onsite on a periodic basis to update its ODD.	93
3.B.7.	We recommend OPERS' risk management team perform the ODD process independently of the investment team for its private market program. ODD expertise is more portable than IDD expertise. Consequently, OPERS should not have to develop or hire dedicated private markets ODD experts to facilitate the program. As an alternative, we recommend OPERS engage its external consultant to conduct detailed ODD for each mandate.	93
	C. Investment and Fiduciary Risk	
3.C.1.	We recommend that OPERS change its two scenario stress test model to a three scenario model that includes baseline, adverse, and severely adverse scenarios.	98
3.C.2.	We recommend that OPERS separate its investment compliance function from the investment accounting and compliance department and establish an independent functional group that reports elsewhere in the organization, such as to the general counsel or executive director.	98
	D. Custody Policy	
3.D.1.	Amend Ohio law, R.C. 145.26 and 145.11(C), to remove the TOS' custodian role and grant OPERS exclusive authority and control over the custodian relationship, including selection, negotiation of the contract's scope of services and fees, and terminations.	113
3.D.2.	Amend Ohio law, R.C.135.03, to remove the requirement that the custodial bank must be located in Ohio.	113
3.D.3.	Contingent upon granting OPERS exclusive authority and control over the custodian relationship and removing the in-state bank requirement, we recommend, to the extent possible, consolidating service providers to a single custodian that can provide all custody and custody-related services required by OPERS.	113
3.D.4.	Re-examine cash movement security protocols with the banks to identify a more automated and electronic solution.	113
	Task Area 4: Legal Compliance	
	C. Ethics Training	
4.C.1.	Establish a requirement that provides for annual ethics and fiduciary training for the board and staff members who are fiduciaries.	116
	Task Area 5: Risk Management and Controls	
	A. Adequacy of the Framework Used to Identify and Respond to Risks	
5.A.1.	OPERS should ensure that all stages of the risk management process, from risk identification to risk assessment, monitoring, and reporting, utilize consistent terminology of risk types and categories.	122

Number	OPERS Fiduciary Performance Audit Report Recommendations	Page Number
5.A.2.	To align with best practices, we recommend OPERS consider adopting the COSO Framework in developing its risk management program.	123
	D. Adequacy of Internal and External Audit Procedures	
5.D.1.	We recommend that OPERS consider adopting the audit analytics approach.	132
5.D.2.	To better respond to risks that may affect it, we recommend that OPERS consider adopting a more comprehensive "Agile Internal Audit" framework.	132
	Task Area 6. IT Operations	
	A. Assessment of OPERS' Policies, Processes, and Oversight	
6.A.1.	We recommend that OPERS continue its current effort to consider implementing a single technology platform within its application infrastructure to cover the full spectrum of the investment process across multiple asset classes, which will further allow for multiple departments to consolidate their systems.	137
6.A.2.	We recommend that OPERS adopt a requirement establishing that a different external service provider be selected for penetration testing every year.	137
6.A.3.	In regard to its disaster recovery and business continuity planning, AHIC recommends that OPERS complete the business impact assessment it currently has underway in order to analyze and potentially reassign priority levels for incident categories.	137
	B. Evaluation of Processes Used to Define and Mitigate High-Risk IT Areas	
6.B.1.	We recommend that OPERS consider further restricting employees' use of removable media.	139
6.B.2.	We recommend that OPERS adopt a policy that requires forced rotation for penetration testing service providers.	139

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Appendix B – Glossary of Terms

Terms defined in this glossary appear for quick reference and convenience and do not supersede specific meanings as they may be used and defined in any applicable law or the OPERS plan documents.

Active Management: A type of investment management style where a portfolio manager proactively buys and sells securities in an effort to maximize returns against a specific benchmark.

Actuarial Accrued Liability: Total accumulated cost to fund pension benefits arising from service in all prior years.

Actuarial Cost Method: Technique used to assign or allocate, in a systematic and consistent manner, the expected cost of a pension plan for a group of participants to the years of service linked to that cost.

Actuarial Valuation: The study of probable amounts of future pension benefits and the necessary amount of contributions to fund those benefits.

Actuary: An actuary is a professional statistician trained in the technical and mathematical aspects of insurance, pension, and related fields. The actuary estimates how much money must be contributed to a pension fund each year in order to support the benefits that will become payable in the future.

AGO: Attorney General of Ohio

AOS: Auditor of State

Asset Allocation: A stage of the investment process which is concerned with selecting: (1) the key asset classes into which funds can be invested; and (2) the amount of money to be invested in each class in a manner consistent with the objectives and risk tolerance of the program.

Asset/Liability Modeling: A projection of a retirement plan's financial situation by making assumptions concerning the future such as demographic trends, effects of inflation, and anticipated return on investments.

Asset Class: An asset class is a distinct market segment for investing. For example, stocks (equities), bonds (fixed income), real estate, private equity, and cash equivalents are considered to be separate asset classes. Sub-asset classes within equities can include small- or large-capitalization stocks and within fixed income can include long- or short-duration bonds.

Attribution Analysis: A tool used by institutional investors to analyze investment performance by visually depicting the relative drivers of performance.

Basis Point (bps): Basis point is a common unit of measure for interest rates and other percentages in finance. One basis point is equal to one-hundredth of a percentage point (.01%).

Benchmark: An objective standard against which investment performance or trading execution can be measured and evaluated; for example, the Standard & Poor's (S&P) 500 Stock Index.

Best Practice: A best practice is an experience tested or emerging optimal practice. It is determined by examining how a particular function is carried out and then assessing whether a different course of action or methodology would enhance the process. It is important to recognize that the optimal practice for one organization may not be appropriate for another.

CAFR: Comprehensive Annual Financial Report

Capital Market Assumptions: Projections of future returns for the various asset classes

CEM: CEM Benchmarking Inc., a global benchmarking company located in Toronto, Canada, maintains data and provides comparative information for large pools of capital including pension funds, endowments/foundations, and sovereign wealth funds.

CFO: Chief financial officer

CIO: Chief investment officer

Common Practice: The usual, generally accepted way of doing business at other public funds.

COSO: Committee of Sponsoring Organizations of the Treadway Commission is a joint initiative formed in 1985, which provides guidance to executive management and governance entities on relevant aspects of organizational governance, business ethics, internal control, enterprise risk management, fraud, and financial reporting. It was established in the United States by five supporting organizations: the Institute of Management Accountants; the American Accounting Association; the American Institute of Certified Public Accountants; the Institute of Internal Auditors; and the Financial Executives International.

Due Diligence: Due diligence is the careful investigation necessary to ensure that all material information pertinent to an issue has been identified and disclosed before a decision is made. The term originated in securities law but is now generally used in all investment and financial matters.

ERISA: Employee Retirement Income Security Act of 1974 is a federal law that establishes minimum standards for pension plans in private industry. While it does not apply to governmental plans, their fiduciary standards are often modeled after ERISA.

The Fair Labor Standards Act (FSLA): A federal law governing overtime, minimum wage, and child labor. It applies in every state, but a state is free to pass laws that are more generous to employees and to regulate situations in which federal law does not apply.

Fiduciary: Generally, any person who: (1) exercises any discretionary authority or control over the management of a plan; (2) exercises any authority or control concerning the disposition of plan assets; or (3) has any discretionary authority or responsibility in the administration of the plan. Typically, fiduciary status extends not only to those persons named in law as having express authority and responsibility in the plan's investment or management but also covers those persons who undertake to exercise any discretion or control over the plan regardless of their formal title.

Fiduciary Risk: The risk that may arise in connection with a trustee or other fiduciary not performing their duties or achieving the best value with relation to the best interest of the plan members or beneficiaries.

Fixed Income: A security that pays a fixed rate of return and usually refers to a government, corporate, or municipal bond.

Front Running: The practice of a broker or trader stepping in front of large orders to gain an economic advantage.

Governance: The policies and processes by which an entity is directed and controlled and the monitoring of their proper implementation by the entity's governing body.

Indeed.com: An American worldwide employment-related search engine for job listings. Founded in 2004, it is said to currently be the highest-traffic job search website in the United States.

Index Fund: A passively managed portfolio designed and controlled to mirror the performance of a certain index, such as the S&P 500. By definition, such funds should perform within a few basis points of the index they are tracking.

Investment Manager: An individual or organization that provides investment management services for a fee on a fully discretionary or nondiscretionary basis.

Information Ratio: Information ratio is the return of a portfolio over the benchmark divided by tracking error; the proportion of tracking error that is converted into excess returns.

Investment Policy: A written document that sets forth the investment goals of the organization, its risk tolerance, asset allocation, due diligence processes, benchmarks, frequency of performance measurement, and roles and responsibilities.

IT: Information technology

JCARR: Ohio Joint Committee on Agency Rule Review

Leading-Edge Practice: A leading-edge practice is a best practice which is emerging and not yet being used by many other public funds or institutional investors.

Material Non-Public Information: Information that would affect the market value or trading of a security and that has not been disseminated to the general public.

Mortality Tables: In actuarial science, a mortality table is a table that shows the rate of deaths occurring in a defined population during a selected time interval or survival from birth to any given age. Statistics included in the mortality table show the probability of a person's death before their next birthday, based on their age. The Pension Protection Act of 2006 directed the IRS to publish mortality tables for private sector funding calculations. Currently, these IRS tables are based on the RP-2000 mortality table, which was constructed by the Society of Actuaries with data from over 100 private pension plans for the period 1990-1994. Any mortality improvements are then applied to the table to bring them current. Unlike the private sector, public sector plans are not required to use a specific mortality table. While there are a wide variety of approaches used, a large number of public plans use the RP-2000 as their base table.

Normal Cost: That portion of the actuarial present value of benefits assigned to a particular year in respect to an individual participant or the plan as a whole.

Operational Risk: As defined by the COSO framework, operational risk is the risk of loss resulting from inadequate or failed business processes, people, and systems or from external events.

OPERS: Ohio Public Employees Retirement System

ORSC: Ohio Retirement Study Council

Passive management: A type of investment management style where the portfolio manager oversees a fixed portfolio structured to match the performance of a particular segment of the market.

Proxy: A written authorization given by a shareholder to someone else to vote his or her shares at a stockholder's annual or special meeting.

Proxy voting: The act of shareholders of a corporation authorizing a specific vote on their behalf at corporate meetings. Such proxies normally pertain to election of the board of directors or to various resolutions submitted for shareholders' approval.

Prudence: Exercising skill and good judgment in the use of resources and exhibiting caution and circumspection as to potential risks.

Public funds: Statewide and municipal retirement systems that are responsible for the investment and administration of pension plan assets and benefits and statewide public investment boards that are not responsible for benefits administration.

R.C.: Ohio Revised Code

Rebalancing: Buying or selling securities that have changed values in order to restore their designated proportion to an investment portfolio's asset allocation targets.

Risk Management Society's Risk Maturity Model: A framework of best practices for enterprise risk management.

Securities Lending: A practice whereby owners of securities, such as a public retirement system, either directly or indirectly lend their securities to primarily brokerage firms for a fee and against which either cash, securities, or a letter of credit is pledged to protect the lender. Securities are borrowed to cover fails of deliveries, cover short sales, provide proper denominations, and enable brokerage firms to engage in arbitrage trading activities.

Sharpe Ratio: The average return achieved over the risk-free rate for every unit of risk (Standard Deviation).

Span of Control: The number of individuals that report to one individual.

Standard Deviation: A statistic that measures the dispersion of a dataset relative to its mean and is calculated as the square root of the variance.

Summary Plan Description (SPD): An easy to read written statement describing the primary provisions, features, rights, and benefits of a retirement plan.

Target Asset Allocation: The asset allocation adopted for a particular investment portfolio.

TOS: Ohio Treasurer of State

Tracking Error: A divergence between the price behavior of a position or a portfolio and the price behavior of a benchmark resulting in an unexpected profit or loss.

Transaction Costs: The cost of executing a particular investment purchase or sale. Transaction costs are comprised of three parts: (1) the actual dollars paid to the broker in commissions; (2) the market impact – i.e., the impact that a manager's trade has on the market price for the stock; and, (3) the opportunity cost that is the result of not executing the trade instantaneously.

Trustee: A person who has fiduciary responsibility over financial aspects of a trust. In the case of a public pension plan, it includes the receipt, disbursement, and investment of plan contributions.

Unfunded Actuarial Accrued Liability: The portion of the actuarial accrued liability not offset by existing plan assets.

UPIA: Uniform Prudent Investor Act, adopted in 1992 by the American Law Institute's Third Restatement of the Law of Trusts, updated the prudent man rule; it established a "modern portfolio theory" and "total return" approach to the exercise of fiduciary investment discretion.

Value at Risk (VaR): A statistical measure to quantify the level of financial risk within an investment portfolio over a given period of time.

Appendix C – Documents Reviewed

AHIC submitted detailed document requests. Listed below are descriptions of the documents that were provided by staff in response to the document requests and in response to follow-up information requests. The documents were reviewed by AHIC.

Task Area 1 – Board Governance and Administration

- OPERS enabling statute and related constitutional or other statutory provisions
- Rules and administrative regulations governing the OPERS Board
- Board governance policies
- Committee charters
- Delegation of authority documents
- List of standing board committees and their membership
- Board member biographies/resumes
- List with subject matter descriptions of educational materials provided during 2017 to board or staff
- New trustee orientation presentation
- Board evaluation process narrative
- Leadership development plan
- Annual work plan for 2017
- Executive director reports
- Operations reports
- Board and committee meeting agendas and minutes
- Financial reporting budget policy/ procedure
- Procurement policy/ procedure
- Operating expenses for 2017
- CEM reports
- OPERS' newsletters

Task Area 2 – Organization Structure and Staffing

- Organizational charts
- Position descriptions
- Incentive compensation plan for 2018
- Pay ranges for investment and non-investment positions for 2018
- Salary survey for investment and non-investment positions
- Executive director performance evaluation form
- Evaluation forms for senior leadership

- Hiring procedures
- Process for continuing to evaluate associates' qualifications for positions
- Leadership development plan
- Description of training opportunities offered to associates
- Turnover by division
- Member satisfaction survey and report
- Comprehensive annual financial reports and websites of peers

Task Area 3 – Investment Policy and Oversight

- Investment committee minutes (2015-2016)
- OPERS' asset liability studies for the DB plan and healthcare plan (2016)
- Experience studies and actuarial valuations
- OPERS' actuarial audit (2015)
- OPERS' 2016 comprehensive annual financial report
- Cash flow projections for the DB plan and healthcare plan
- Investment committee asset allocation material
- Investment consultant performance reports (2016-2017)
- 10-yr total fund performance for the DB plan and healthcare plan
- 10-yr asset class performance for the DB plan and healthcare plan
- DB and healthcare plans' benchmark history (2008-2017)
- List of total fund policy allocations between 2008-2016
- 2017 investment policies
- External public markets documents
- Private equity documents
- Private real estate documents
- Public alternatives documents
- Samples of regular investment reports provided to board and staff
- Trade flow transaction process description
- Role of the TOS memo
- Custody search request for proposals

Task Area 4 – Legal Compliance

- Policies and procedures to monitor compliance
- Ethics and fiduciary training presentations
- Sample legal report and update provided to board

Task Area 5 – Risk Management and Controls

- Internal audit plan approval process
- Internal audit reports for 2017
- Internal audit department charter
- Risk management policies
- Risk management reports
- Operational risk policies and procedures
- Operational risk inventory
- Incident log
- Compliance monitoring plan

Task Area 6 – IT Operations

- IT infrastructure diagram
- IT application diagram
- IT process documents
- IT policies

Other Manuals

- Personnel manual
- Financial reporting
- Operations manuals and policies

Peers

- Peer Group A: California Public Employees’ Retirement System, California State Teachers’ Retirement System, Colorado Public Employees’ Retirement Association, New York State Teachers’ Retirement System, Pennsylvania Public School Employees’ Retirement System, State Teachers Retirement System of Ohio, Teacher Retirement System of Texas, Teachers Retirement System of Georgia, Tennessee Consolidated Retirement System, Virginia Retirement System

- Peer Group B: California Public Employees’ Retirement System, California State Teachers' Retirement System, New York State Common Retirement Fund, Teacher Retirement System of Texas, Washington State Investment Board, State of Wisconsin Investment Board, North Carolina Retirement Systems, Employees’ Retirement System of Georgia, Virginia Retirement System, Michigan Office of Retirement Services, Pennsylvania Public School Employees' Retirement System, Tennessee Consolidated Retirement System, Colorado Public Employees' Retirement Association, Texas Municipal Retirement System, South Dakota Investment Council, State Teachers Retirement System of Ohio

- Peer public funds used for the custodial bank comparison: California Public Employees' Retirement System, New York State and Local Retirement System, North Carolina Retirement System, New Jersey Division of Pensions and Benefits, Pennsylvania Public School Employees' Retirement System, Teachers' Retirement System of the State of Illinois, Michigan Public School Employees Retirement System, Tennessee Consolidated Retirement System, State of Connecticut Office of Treasurer

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Appendix D – Interviewees

For this review, AHIC interviewed the following individuals:

OPERS Board Members

Ken Thomas, Board Chair
Steve Toth
Jim Tilling
Chris Mabe
Bob Blair
Cinthia Sledz
Herman Mollmann

OPERS Staff

Karen Carraher, OPERS Executive Director
Greg Slone, OPERS Interim Director-Internal Audit
Paul Greff, OPERS Deputy Chief Investment Officer
Cheri Woolsey, OPERS Senior Portfolio Manager - Private Alternatives, Private Equity
Prabu Kumaran, OPERS Fund Manager Lead - Fund Management
Bradley Sturm, OPERS Portfolio Manager - Private Real Estate Lead
John Blue, OPERS Lead Portfolio Manager - External Public Markets, Hedge Funds
Craig Hallerman, OPERS Actuary
Erick Weis, OPERS Senior Portfolio Manager - Quantitative Management
Mark Ehresman, OPERS Senior Portfolio Manager – Fixed Income
Joan Stack, OPERS Head Trader Equities - Trading
Charles Quinlan, OPERS Information Technology Director
Corby Kissler, OPERS Manager - Applications/Investments
David McKnight, OPERS Information Technology - Internal Audit
Jennifer Starr, OPERS Chief Financial Officer
Denise Blain, OPERS Assistant Director Investment Compliance
Eric Harrell, OPERS Interim General Council and Director of Human Resources
Lauren Gresh, OPERS Legal
Tonya Brown, OPERS Director of Member Operations
Allen Foster, OPERS Director Benefits Administration
Tony Lange, OPERS Legal
Sara Baker, OPERS Manager Member Communications
Breen'a Means, OPERS Talent Acquisition/Development Officer
Steve Edwards, OPERS Professional Development Officer
Patricia Brammer, OPERS Corporate Governance Officer
Melinda Bailey, OPERS Human Resources Manager
Rick Shafer, OPERS Chief Investment Officer
Edward Painvin, OPERS Senior Portfolio Manager – U.S. Equity
Daniel German, OPERS Risk Manager
Michael Berger, OPERS Lead Investment Account Analyst (Enterprise Risk)
Roy Charles, OPERS Senior Enterprise Risk Analyst
Deanne Mannion, OPERS Lead Portfolio Manager, External Public Markets
Jerry May, OPERS Portfolio Manager, Cash – Securities Lending
Kevin Arnold, OPERS Information Technology Security

Office of the Ohio Treasurer's Staff

Walter Myers, Ohio Chief Financial Officer
Christina Roberts, Compliance Manager – Trust Department

OPERS Custodians

Fifth Third Bank

Bill McIntyre, Vice President, Relationship Manager
Dave Miller, Vice President and Director Custody Services
Steve McCabe, Custody Product Manager

JP Morgan

Margaret Sparks, Executive Director – Custody and Fund Services
Jim Polchow, Client Service Manager

BNY Mellon

Jeffrey Cusik, Relationship Executive
Lisa Bochter, Service Director
Scott Kumik, Unit Manager – Global Institutional Accounting
Brian Capezzuto, Client Relations – Global Risk Solution
Bob Carroll, Head of Consultant Relations

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