INDEPENDENT FIDUCIARY SERVICES, INC.

# Independent Fiduciary Services, Inc.

## Fiduciary Performance Audit
## of the
## The State Teachers Retirement System of Ohio

## *Directed by the*
## *Ohio Retirement Study Council*

December 2006

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## Introduction

This Report is presented in four sections: an executive summary; background information and methodology; detailed discussion and analysis; and exhibits.

Section I, the Executive Summary, offers a high level overview of the major themes in the Report. The Executive Summary should be used in the context of the full report.

Section II, Background and Methodology, describes Independent Fiduciary Services® ("IFS") and the methodology we followed in performing this assignment. It then explains the overall format of this Report and concludes with caveats and observations about the substantive sections of the Report.

The next Section III, Discussion and Analysis, comprises the body of the report. Section III is split into the two primary categories specified in the "ORSC Scope of Work" – Investment Issues and Management Issues. Within each of the two primary categories, the Report is then divided into sections or task areas that match the specific topics identified in the ORSC Scope of Work. The discrete issues raised in the ORSC Scope of Work are then addressed within each section. Many of the discrete issues stated in the ORSC Scope of Work are interconnected or duplicative. To facilitate readability, the Report integrates the discussion of overlapping issues.

Many readers of this Report will not be pension fund industry experts, whereas others will. For that reason, the Report provides preparatory narrative (referred to as "fundamental principles") explaining some of the basic standards, concepts and risks (i.e., the potential impact of failure to establish and/or implement the stated principles) to assist the readers in understanding the basis for the subject matter Observations. Our findings and recommendations are based on the review we conducted of each objective/task area in coordination with the Board, the Executive Director, the Chief Investment Officer and the investment staff. At Exhibit A, we provide a compilation of our recommendations, in a matrix format, which will allow the Board to track its action regarding each.

Section IV, Exhibits, contains supporting material, tables and charts that are referenced within the body of the report. However, many charts and tables are inserted in the body of the report where feasible.

# Section I.

# Executive Summary

## Basis for the Review

The State Teachers Retirement System of Ohio (STRS) is a statewide retirement system that provides pension, disability, survivor, and health care benefits to licensed teachers and other faculty members employed in the public schools of Ohio or any school, college, university, institution, or other agency controlled, managed and supported, in whole or in part, by the state of Ohio or any political subdivision thereof. STRS serves more than 430,200 active, inactive and retired Ohio public educators. STRS has investment assets of $59.6 billion (as of June 30, 2005), making it one of the largest public pension funds in the U.S.

The Ohio Retirement Study Council (ORSC) was created by the Ohio General Assembly in 1968, and is one of the oldest permanent pension oversight commissions 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: STRS, the Ohio Police and Fire Retirement System (OP&F), the Public Employees Retirement System (PERS), the School Employees Retirement System (SERS), and the Highway Patrol Retirement System (HPRS). The statutes governing the ORSC are found in Chapter 171 of the Ohio Revised Code.

The ORSC, pursuant to R.C. §171.03(B), selected Independent Fiduciary Services® (IFS) to perform fiduciary performance audits of STRS and OP&F (referred to as the "Funds" or the "Systems"). The task areas are broken out into A. Investment Issues and B. Management Issues:

A. Investment Issues

- *Current Investment Policies;*

- *Portfolio Risk*
- *Investment Performance;*
- *Investment Management Structure and Costs;*
- *Use of External Consultants*
- *Asset Allocation*
- *Brokerage Practices*
- *Due Diligence Procedures/Selection of Investment Service Providers*
- *Statutory Provisions and Administrative Rules*
- *Conflicts of Interest*
- *Custodian*
- *Internal Controls and Risk Management*
- *Investment Accounting*

B. Management Issues

- *Board Governance, Policies and Oversight*
- *Efficiency and Effectiveness of STRS' Organizational Structure and Resources*
- *Ability to Attract and Retain Employees*
- *Monitoring of Investments and Reporting*
- *Reporting to the ORSC*

The following paragraphs describe in summary fashion some of the highlights of our Report. IFS has performed numerous operational reviews of public pension funds over the past twenty years. Although we make numerous recommendations that we believe will enhance the System's investment program, the results of this review demonstrate that STRS is generally in line with best practices with regard to much of its overall governance, administration and management of its investment program. We thank the Board members for their time during this project. We also thank Mr. Asbury and his staff for all of their time and cooperation during our review. We especially thank Mr. Slater for coordinating the project and seeing to our needs and numerous requests for information.

# Key Observations and Recommendations

## A. Investment Issues

### 1. The Investment Policy Statement

STRS' investment policies are found in both its Statement of Investment Objectives and Policy (IPS) and its Statement of Fund Governance. We found that overall these documents contain the necessary basic elements typically found in an investment policy statement. However, we do make a few recommendations for enhancement, such as including the System's stated mission; expanding the discussion on risk tolerance, investment objectives and liquidity requirements; and adding the roles and responsibilities of key parties in the investment process in the IPS.

### 2. Portfolio Risk

We found that the primary tools used to structure and control risk at STRS are the Fund's IPS and Guidelines as well as the Fund's Annual Investment Plan. Fund staff uses several tools to monitor portfolio risk, including: risk budgeting, relative risk controls and relative performance attributions, as compared to the stated portfolio benchmark and the general asset class policy index (for both internally and externally managed portfolios).

### 3. Investment Performance

We evaluated the investment performance of the STRS Total Fund as well as each asset class for the five years ended June 30, 2005. We compared the performance to the Fund's stated benchmarks as well as to peer universes, including the custom peer group surveyed. For the five year period analyzed, the Total Fund outperformed its Policy Index over most time periods and ranked in the first quartile in the public fund universe for one and three years, and third quartile for the five year period. We also found that the staff appears to have been successful in controlling the risk of the overall Fund over the last five years versus its Policy Index. The analysis of shorter time periods and each asset class can be found within our Report. In addition, in this section we assessed the benchmarks used to evaluate the Total Fund and each asset class and found that they are generally reasonable, although we did make a few recommendations for consideration. For the most part, we did not identify any sources of particular concern with regards to performance, risks or benchmarks, although the total equity segment performance has lagged its benchmark slightly over most of the time periods analyzed and, although near term performance has improved, longer-term performance of Alternatives has lagged.

## 4. Investment Structure and Costs

Our review of investment structure and costs included an assessment of the System's use of active versus passive management, the number of managers used, the use of internal versus external management and the investment management costs. We found that the System appears to be using an appropriate amount of passive management as well as a generally appropriate number of investment managers. At the time of our due diligence, STRS managed 77% of the Total Fund internally; this includes the vast majority of domestic equity, approximately half of its international equity, 100% of its core fixed income and most of its real estate. In addition, STRS investment management costs appear quite low overall, due at least in part to the large amount of internal management.

## 5. Use of External Consultants

The Frank Russell Company has provided investment consulting services to STRS since 1991 and the scope of their services has expanded over that period. The contract was up for re-bid as of the writing of this Report. Overall, we found that Russell's consulting services are generally consistent with the needs of STRS and industry practices. Russell provides general retainer consulting advice as well as advice on alternative investment strategy, policy and education and on real estate. Given the breadth of services provided by Russell, their fees appeared reasonable when compared to those paid by peers. However, given its potential for conflicts of interest within the industry, we recommend that Russell's contract with STRS be amended to require Russell to provide annual disclosure of its business relationships with all investment managers or other providers of investment services in addition to a few other minor clarifications on the services/advice that STRS expects Russell to provide.

## 6. Asset Allocation

Overall, we found that STRS used an appropriate process to set its asset allocation. We reviewed the 2005 Asset Liability Study, which is the basis for the current asset allocation policy, (as well as earlier Asset Liability and Asset Allocation studies) conducted by the investment consultant and found that it was sufficient, reasonable assumptions were used and the target asset allocation appears to be fairly efficient. We recommend, however, that future asset allocation and/or liability studies provide STRS with additional risk and probability statistics and that STRS conduct at least an asset allocation study every three years. Although we acknowledge that it can be difficult for a very large fund to increase its investments in alternatives, we recommend that STRS continue in this vein so that alternatives can have a meaningful impact on the Total Fund.

## 7. Brokerage Practices

STRS uses third party services to measure and evaluate the transaction costs associated with its internally managed assets, although it does not utilize such a service for its external investment managers and we recommend that it do so at least periodically. In general, we find STRS' brokerage policies to be detailed and comprehensive. However, we recommend enhancing the Broker Evaluation policy by articulating the factors staff should consider when ranking brokers, expanding the policy governing the selection of emerging and women-owned brokers to include additional objective criteria and policies, as well as articulating specific criteria to govern selection and ranking of in-state brokers (as part of the process for complying with Senate Bill 133). STRS' historical use of soft dollar converter trades has been high, but we endorse the System's decision to reconsider its policies and practices in this regard and STRS has implemented sound policies and procedures regarding their use.

## 8. Due Diligence Procedures/Selection of Investment Service Providers

Even though the majority of STRS' assets are managed internally, the external investment manager selection process is still very important. This process has been delegated by the Board to the staff, with the advice of the investment consultant. STRS has a written external manager selection process, although we recommend that the process be expanded to the level of a full policy and procedure document covering all aspects of the manager selection and hiring process.

## 9. Statutory Provisions and Administrative Rules

We reviewed Ohio law, including Ohio Revised Code Chapter 3307, the state law that primarily governs STRS. While we also note many positive features of the law in our Report, we recommend the law be changed in order to permit the Fund to contract directly with the custodian bank and that the Treasurer's staff and Fund's staff should attempt to eliminate duplication of effort in reconciling and auditing the custody bank's work. We also recommend that the Board amend its IPS to address the legislative provisions related to investments in businesses owned and controlled by women or minorities and implement a system for monitoring and evaluating compliance with the law.

In this section we also evaluated the impact of Senate Bill 133. At the time of our due diligence and fieldwork, STRS was in the process of implementing the new law. This law also has positive and negative features, e.g., we believe that the requirement to develop an orientation and continuing education program board members is useful (although we believe Trustees may also be able to receive worthwhile training outside Ohio), while the Ohio-qualified agent and manager rules are ambiguous and create a risk that STRS' decisions regarding the selection of agents and investment managers may not result in the engagement of the best qualified, available firms. For example, we recommend that the STRS Board revise its Ohio Investment Manager and Broker Policy and Program to delete the requirement that at least one Ohio-qualified investment management firm be included among the finalists in every search. S.B. 133 also changes the powers of the Attorney General, e.g., S.B. 133 now explicitly authorizes the AG to sue any Board member for both money damages and injunctive relief in the event of a breach of fiduciary duty, and we recommend that the statute be amended to authorize the Board to retain independent out-side legal counsel without the prior approval of the State Attorney General.

## 10. Conflicts of Interest

S.B 133 imposed several new requirements, beyond what was required by Chapter 3307, regarding ethics and conflicts of interest. STRS already had a Policy Statement for Board members and a Code of Ethics for staff and has made reasonable steps to implement S.B. 133's rigorous requirements for which we recommend only minor modification. We also found that STRS should adopt a prohibited transaction policy to define the term "parties in interest" and they should develop a process for analyzing transactions with "parties in interest" to assure that their terms and conditions satisfy the legal standard of comparability to the terms of similar transactions between unrelated parties.

## 11. Custodian

Chapter 113 of the Ohio Revised Code provides that the Ohio Treasurer of State is the statutory custodian for all state agency funds. During our review we found no instance where the Treasurer acted inconsistent with the authority granted in the current Ohio statutory custody model. The Ohio Treasurer of State delegates custody functions to one or more financial institutions (that maintains an Ohio presence) for each respective Ohio pension fund; Fifth Third is the custody bank for STRS. Currently no "top-tier" custodial banks are headquartered in Ohio. While the regional banks are capable to perform many functions, they have limited capability in other areas, such as global custody services, for which other institutions must be retained (STRS uses Bank of New York for global custody).

While we understand that STRS has been permitted to provide input into the selection process, it is not STRS' right to do so. Requiring STRS to use a bank that does not have the necessary systems and required level of services creates exposure to various risks and therefore we found that the current statutory custody model impairs STRS' ability to invest Fund assets effectively and efficiently. Although STRS has its own internal very sophisticated portfolio and trade order management systems, and it is therefore not as reliant on the Ohio based bank, we recommend that Ohio law be amended to establish an alternative statutory custodial model that is more consistent with best practices – a legal and operational structure that empowers the STRS Board to decide whether to change custody banks, who to select, and the authority to manage the provider of its custodial services.

## 12. Internal Controls and Risk Management

Overall, we found that the evolution of internal audit at STRS has been positive and the System seems very conscious of the need for appropriate control activities. For example, STRS' process for payments to investment managers is closely controlled. However, we recommend that the chief audit executive position be elevated to be on par with the department heads being audited. We also found that Internal Audit is understaffed and STRS should increase this department to be more aligned with STRS' size, its needs as well as industry practice. Given the current staff size, we believe that it is virtually impossible to audit STRS properly, which is not a reflection on the current staff. STRS should also develop an audit plan appropriate to its size and complexity. We also recommend that the System formalize a mechanism for risk management identification and reporting.

## 13. Investment Accounting

Overall, we found STRS' investment accounting system and processes to be adequate and consistent with its functional needs. STRS uses a purchased investment accounting system, Maximis, as its primary investment accounting database. Given its large size and degree of internally managed assets it is appropriate for STRS to maintain accounting records in-house.

## B. Management Issues

### 1. Board Governance, Policies, and Oversight

We found that STRS governance policies and rules are impressively comprehensive and they cover all of the significant aspects of governance a sophisticated public pension fund requires. STRS recently revised the "Purpose" of the policy to highlight the member-orientation of the Board's mission and principles. As a result of the enactment of S.B. 133, the STRS Board has 11 members, which is in line with its public pension fund peers. S.B. 133 significantly changed the makeup of the Board by removing the Attorney General, the State Auditor and adding "investment members." The addition of these new members creates the potential for conflicts of interest and we recommend increased disclosures and prohibitions in our Report.

The information available to IFS gives us no reason to believe that the Board is not currently in compliance with its internal governance procedures and statutory provisions and rules. Many of the statutory provisions have been recently changed as a result of S.B. 133, and the Board has been adopting new policies and modifying existing ones to implement these changes.

### 2. Organizational Structure and Resources

Our review of staff size shows that STRS has a high staffing level relative to most of its peers in most functional areas, except for legal staff.

We reviewed the STRS Ohio Associated Code of Ethics and found that STRS has adopted generally reasonable policies and practices regarding professional conduct. In this section, we also reviewed STRS' communication program and found that STRS has an extensive communications program and they use several tools to accomplish their goals (e.g., newsletters, news releases, brochures on programs, website with access to personal account information, participant surveys, etc.).

### 3. Ability to Attract and Retain Employees

As called for by the scope of work, IFS reviewed the Aon/McLagan Partners Total Pay Review prepared for STRS in 2006. Overall, we found that Aon used an appropriate methodology for the Compensation Study and their conclusions were based on reasonably reliable information. We note our observations on the compensation study in our Report.

### 4. Monitoring of Investments and Reporting

We reviewed the various investment performance reports provided to the Board and staff and determined that they generally contain the necessary elements for the Board to conduct proper oversight, although we do note a few areas for improvement in our Report, such as the inclusion of more risk statistics. We found that STRS has documented procedures in place for internal and external manager review and our analysis of a sampling of the investment guidelines showed that they generally contain the essential elements. With regard to the Board's authority to monitor the System, we found that Chapter 3307 gives the Board broad authority, including the ability to set its own budget. We recommend, however, that the budgeting process for investment-related expenditures reflect a long-term assessment of STRS needs rather than being tied only to asset values.

### 5. Reporting to the ORSC

The ORSC's enabling statute, Chapter 171 of the Ohio Revised code, is particularly specific in defining the reporting requirements imposed on ORSC and, in turn, on the retirement systems under its jurisdiction. The ORSC must report to the General Assembly on proposed changes to the retirement laws as well, semi-annual investment reviews and annual actuarial reviews, among other topics. In order for the ORSC to fulfill its duties, it requires each of the retirement systems to undertake various management activities and to submit a number of reports on various subjects (such as health care, disabilities, etc.). The ORSC retains its own investment consultant, Evaluation Associates ("EAI"), independent of the retirement systems' investment consultants, which provides a semi-annual comparative study report to ORSC. The information currently received by the ORSC from the systems and provided by the ORSC to the executive branch, the legislature, and the public appears to be very comprehensive and more than adequate to fulfill its oversight requirements. However, we do make a number of recommendations in our Report to enhance the reporting received by the ORSC and ensure that it adds value and contains all of the necessary information.

# Section II.

## Background, Review Methodology, and Limitations on the Report

IFS specializes in evaluating the organizational governance, day to day administration, and investment programs of pension systems using combined expertise in investment practices, pension fund administration and fiduciary responsibility. In operation for almost 20 years, IFS has performed similar evaluations for numerous other public and private pension funds, and is recognized as the leading firm in the industry performing this type of consulting services.

The specific details, scope and depth of the review are defined by the July 21, 2004 Agreement, and the September 14, 2005 Amendment, between the ORSC and IFS.

Throughout the Report, as part of our fiduciary review methodology, we identify and highlight our findings or observations and provide recommendations. As part of this process, we set forth and explain the fundamental principles and criteria we use for the scope area being evaluated. Our goal is not only to identify problems, it is to "add value" by identifying alternatives intended to enhance the pension fund's operations and/or address prospective problematic issues. For this reason, the initial standard we typically use in making our findings and recommendations is industry "best practice." A "best practice" is not necessarily the "norm" or most common practice, rather it is the most effective and efficient means (e.g., a process, procedure or structure) of doing something in a given situation to achieve an optimal outcome. Since effectiveness and efficiency are situational, what is a best practice for one operation may not be a best practice for all operations.

A best practice is often viewed as the baseline, the experience-tested optimum standard, which is then modified to suit a particular organization. What is a "best practice" for an individual organization is determined by examining how a particular function is carried out and then concluding what course of action/methodology would enhance the process. To appreciate the importance of "best practices" it is essential to recognize the difference between a function being achieved and a function being achieved in an effective and efficient manner – the distinction is analogous to the differentiation between being good and being great. IFS' declaration of a "best practice" is based on a combination of various legal standards (enacted and proposed) – e.g., ERISA,[1] UPIA,[2] UMPERSA,[3] secondary research from authoritative industry sources (e.g., studies and pronouncements by DOL, SEC, and industry professional organizations), its own empirical assessments of pension fund practices attained performing similar fiduciary reviews, and the extensive experience of the firm's staff, many of whom, having worked at pension funds have first-hand knowledge of the nuances of pension fund processes.

Our approach also recognizes that it is difficult to transform the status quo without an apparent problem. A pension fund may not have the inclination or statutory ability to bring its operations in line with best practices. For this reason, we attempt to also include alternative recommendations, where feasible, which take into consideration the practical realities of the pension fund's circumstances and functional environment. We note these situations in the text of the report. The terms STRS, the Fund and the System are used interchangeably throughout this Report.

[1] The Employee Retirement Income Security Act of 1974 (ERISA) is a federal law that sets minimum standards for most voluntarily established pension and health plans in private industry to provide protection for individuals in these plans.

[2] The Uniform Prudent Investor Act (UPIA) was promulgated by the National Conference of Commissioners on Uniform State Laws (the "Uniform Law Commissioners") in 1994. The Prefatory Note to UPIA states that the model law "undertakes to update trust investment law in recognition of the alterations that have occurred in investment practice." UPIA was endorsed by the American Bar Association and has been adopted in 46 states.

[3] The Uniform Management of Public Employees Retirement Systems Act (UMPERSA) was promulgated in 1997 by the Uniform Law Commissioners to provide legal rules that would permit public employee retirement systems to invest their funds in the most productive and secure manner, with a minimum of regulatory interference. UMPERSA modernizes, clarifies, and makes uniform the rules governing the investment and management of public retirement systems' assets. UMPERSA was endorsed by the American Bar Association. A number of public pension fund organizations participated in the development of the law (e.g., the National Council of Public Employees Retirement Systems (NCPERS) the National Council on Teacher Retirement (NCTR), and various members of the National Association of Public Pension Attorneys (NAPPA). However, because UMPERSA did not address portability, pension board representation, full funding, service credit purchase, disclosure and reporting proxy voting, contractual rights to benefits, and domestic relations orders, it was not endorsed by the public pension fund organizations that participated in its development.

The analysis leading up to this Report progressed through the following stages:

### Document Collection

The first stage in our process was collection – with the staff's cooperation – of information regarding the Board's investment program, practices and operations. This included amassing extensive data and documents, such as the Board's enabling and related statutes, written operating policies and procedures governing the organization, written investment policies and guidelines, service provider contracts, and other materials. This phase was conducted primarily in July and August 2004, with additional documents requested as necessary.

### Analysis

The next stage of our process, which continued throughout the project, was analysis. In undertaking this review, IFS employed a team approach, assigning certain of its personnel to concentrate on particular subject areas. Throughout the process, we coordinated and integrated our efforts and maintained communication with representatives of the Board.

### Interviews & Discussions

The third stage of the process was to hold a series of interviews with people directly associated with the Board. These included face-to-face and/or telephone interviews with the Board Members, the Executive Director, investment staff members, legal counsel, various service providers and constituent groups. The main interview phase was conducted in two phases in October and November 2004. Subsequent interviews were conducted in person in Columbus and by telephone.

## Survey and Research

IFS developed a lengthy survey directed at peer public pension funds. We developed a list of peer funds (the "custom peer group"), which was approved by STRS, based on certain factors. Experts will acknowledge that no two pension funds are precisely identical. Some argue the various differences among the pension cancel each other out and therefore asset size is the appropriate measure of comparability. The distinctions among pension funds are many. However, some have more factors in common than others. Therefore, we use commonality of characteristics to measure comparability. The greater the number of shared characteristic, the greater the level of comparability. We define the STRS "peer group" as the pension funds with the greatest level of comparability to STRS.

To determine comparability and define the STRS "custom peer group," we considered not only the size of the fund (e.g., assets under management), but also the complexity of the investment portfolio (e.g., the extent of participation in various asset classes the asset classes utilized, whether the majority of assets were internally or externally managed, the use of active versus passive management of investment assets, whether the entity was responsible for investments and benefits administration, etc.). Based on the comparability characteristics, IFS identified twelve funds as suitable for participation in the survey pool. (See Exhibit B – Customized Peer Group Survey Recipients.) Using commonality of characteristics IFS would typically not consider all the other Ohio public pension funds as peers; however for certain portions of the analysis we did compare STRS to the other four Ohio funds, as requested.

Eight funds responded, including Ohio PERS (see Exhibit C – Custom Peer Group Respondents), although a couple funds did not provide all of the information requested. Several recipients declined to participate due to the significant amount of time required to compile the necessary information to respond to the survey. To promote participation we agreed, if requested, to maintain the confidentiality of information and to provide participants with a copy of the survey results. Where confidentiality is a consideration we do not attribute such information to a specific organization. Rather, when reviewing such information each survey participant was assigned a code letter.

The results of the survey are incorporated throughout the Discussion and Analysis section of the report where applicable. We can not attest to the accuracy of the data provided by the peer funds.

In addition to the survey we also researched the enabling statutes, regulations, and governance documents of the peer group members to obtain information that was not requested in the survey or where clarification was needed.

### Draft, Preliminary, and Final Report

The written Report also progressed through several stages. IFS submitted several draft versions of the Report and had numerous discussions with both STRS staff and the ORSC staff, who both provided written comments. This approach is consistent with IFS' review methodology.

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 us to obtain additional information and prepare a revised drat and subsequently a final report that takes into account all relevant comments. The final product reflects the combined analytical and writing efforts of a diverse team of 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 our conclusions constitute alternatives for the Board and staff to consider in light of STRS' evolving investment program, management and practices now and over the coming years.

- Second, in conducting this review, we assumed the information we were provided, whether by the Service Providers, STRS or the peer funds, is accurate, and could be relied upon, including the information presented in response to the survey. We can not attest to the accuracy of the data provided by the survey peer group respondents. We sought to cross-verify certain information among different interviewees, survey respondents and documents, but the process of cross-verification was limited.

  We were not hired to detect or investigate fraud, concealment or misrepresentations and did not attempt to do so. We were not hired to, and did not attempt to conduct a formal or legal investigation or otherwise to use judicial processes or evidentiary safeguards in conducting our review. Our findings and conclusions are based upon our extensive review of documents, the interviews we conducted with the Board, staff, and others associated with STRS, independent analysis, and our experience and expertise.

- Third, this Report does not and is not intended to provide legal advice. Although the report considers various legal matters, IFS' analysis, 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 and legal findings regarding such matters.

- Fourth, our observations are necessarily based only on the information we considered as of and during the period we performed our review, especially as of June 30, 2005 for the investment holdings.

- Fifth, our Report cannot and does not attempt either to assess the manner in which any of our recommendations may be implemented or observed in the future, or predict whether STRS' practices, as represented to us, will be observed in the future. Nor does our Report supplant or reduce the ongoing independent fiduciary duty of the Board and staff to structure and evaluate their investment program or policies and procedures.

- Sixth, although this Report sets forth observations and recommendations regarding STRS' internal controls, we did not conduct – or attempt to conduct – a full or formal examination of STRS' internal control system. This Report is not intended as a substitute for such an examination, if one is appropriate. The scope of our work was limited by our contract with the Board.

- Finally, although we have discussed our findings with, and submitted draft versions of our Report to STRS and to the ORSC, its final form and content reflect the independent judgment of IFS. The extent to which our Report and recommendations are implemented is the Board's decision.

# Section III.

# Discussion and Analysis

## *A. Investment Issues*

### 1. The Investment Policy Statement

#### a. Introduction

**FUNDAMENTAL PRINCIPLES REGARDING INVESTMENT POLICY STATEMENTS:**

- *An investment policy statement ("Investment Policy" or "IPS") is a key governance document that sets forth the long-term, broad foundation and framework for the entire investment program.*

- *In accordance with "best practices," an IPS should address and define the Trustees' investment objectives; tolerance for risk; permissible investment strategies, instruments and asset classes; measurement tools and policies; as well as the liquidity needs and cashflow requirements of the fund.*

- *An IPS is not intended to serve as discrete guidelines for investment managers, as operating procedures for the plan or as a planning document for short term investment issues.*

- *An IPS is a long-term document that should be reviewed critically on an annual basis in order to determine whether revisions to long-term goals and strategies are necessary.*

- *An IPS should establish that all planning and investment decisions are made in the best interest of the pension fund's participants and beneficiaries and designed to provide benefits and defray reasonable expenses of plan administration in a prudent manner.*

## Key Purpose of an IPS

The key purpose of an IPS is to articulate the consensus views of the Board of Trustees regarding the overall investment program and its major components, and to explicate policies to assist the Trustees with major issues (e.g., developing a long-term strategic asset allocation, selecting service providers and performing due diligence, monitoring performance and investing assets consistent with appropriate fiduciary standards).

## Key Elements of an Investment Policy Statement

The following is a list of the key elements that an IPS should address:

- The System's mission and purpose;
- The System's investment objectives;
- The roles and responsibilities of the essential parties, e.g., Board of Trustees, investment staff, the investment consultants, investment managers, custodian(s) and other service providers as well as the decision-making process;
- The System's risk tolerance;
- The liquidity needs of the System;
- The System's long-term strategic asset allocation:
    - Specific targets and ranges, and
    - Rebalancing process;
- Standards and measures of investment performance, including:
    - The process for monitoring and evaluating performance of the System and the individual managers (both external and internal, if applicable), and
    - The Policy Index for the total fund;
- Broad System and asset class investment guidelines, including:
    - Permissible and impermissible asset classes, investment strategies and instruments, and
    - Reasons and general parameters for each major asset class;

- Criteria and procedures regarding specific miscellaneous subjects, including:
  - Securities lending,
  - Proxy voting, and
  - Brokerage; and
- A statement regarding the process for periodic review of the IPS.

### b. Evaluation of STRS' Current Investment Policies

As part of its evaluation of STRS' current investment policies, IFS reviewed the STRS Statement of Investment Objectives and Policy ("IPS"), the Statement of Fund Governance, both dated January 16, 2004, and the Board Policies dated July 2004 (specifically the investment section of the document which identifies the ends to be achieved regarding the investment of funds and the Investment Committee Charter).

## GENERAL OBSERVATIONS REGARDING STRS IPS:

Our initial review of the System's IPS was with regard to the IPS dated January 16, 2004. A revised IPS was issued January 1, 2006. We reviewed it and modified our original comments to reflect the most recent document, the content and format of which are largely the same. However, data reflects a new Asset Liability Study, presented by Russell on November 17, 2005 (the "2005 Asset Liability Study"), including revised assumptions for asset class returns.

The STRS staff relies heavily on the Board Policy manual as the source document for the IPS, Fund Governance, and a number of other governing documents. It is of paramount importance that policy documents be in written form and known and available to board, staff and participants. We found that such is the case with STRS, although we have some mainly stylistic differences of opinion with staff regarding the presentation of the material. All parties should be provided with documents that outline a clear road map for the investment process. It is not sufficient simply to reference the Board Policy Manual. For example, IFS believes that many of the items covered in the Statement of Fund Governance belong in the IPS, although we recognize that these two documents are grouped together. At the very least, the IPS and Statement of Fund Governance should cross reference each other and the IPS should cross reference the Annual Plan.

- Overall, the STRS IPS, dated January 1, 2006, is adequate at establishing the structure of the investment program and contains most of the basic elements typically found in an investment policy statement reflective of best practices.

- The IPS addresses STRS financial and actuarial characteristics and established investment goals generally.

- The Statement of Fund Governance more than sufficiently delineates the lines of reporting and responsibility over the investment program. It identifies the areas where investment decision making is retained by the Board and areas where it is delegated to staff. The IPS does not incorporate or make reference to the Statement of Governance, although they are printed and bound together.

- To be more reflective of best practices, the IPS should be enhanced by adding the key elements of an IPS that are not addressed or expanding the discussion of these items where appropriate, including the System's stated mission, risk tolerance (e.g., willingness to experience a single year or multiple years of underperformance), liquidity requirements, and the roles and responsibilities of key parties in the investment process.

The following is a discussion of specific areas of the STRS IPS which could be enhanced or fine tuned.

### 1) The STRS IPS Mission and Purpose Section

## FUNDAMENTAL PRINCIPLES REGARDING IPS MISSION AND PURPOSE SECTION:

- *A Mission and Purpose section in an IPS is best used to briefly describe the plan: why the plan exists, who the participants and beneficiaries are, who contributes to the plan, and the benefits the plan expects to offer over time.*

- *The Mission and Purpose section should establish who has responsibility for formulating policies and procedures in order to meet the pension fund's goals.*

## OBSERVATIONS REGARDING IPS MISSION AND PURPOSE SECTION:

- The STRS IPS has a section labeled Purpose, but it is devoted mostly to identifying Ohio state code that vests the Board of Trustees with its responsibilities.

- The IPS does establish the Board as having ultimate authority for the System. This is a meaningful element to include in the IPS.

- The IPS should, but does not, clearly establish the Board's mission or the purpose for which the System's investment program exists. This information is, however, clearly set forth found in the "Board Policies" (dated July 2004).

| Recommendation A1 |
|---|
| *The IPS Purpose section should be amended to state clearly for whom and why the Plan exists (i.e., STRS' mission and purpose) or at a minimum reference the mission and purpose stated in the Board's Policies.* |

### 2) IPS Investment Objectives

## FUNDAMENTAL PRINCIPLES REGARDING IPS INVESTMENT OBJECTIVES:

- *The IPS should clearly define the Board's acceptable level of risk, since this definition serves as a guidepost for the investment program itself. The plan's level of risk is* *determined to a large extent by the asset allocation and allowable or prohibited investment strategies.*

- *The Investment Policy Statement should provide a clear statement of the System's investment objectives, which come from a number of inputs: actuarial, financial, and accounting sources. Together, these inputs define the objectives of the System. The trustees and pension fund staff have the responsibility of creating an investment program that satisfies all these objectives simultaneously. The IPS investment objectives should include:*
  - *A rate of return in excess of inflation that equals or exceeds the actuarial rate of return over an established investment horizon;*
  - *A rate of return that enables the System to meet liabilities and fulfill minimum funding requirements;*
  - *Consideration of whether and how to maintain a certain funded ratio (or alternatively, the goal of improving the funded ratio);*
  - *Sufficient liquidity to satisfy annual cash flows; and*
  - *A rate of return that equals or exceeds the System's long term policy index with an acceptable level of risk.*
- *STRS' investment objectives should grow out of – and conform to – the investment horizon of STRS, its current and expected future cash flow needs and liability stream. It is necessary to establish clear total fund performance objectives, e.g., "earn a rate of return in excess of inflation, which meets or exceeds the pension system's assumed actuarial rate and is consistent with the pension system's long-term Policy Index," to help shape the entire investment program. Establishing objectives for each asset class and strategy likewise can help shape their nature and structure.*

## OBSERVATIONS REGARDING STRS IPS INVESTMENT OBJECTIVES:

- The STRS IPS stated investment objectives could be more straight forward and comprehensive.
- The STRS IPS language regarding how liabilities will be satisfied is difficult to understand.
- The STRS IPS does not include any discussion of an acceptable level of risk.

| Recommendations A2 – A3 |
|---|
| *The STRS IPS Investment Objectives section should be expanded to clearly incorporate STRS' actuarial, accounting and financial objectives. The language of the IPS investment objectives section should include (a) earning a rate of return in excess of inflation that equals or exceeds the actuarial rate of return over an established investment horizon, (b) earning a rate of return that enables the System to meet liabilities and fulfill minimum funding requirements (as well as possibly the goal of achieving a certain funded ratio), (c) maintaining sufficient liquidity to satisfy annual cash flows, and (d) earning a rate of return that equals or exceeds the System's long term policy index with an acceptable level of risk.* |
| *The STRS IPS Investment Objectives section should document STRS' official Policy Index using representative index benchmarks for each asset class.* |

### 3) STRS IPS Documentation Of Process, Roles And Responsibilities

## FUNDAMENTAL PRINCIPLES REGARDING DOCUMENTATION OF PROCESS, ROLES AND RESPONSIBILITIES:

- *Among the critical documents that define an investment program are the asset liability study, asset allocation analysis, annual audited financial report, and the actuarial study.*
- *The IPS should be used to identify the schedule by which each critical document should be produced, including the frequency, and critical observations from each should be incorporated in the investment policies of the plan.*
- *The IPS should clearly delineate the responsibilities of the Board and distinguish them from those of the Investment Staff and/or the service providers.*

## OBSERVATIONS REGARDING DOCUMENTATION OF IPS PROCESS, ROLES AND RESPONSIBILITIES:

- The Statement of Governance, rather than the IPS, delineates the respective roles and responsibilities of the Board and investment staff regarding the investment program.

- From documents and interviews, it was entirely clear that the System adheres to a well organized annual planning process, which is the short term strategic planning process by which the investment staff executes the asset allocation (long term goals).

- As part of the annual planning process the Investment Staff performs extensive research and review throughout the year and communicates with the Board on a frequent and regular basis.

- The annual planning process is well documented, but is not mentioned in the IPS. The absence of any reference to the annual planning process in the IPS exposes the System to institutional memory risk, i.e., the risk that awareness of the process is not readily known and those that know about and understand the process will leave. We understand from our interviews that the goal is to produce an asset allocation study at least every five years and an asset liability study every 10 years.

- IFS believes that a key step to managing risk is for the System to base the investment program on current information. Failing to update key documents, e.g., the asset liability study and the asset allocation study, on a regular, published schedule means that STRS may be relying on old data to implement its investment plan.

- Section 1.6 of the IPS provides for an annual review to determine its continued suitability. However, the IPS does not address the frequency for conducting an asset allocation study; asset liability study, actuarial study, or the financial audit. Specifying the schedule by which these critical documents shall be produced can help ensure that they are done in a meaningful, timely fashion, so that investment planning is based on current data.

- The investment consultant serves primarily as the consultant to the Board. However, the Statement of Fund Governance states in several places that both the Board and investment staff will "seek the advice, guidance and recommendations of Board-retained investment consultants…. and other experts" before making certain decisions. Based on information obtained during the interview process, we noticed that while the interaction between staff and the investment consultant functions well, the specific parameters of the relationship are not clear.[4] The investment staff knows when to consult with or work with the investment consultant; however they do not rely heavily on the consultant to do their job.

| Recommendations A4 – A7 |
|---|
| *The IPS should identify the key documents that must be produced (IPS, Asset Allocation Study, Actuarial Study, and Asset Liability Study), the party responsible (consultant, actuary, etc.), the frequency with which key documents are developed and/or reviewed, and how they are incorporated into the System's investment policies. The following is a suggested frequency of review schedule for some of the documents that are key to the investment process:*<br>• *Conducting an asset liability study – once every five to seven years,*<br>• *Conducting an asset allocation study – once every two to three years* |
| *The IPS should reference delineation of investment decision making roles and responsibilities set forth in the Statement of Governance and the Board Policies.* |
| *The IPS should define the lines of reporting among the Board, Investment Staff, and the investment consultant.* |
| *If the Board of Trustees and Investment Staff rely on interim updates to key financial data, the IPS should specify in an addendum the source of the data, what it supplants and how it is relied upon.* |

### 4) STRS IPS Risk, Risk Tolerance And Liquidity Needs

## FUNDAMENTAL PRINCIPLES REGARDING IPS RISK, RISK TOLERANCE AND LIQUIDITY NEEDS:

- *The Trustees are ultimately responsible for the types of risk and amount of risk the investment program will incorporate, at the total Fund level and within each asset class.*

[4] The Statement of System Governance states that "before approving or amending policy decisions" and "before amending the criteria for monitoring and evaluating investment decisions" the Board "seeks advice, guidance and recommendations" from Board-retained investment consultants, among others. Additionally, the Statement of System Governance also states that the Investment Staff "seeks guidance and recommendations of Board-retained investment consultants."

*They must determine and specify the types and levels of risk suitable for each portion of the portfolio and the portfolio as a whole.*

- *The Trustees should have an awareness of the risk level of the Fund's asset allocation and reach a consensus as to what is acceptable. The asset allocation outlined in an IPS is an expression of a Board's required and expected return, as well as the Board's acceptance of the risk associated with the strategies it deploys to earn that rate.*

- *The risk level of the investment program also needs to be evaluated with regard to the likelihood of meeting the actuarial rate of return and how it affects the plan's ability to satisfy liabilities within the established funding period and meet liquidity needs (i.e., generating sufficient cash flow to meet payments).*

- *When establishing the asset allocation policy, the Board needs to understand how volatility of returns to the downside can impact liquidity needs, future liabilities and cash flow requirements.*

- *Mature pension plans typically have negative cash flow (i.e., benefit payments exceed investment income and contributions) as the number of retired participants exceeds the number of active participants (or the ratio of active participants to retirees declines), therefore liquidity can become an issue. The sources of cash flow are important to analyze and understand. External cash flows include in flows (contributions) and out flows (benefit payments and administrative costs). Internal sources of cash include income and appreciation of plan assets. If contributions are insufficient to cover benefits and administrative costs, assets need to be liquidated, or possibly, income (dividends and interest) need to be used to pay benefits rather than to be reinvested. As a result, the appreciation of assets is essential to meet unfunded liabilities over time, within an acceptable funding period. This is why the consideration of downside risk is important.*

## OBSERVATIONS REGARDING IPS RISK, RISK TOLERANCE AND LIQUIDITY NEEDS:

- Since writing initial drafts, IFS received from STRS, the 2005 Asset Liability Study, the July 2005 Actuarial Valuation, and the 2005 Audited Financial Statements. We updated our comments to reflect the receipt of these documents.

- The IPS should address the System's risks more clearly; articulating the level and types of portfolio risk that are acceptable and necessary to achieve the purposes of the System.

- The IPS references a review of the liability structure and funded status as background to establishing the Plan's asset allocation, but the 2006 IPS continues to focus on return with no mention of downside risk tolerance, although we understand that downside risk was addressed in the "Asset/Liability Study Final Russell Report" and in the November 2005 "Investment Committee Meeting Agenda Book" (after the date of our fieldwork). How much risk the System may take is not only a function of how much it needs to earn, but how much it can afford to lose relative to meeting its liabilities, near term cash flows and long term funding of liabilities. In 2005 (according to the audited financial statements), external cash flows were positive. However, the actuarial valuation reported that the funding period continued to hover around 55.5 years and the funded ratio was had improved slightly from 75.9% in 2004 to 74% in 2005. The funding gap between accrued liabilities and valuation assets widened due largely to the increase in the accrued liability from $72.9B in 2004 to $77.1 billion in 2005.

- The 2006 IPS incorporates the observations of the 2005 Asset Liability Study, where the consultant recommended increasing the Plan's allocation to publicly traded equities from 67% to 70% at the midpoint. IFS continues to maintain that portfolio risk from the total Fund asset allocation will, by definition, be high since the allocation to publicly traded equities is high. By definition, publicly traded equities have a higher standard deviation of returns than, for example, fixed income (this concept is based on indices representing the asset classes of the policy index, not specific active managers or active management techniques).

- Compared to similar plans, the STRS allocation to publicly traded equities is on the high side of average. The Custom Peer Group Average was 63.4% for publicly traded equities. To outperform the expected return of the asset allocation policy index, STRS carefully takes calculated investment risks (using risk budgeting – see additional discussion in Investment Management Section 2(A). Portfolio Risk), applying active management risk in asset classes that have superior risk return profiles, such as real estate. At the Total Fund level, STRS takes 100 basis points of tracking error risk (risk budget), a careful, controlled amount. None the less, the amount of total portfolio risk remains significant, and the probability of achieving only the required rate of return does not improve with additional equity. Moreover, the 2005 Asset Liability Study stated that alternative asset classes, which can be used to improve the risk return profile of a program, will not necessarily alter the risk profile of the Plan in any material ways.

- The 2006 asset allocation (as a result of the 2005 Asset Liability Study) eliminates Liquidity Reserves from 2% in 2003, to 1% in 2004 to zero in 2006, based on the consultant's recommendation that other asset classes are more efficient. IFS notes that efficiency is the amount of return for a unit of risk. Other asset classes may be more "efficient," but the cost of liquidation is a meaningful analysis before investing liquidity reserves in non-cash vehicles. STRS reported to IFS that it will equitize cash, i.e., invest in synthetic equity instruments such as S&P 500 futures, although this had not been done yet as of the writing of this report. Generally, futures are cost efficient, liquid instruments for earning equity market returns, preserving liquidity and controlling investment expenses. They do, however, have a higher risk profile than cash investments.

- The 2006 IPS states that the actuarial rate of return continues to be 8%; however, the IPS does not address the tolerance of the System, or the impact on the System, for underperforming in a single year or multiple years. The IPS states that active management and risk budgeting will help the Plan to meet, if not slightly exceed, the actuarial rate over nine and 20 year time horizons. However it also states that the expected return for the total Plan can "deviate significantly both positively and negatively." Applying the asset allocation and capital markets assumptions for each asset class, the expected return for the total Plan is 7.42% over the nine year time horizon. Active management is expected to produce 40 basis points of additional return, a reasonable assumption in our opinion. (It is important to point out that the 20 year forecast for expected return is 8.4%, based on somewhat more aggressive expected returns.) The projected funded ratio for the nine year horizon with 67% equity or at 8% expected return is between 71 and 73%. The important point to take away, and one that the Asset Liability Study drew, is that increases in equity allocation add marginal amounts of excess return, with the given liability structure, and downside performance risk can have significant impact on System funding standards.

- The 2006 IPS does not explicitly address the need to amortize unfunded accrued liabilities over 30 years or less, as established in Senate Bill 82, effective March 7, 1997. The 2005 Actuarial Valuation reports that the funding period was 55.5 years.

| Recommendation A8 |
|---|
| *The STRS IPS could be a more significant summary document of the System's investment program if it were to account explicitly for the amount of risk in the program and how it may impact the financial condition and funding requirements.* |

## 5) STRS FUNDING REQUIREMENTS

### FUNDAMENTAL PRINCIPLES REGARDING FUNDING REQUIREMENTS:

- *The main purpose of an investment program for a pension plan is to satisfy current and future benefit obligations. These obligations are determined primarily by benefit levels, the investment rate of return and contributions made by employers and/or employees.*

- *Funding requirements are determined by the actuarially assumed rate of return on investments, projected demographic and benefit changes and other inputs to the actuary's analysis (such as forecasted changes in interest rate levels), including legislative standards for satisfying long term liabilities. The funding requirements are the amounts needed to meet future liabilities within a specific time frame, while satisfying current liabilities. A plan with a funded ratio of less than 100% is considered "underfunded."*

- *Funding requirements have an impact on the asset allocation philosophy, i.e., a Board for an under funded plan may determine it needs to take on a high level of risk to reach full funding, or alternatively, the Board may decide it needs to protect the principal and adopt a conservative asset allocation.*

## OBSERVATIONS REGARDING FUNDING REQUIREMENTS:

- As mentioned above, IFS received the November 2005 Asset Liability Study, the July 2005 Actuarial Valuation, and the 2005 Audited Financial Statements after performing our initial fieldwork and writing our initial drafts. We updated our comments below to reflect the receipt of these documents.

- The 2006 IPS does not address how the asset allocation will satisfy the funding requirements. The asset allocation assumes that over very long periods, a twenty year time horizon, the expected return on policy indices will produce an 8% return, and with active management the Plan will earn 8.4%. These assumptions are in isolation of the financial realities of the plan itself, and the market in which it is invested.

- Senate Bill 82, effective March 7, 1997, established that the funding period, the time in which unfunded liabilities are to be amortized, was to be 30 years or less. During the market boom of the late 1990's the Plan's funded ratio improved with the market outperformance. Conversely, from 2001 through 2003, the Plan suffered with the market downswing. The funding period went from 27.5 years in 2001 to 39 years in 2002 to approximately 42 years in 2003 and 2004 to 55.5 years in 2005. The 2005 Asset Liability Study uses a 30 year funding period in the study, however. The funded ratio was 91.7% in 2001; 78.5% in 2002; approximately 75% in 2003 and 2004; and 74% in 2005.

- Looking back to 2003, the Annual Report reported that funding methods had to be modified in 2002-2003, as a result of investment losses during a prolonged market downswing. At that time, 3.5% of employer contributions were allocated to funding pension benefits, away from subsidizing retiree health care; member contribution rates were increased to the statutory maximum of 10% of compensation, up from 9.3%; the actuarial rate was raised to 8% from 7.75% and several actuarial assumptions were increased to reflect greater pension costs.

- Looking back, the 2004 IPS did not reflect the fact that the System had not met its funding requirements for the two prior years. The 2006 IPS has not changed in this regard, to adopt explicit language to recognize funding requirements, and the consequences of failing to do so.

| Recommendation A9 |
|---|
| *The IPS should explicitly acknowledge the specific funding requirements that the investment program is designed to satisfy. It may also include language that addresses the need to review how well the System has performed each year in terms of complying with funding requirements, and the explicit steps that the Board and Investment Staff will take to address underperformance[5].* |

## 2. Portfolio Risk

### FUNDAMENTAL PRINCIPLES REGARDING PORTFOLIO RISK:

- *In general, pension funds have a very long-term investment horizon and can afford to take on market risk. The STRS Board is required to abide by the "prudent expert principle," which, among other things, requires the Board to diversify the investment holdings to minimize the risk of loss and maximize the rate of return. This does not mean, however, that the Board can not take on investment risk where appropriate, but that it must do so in a prudent fashion and best practices dictate the use of "whole portfolio theory." For example, adding asset classes that are viewed as risky in isolation (e.g., private equity) can reduce the overall risk level of the total Pension Fund when combined with other low correlated asset classes. The appropriate level of risk varies by pension plan, asset class as well as investment strategy.*

- *An Investment Policy Statement provides an overall framework from which Fund investment staff can analyze external investment managers and investment strategies, as well as other service providers, and which assists in implementing an investment program designed to meet the Fund's long-term risk and return objectives for funding the long-term benefit needs of participants.*

- *Consistent with this IPS, many public funds also maintain and update yearly an Annual Investment Plan which assists the Fund and investment staff with executing investment policy, as well as short to intermediate term investment and risk objectives, on a year to year basis.*

[5] STRS investment staff informed IFS that STRS submits reports to ORSC that address the status of 30 year funding requirements.

- *There is also risk associated with active management versus passive management (see discussion in Task 4(A) Investment Structure) as well as the general plan risk of not meeting funding requirements and/or the actuarial assumed rate of return.*

## GENERAL OBSERVATIONS REGARDING PORTFOLIO RISK:

- After reviewing various documents made available to IFS, it appears that the major instruments used to structure and control risk at the Fund and asset class level is the Fund's IPS and Guidelines, as well as the Fund's Annual Investment Plan.

- The following section will address certain ***Risk Factors*** in the Fund's risk control process, which is part of the overall investment management process IFS observed and reviewed. IFS also reviewed the various types, level and appropriateness of risks at the total Fund level, and within each of the Fund's asset classes specifically.

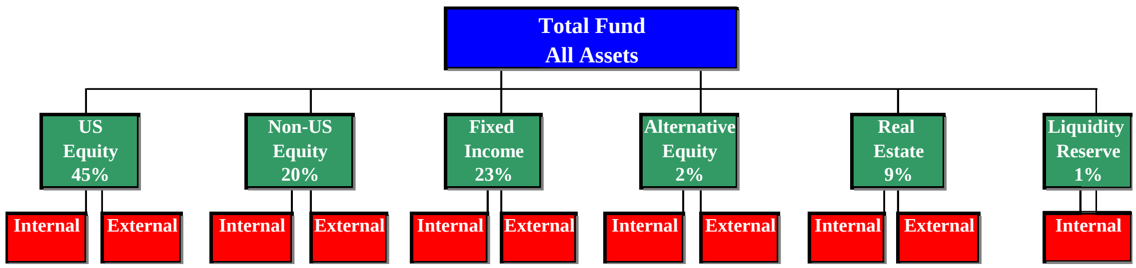
- Based on interviews with STRS investment staff, concerning portfolio strategy at both the Total Fund (policy and strategic) and asset class level (strategic and tactical), as well as the review of various documents outlining the Fund's investment and risk management policies, IFS observed that STRS investment staff structures and monitors portfolio risk for the Total Fund, at the asset class level and individual portfolio level using several different tools, including:

  1. Risk budgeting
  2. Relative risk controls, and
  3. Relative performance attribution

- The following investment strategy organizational chart outlines graphically the long-term allocations among the System's various internal and external investment strategies as of June 30, 2005. The System's Total Fund is comprised of six major asset classes including: 1.) U.S. Equities, 2.) Non-U.S. Equities, 3.) Fixed Income, 4.) Alternative

Equity, 5.) Real Estate, and 6.) Liquidity Reserve. A top down summary of the System's asset class structure, and how the STRS allocates assets (as well as risk), is found below:

**System Asset Class Structure**




- One mechanism the Fund uses to allocate risk across the asset class structure in its quest to achieve total Fund performance that equals or exceeds its expected target total return is the "risk budgeting process." We explain the risk budgeting process below.

### a. Risk Budgeting

## FUNDAMENTAL PRINCIPLES REGARDING RISK BUDGETING:

- *Risk budgeting is a tool to allocate tracking risk (sometimes referred to as the amount of active risk) effectively and efficiently across the Fund's allowable asset classes and portfolios so that there is an increased probability of achieving positive relative returns compared to the given benchmark or policy index, and over the long-term, achieve the Fund's investment policy investment objective of meeting or exceeding the Fund's actuarial assumption within a prescribed level of total risk (the "risk budget").*

- *Once the asset allocation decision is determined (as explained later in the Asset Allocation section of this report) and total expected absolute risk is quantified, investment staff can make tactical asset allocation decisions (within ranges set by policy) and active portfolio structure decisions within each asset class to attempt to achieve the desired level of alpha (or excess return) at an appropriate level of volatility or risk.*

## OBSERVATIONS REGARDING RISK BUDGETING:

- IFS understands that STRS investment staff design a risk budget on an annual basis as a decision making tool to gauge how much risk each portfolio, each asset class and the Total Fund can afford to take versus each specific policy benchmark, which is designed to target a desired expected total return over a passively managed fund.

- In constructing the risk budget the investment staff makes the reasonable assumption that taking a greater degree of relative risk in more inefficient markets will lead to higher returns from those asset classes which will contribute to generating Total Fund performance in excess of the actuarial rate. Based on this assumption, less efficient asset classes and their respective portfolios possess a higher assumed ex-ante and ex-post tracking risk than portfolios in more efficient markets. Overall, a target tracking risk is maintained for each asset class and the Total Fund in the aggregate, so that Total Fund tracking risk versus the Fund's policy index is expected to fall between 60 basis points and 100 basis points on an annual basis. A summary of the target tracking risk of each asset class, and the contribution to Total Fund tracking risk, is highlighted below[6]:

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[6] These amounts are from the 2004-2005 Investment Plan. The 2006 Investment Plan was completed after our fieldwork and initial drafts. The overall "Policy Normal Risk" of 100 basis points remained unchanged; however, in 2006 the projected risk was lowered to 150 basis points for international equity and to 40 basis points for fixed income and increased to 50 basis points for domestic equity and "tactical asset allocation" was added at 45 basis points. The above table shows the actual Fund allocations as of June 30, 2005, to highlight the tactical over and underweights versus the investment policy and to provide a "Contribution To Tracking Risk" estimate based on the actual allocation of the Fund as of June 30, 2005.

**Asset Class & Total Fund Policy Benchmark Summary**

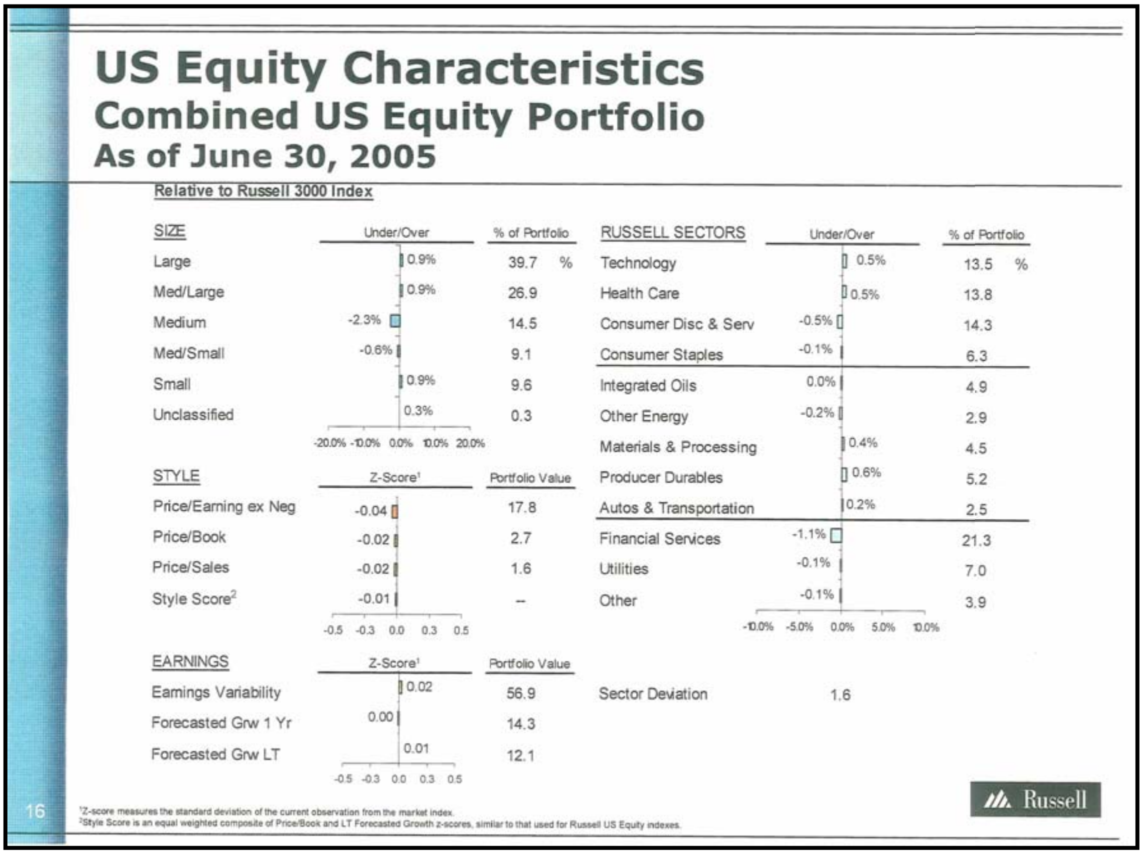
| | Asset Class | Policy Benchmark | Actual Allocation | Policy Allocation | Projected Tracking Risk | Contribution To Tracking Risk: Per Actual Allocation | Contribution To Tracking Risk: Per Policy |
|---|---|---|---|---|---|---|---|
| 1. | Domestic Equities | Russell 3000 | 46.4% | 45% | 0.40% | 0.186% | 0.180% |
| 2. | International Equities | MSCI World Ex-US 50% hedged (75%)/ MSCI Emerging Markets Free (25%) | 21.8% | 20% | 1.75% | 0.382% | 0.350% |
| 3. | Fixed Income | Lehman Universal | 18.6% | 23% | 0.70% | 0.130% | 0.161% |
| 4. | Real Estate | NCREIF Hybrid (80% NCREIF/10% Wilshire REIT/10% NCREIF Timberland) | 8.7% | 9% | 2.50% | 0.218% | 0.225% |
| 5. | Alternative Investments | Alternative Investment Actual Return | 2.3% | 2% | 0% | 0.000% | 0.000% |
| 6. | Liquidity Reserves | 91 Day Treasury Bill | 2.2% | 1% | 0.05% | 0.001% | 0.001% |
| | Total Fund | | 100.0% | 100% | | 0.92% | 0.92% |

- As highlighted in the above table, the contribution of each asset class to tracking risk produces a target tracking risk for the Total Fund of 0.94% (94 basis points) annually, or approximately equal to the 1% target outlined in the Fund's internal "Risk Management" summary reviewed by IFS.

### b. Relative Risk Controls

## OBSERVATIONS REGARDING RISK CONTROLS:

- STRS investment staff monitors and reports relative risk controls for each portfolio (both internally and externally managed) and each asset class as compared to the stated portfolio benchmark and general asset class policy index. This assists staff in monitoring and regulating total Fund portfolio risk versus the risk budget and policy benchmark. Based on interviews with Fund staff and our review of the Fund's Risk Management Statement, each of the Fund's equity portfolios maintains a statement of characteristics that outlines the allowable range of tracking error for each portfolio and various measures of risk. These various measures of risk include measurement of relative exposures like size, style, industry sectors and other factors. A sample Risk Index Exposure report (cited from a Russell June 30, 2005 report, used by the Fund's investment staff for the Domestic Equity Segment of the Total Fund and highlighted in one of the System's representative Russell Reports) is found below:




- According to Fund staff, the above risk analytic and target portfolio tracking risk represents the primary methods for monitoring, controlling and benchmarking relative risk for the Fund's individual asset classes, especially the relative risk monitoring of the Fund's total equity portfolio.

- Although each asset class is not expected to exactly match the index, each asset class and portfolio is expected to fall within a specified range around the index. Investment staff attempt to uncover and correct unintended exposures as needed and required. We understand from discussions with staff that monitoring of these relative risk controls is performed daily and reporting is posted daily on the Fund's Quantitative Group website.

### c. Relative Performance Attribution

## FUNDAMENTAL PRINCIPLE REGARDING PERFORMANCE ATTRIBUTION:

- *Relative performance attribution risk reports assess the level of positive or negative impact active investment decisions versus the benchmark have had on relative performance. This risk control mechanism is helpful in measuring both the results of active portfolio management decisions and their contribution to relative performance, as well as quantifying the impact of unintended decisions or portfolio biases.*

## OBSERVATIONS REGARDING PERFORMANCE ATTRIBUTION:

- Relative performance attribution analysis is another risk control employed by STRS investment staff to ensure that an appropriate level of relative return is being achieved for the level of risk assumed concerning any one investment strategy, asset class or the Total Fund's investment program.

- At the Fund's total equity asset class level, the Fund's investment staff measures performance attribution of the total equity portfolio as compared to the benchmark (the Russell 3000 benchmark) across seven broad factors including size, style, momentum, market, industry, risk free return and selection/residual. The difference between the total equity portfolio and the benchmark is due to management skill. According to reports provided by Russell to the Fund, for the two year period, through the second quarter 2005, the Fund's equities returned 13.87% annualized versus 14.05% annualized for the benchmark. In terms of equity return attribution and net management return, allocation decisions resulted in -0.01% active return, whereas selection decisions resulted in -0.08% active return performance versus the benchmark.

- Compliance with tracking risk ranges, set forth by the Annual Plan and Risk Management Statement, are monitored and reported by individual portfolio managers and each asset class director. The analytical tools used to assist in this process include Northfield Risk Analytics and Wilshire Atlas systems, according to Fund staff, as well as the Risk Management Statement. The estimated tracking error of each portfolio is combined and forms the aggregated tracking error for the entire segment portfolio at the asset class level.

- A review of each of the System's general risk factors for each major asset class follows the investment performance summary for the Total Fund and its asset classes in the next section of this report.

## 3. Investment Performance

### FUNDAMENTAL PRINCIPLES REGARDING INVESTMENT PERFORMANCE:

- *In order to evaluate the performance of a fund or account, fair and objective goals, or benchmarks, should be established. Typically, these goals are established in a formal manner, as part of the IPS for a fund, or within the Investment Manager Guidelines for an investment account. Also, typically, multiple goals are established so that the limitations of any one goal do not cloud the objectivity or value of the evaluation.*

- *The main performance goals should include: meeting or exceeding the actuarially assumed return on investments, meeting or exceeding the return of a Total Fund benchmark (such as a Policy Benchmark) and any other specific objectives set, all at an appropriate level of risk.*

- *Peer comparisons are also used in evaluating performance. Universe data exist from a number of sources and may be used to evaluate an individual investment manager, a particular asset class, or the fund as a whole. Total fund peer comparisons should be used primarily for information purposes since no two funds will have exactly the same asset allocation and investment objectives.*

- *An industry standard is to evaluate performance over a market cycle which is defined as a period of time that includes a prolonged period of negative returns as well as a prolonged period of positive returns. The generally accepted approximation of a market cycle is three to five years. We analyze five years of performance below.*

## BACKGROUND

The following performance analyses compare the Total Fund and each of the Fund's major asset classes, on a gross of fee basis, to their respective primary benchmarks, as well as against the most applicable universe of public fund plan sponsor returns within IFS' Wilshire Co-op universe, at the Total Fund and asset class level, for the period ending June 30, 2005. In some instances, a comprehensive universe was not available. In these cases, a universe of similar investment strategies was utilized for comparative purposes, where and when available.

Following the investment performance summary and evaluation of each asset class, including appropriate benchmarking and universe comparisons, a general summary of specific risk factors are also reported and reviewed.

### a. Total Fund

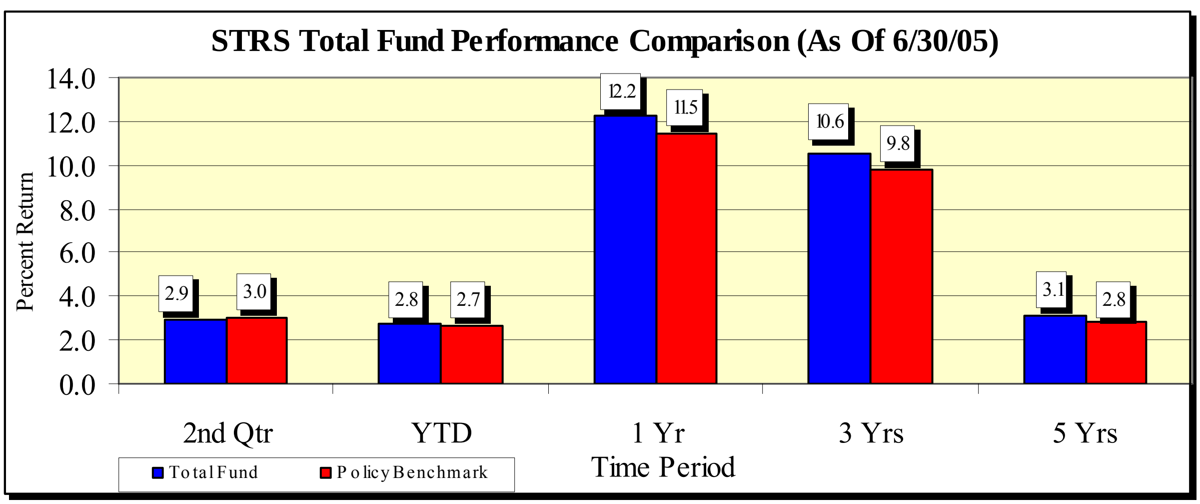
#### 1) Performance Evaluation

The following performance summary details the Total Fund performance as compared to its policy benchmark STRS custom peer group, along with universe rankings within IFS' comparable public fund universe, over annualized and rolling one year periods from June 30, 2000, through June 30, 2005.

## OBSERVATIONS REGARDGING TOTAL FUND PERFORMANCE:

- As highlighted below, for the six month period ending June 30, 2005, the Total Fund returned 2.8% and outperformed the policy benchmark return of 2.7% by 10 basis points. This six month performance ranked 7$^{th}$ (top 7% of all public pension funds; throughout this section of the report percentile rankings are employed from 1$^{st}$ [best] to 100$^{th}$ [worst]) within IFS' universe of public pension funds. Over the one year period ending June 30, 2005, the Total Fund's performance was equally impressive as the Total Fund returned 12.2% and exceeded the policy benchmark by 80 basis points, ranking 6th in IFS' public fund universe. Over the three and five year annualized periods studied, the Total Fund generated annualized returns of 10.6% and 3.1%, outpacing the policy benchmark, on a gross of fee basis, by an annualized 80 basis points over three years, and by a narrower margin of 30 basis points, respectively, over a five year annualized period. The universe ranking over the three year annualized period was 11th, which included three years of strong equity market returns following the equity bear market of 2000 through 2002. The Total Fund's performance ranking was less impressive over the five year annualized period as the Total Fund ranked 69th (below median; low third quartile) in IFS' public fund performance universe.

- The following is a graphic performance summary highlights the Total Fund's absolute performance, relative excess returns and universe rankings for the period ending June 30, 2005, as previously described above.



| **STRS Total Fund Performance Comparison** | | | | | |
|---|---|---|---|---|---|
| * Figures in percent | | | | Annualized Returns | |
| | 2nd Qtr | YTD | 1 Yr | 3 Yrs | 5 Yrs |
| **Total Fund** | **2.9** | **2.8** | **12.2** | **10.6** | **3.1** |
| *Policy Benchmark* | *3.0* | *2.7* | *11.5* | *9.8* | *2.8* |
| *CPI* | *0.6* | *2.2* | *2.5* | *2.6* | *2.4* |
| *Excess (Total Fund - Policy Benchmark)* | *-0.1* | *0.1* | *0.8* | *0.8* | *0.3* |
| *Public Fund Rank* | *15th* | *7th* | *6th* | *11th* | *69th* |

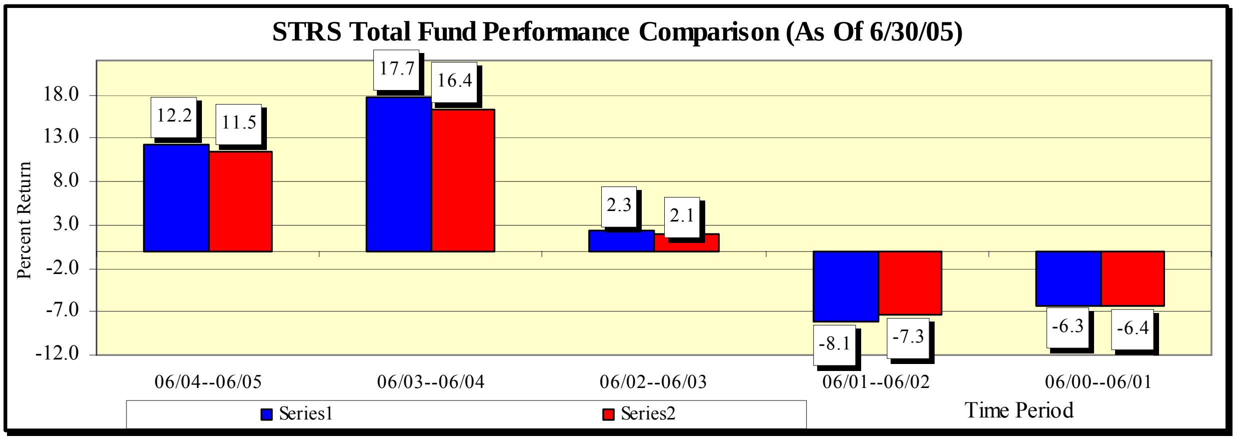
- The table below includes the Total Fund annualized investment performance returns from the custom peer group survey. Overall, the Fund outperformed (net of fees) the custom peer group's average and median Fund over the one and three year time periods.

**Table A1: Custom Peer Group Total Fund Cumulative Returns**

| Peer Public Pension Fund | 1 Year | 3 Years | 5 Years |
|---|---|---|---|
| Maryland Retirement Agency | 9.5% | 9.5% | 1.9% |
| Ohio Public Employees Retirement System* | 10.5% | 10.3% | 3.6% |
| Penn Public School Employees' Retirement System | 13.1% | 11.7% | 4.2% |
| State of Michigan Retirement System* | 8.3% | 8.3% | 2.3% |
| State of Wisconsin Investment Board | 11.0% | 10.6% | 4.0% |
| Teachers Retirement System of Georgia (TRS) | 7.9% | 7.4% | 2.5% |
| Teachers Retirement System of Texas* | 9.5% | 9.9% | 3.4% |
| **Average Return** | **10.0%** | **9.7%** | **3.1%** |
| **Median Return** | **9.5%** | **9.9%** | **3.4%** |
| **State Teachers Retirement System of Ohio** | **12.2%** | **10.5%** | **3.1%** |

*Net of Fees

- The following Total Fund performance comparison highlights performance of the Total Fund, on a gross of fee basis, over rolling one year periods (ending June), from June 2001 to June 2005. The purpose of this summary is to demonstrate year to year performance consistency of the Total Fund versus the Total Fund's primary policy benchmark, as well as the universe of public fund total returns.




**STRS Total Fund Performance Comparison**

| * Figures in percent | Rolling One Year Returns | | | | |
|---|---|---|---|---|---|
| | 06/04--06/05 | 06/03--06/04 | 06/02--06/03 | 06/01--06/02 | 06/00--06/01 |
| **Total Fund** | **12.2** | **17.7** | **2.3** | **-8.1** | **-6.3** |
| *Policy Benchmark* | *11.5* | *16.4* | *2.1* | *-7.3* | *-6.4* |
| *CPI* | *2.5* | *3.3* | *2.1* | *1.1* | *3.2* |
| *Excess (Total Fund - Policy Benchmark)* | *0.8* | *1.4* | *0.3* | *-0.8* | *0.0* |
| *Public Fund Rank* | *6th* | *11th* | *82th* | *87th* | *76th* |

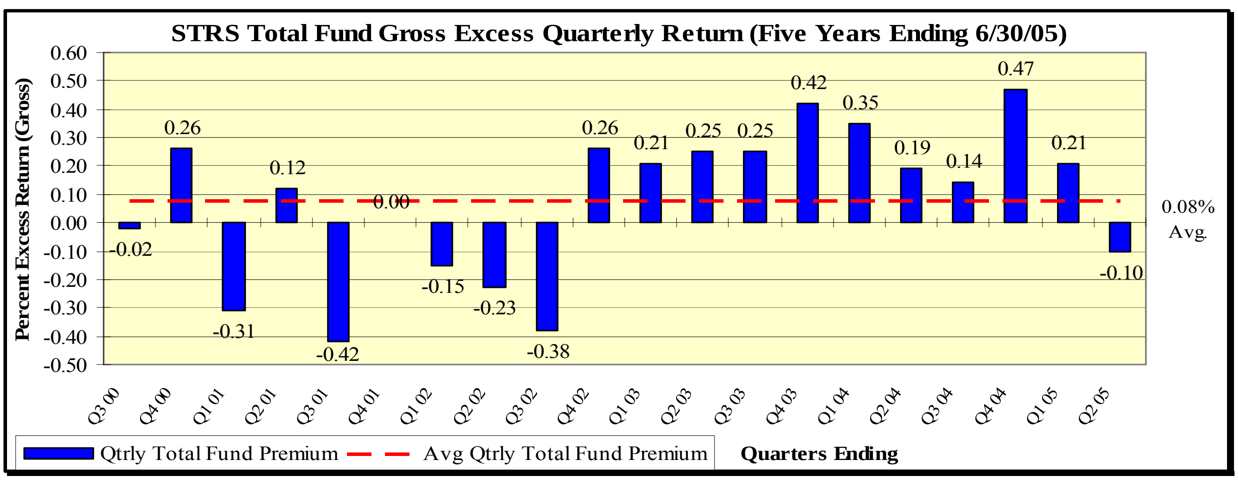
- With the exception of performance during the depths of the equity bear market in 2002 the Total Fund generated excess returns over the policy benchmark (gross of fees) in four out of the five one year periods reviewed. Given the relatively high allocation to equities (45% to Domestic Equities and 20% to International Equities of the Total Fund), it is not surprising that the Total Fund's public fund universe rankings, and excess performance versus the policy benchmark, were strongest in the periods of rising equity markets. Weaker universe rankings, and weaker relative performance, was exhibited in the more difficult portions of the U.S. equity bear market represented in the one year period ending June 2001, 2002 and 2003.

- The table below contains the historical consecutive investment performance returns from the custom peer group survey. As can be seen below, the Fund outperformed the peer group for two of the five annual time periods.

| Table A2: Custom Peer Group Total Fund Annual Returns | | | | | |
|---|---|---|---|---|---|
| **Peer Public Pension Fund** | **06/04-06/05** | **06/03-06/04** | **06/02-06/03** | **06/01-06/02** | **06/00-06/01** |
| Maryland Retirement Agency | 9.5% | 16.2% | 3.2% | -7.6% | -9.4% |
| Ohio Public Employees Retirement System* | 10.5% | 17.7% | 3.2% | -6.9% | -4.6% |
| Penn Public School Employees' Retirement System | 13.1% | 19.9% | 2.9% | -5.1% | -7.2% |
| State of Michigan Retirement System* | 8.3% | 16.5% | 0.8% | -7.8% | -4.3% |
| State of Wisconsin Investment Board | 11.0% | 16.6% | 4.6% | -4.8% | -5.4% |
| Teachers Retirement System of Georgia (TRS) | 7.9% | 9.9% | 4.6% | -4.0% | -5.0% |
| Teachers Retirement System of Texas* | 9.5% | 15.7% | 4.7% | -6.4% | -5.0% |
| **Average Return** | **10.0%** | **16.1%** | **3.2%** | **-6.1%** | **-6.0%** |
| **Median Return** | **10.0%** | **16.6%** | **3.2%** | **-6.0%** | **-5.2%** |
| **State Teachers Retirement System of Ohio** | **12.2%** | **17.7%** | **2.3%** | **-8.1%** | **-6.3%** |

*Net of Fees

- A summary of the Total's Fund's excess quarterly returns versus the Fund's Total Fund Policy Index is found below.




- As can be observed from this line of analysis, the equity bear market in 2001 and 2002 presented headwinds for the Fund, and the Fund trailed its policy index on a fairly regular basis through the bear market. As the equity market improved in 2003, 2004 and 2005, the Total Fund has been able to improve excess returns over the policy index, and this outperformance, up until the second quarter 2005, has become fairly consistent on a gross and net of fee basis over the last two and half years.

- Based on the above analysis, the Fund has outperformed the Fund's Custom Policy Index by 8 basis points (8/100$^{th}$ of 1%) per quarter gross of fees, or 5.0 basis points (5.0/100$^{th}$ of 1%) net of fees (assuming fees of 3.0 basis points per quarter) based on total investment management fees and expenses as outlined in Russell's "Three-Level Performance Report" as of June 30, 2005.

### 2) Total Fund Portfolio Risk

## FUNDAMENTAL PRINCIPLES REGARDING TOTAL FUND PORTFOIO RISK:

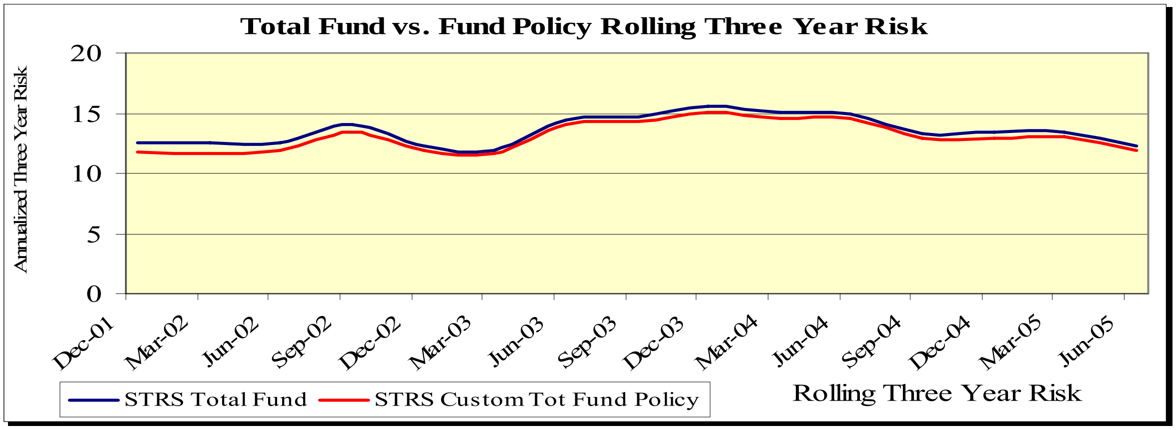
- *In addition to performance versus the Fund's stated policy benchmark, it is important to evaluate what kind of risk the Fund has taken to achieve the performance returns for the Total Fund and the Fund's underlying asset classes versus the appropriate benchmark.*

- *The Board should be aware of risks such as benchmark/style drift, standard deviation or volatility of returns, among others. There are also security specific types of risk such as illiquidity, associated with appraised assets like private equity or real estate, and those associated with derivatives. Individual manager guidelines are useful to articulate and manage the particular risks associated with each manager's unique investment process, strategy and risk characteristics.*

- *One of the primary methods to measure portfolio risk is by measuring the Fund's total standard deviation over a specific time frame or over a rolling time period. In essence, standard deviation measures the volatility of returns over time. Ideally, investment programs should seek a desired return objective while minimizing risk, or standard deviation of returns.*

## OBSERVATIONS REGARDING TOTAL FUND PORTFOLIO RISK:

- After analyzing the pattern of performance over the past five years on a discrete and rolling three year basis, IFS concludes that the Fund's investment staff (and the Fund's investment strategies on a composite basis) have been successful in controlling the risk of the overall Fund within a range of tolerance over the long and intermediate term versus its appropriate benchmark. A summary of the Fund's total portfolio risk on a rolling three year basis (ending quarterly) versus that of the Fund's policy index is displayed below.




| Three Year Rolling Average Risk | |
|---|---|
| STRS Total Fund | OSTRS Custom Total Fund Policy |
| 13.7 | 13.2 |

- As demonstrated above, on a three year rolling basis, the Fund's average total portfolio risk was just slightly more than the average three year rolling risk of the policy benchmark over the sum of the three year periods reviewed by IFS for the three year periods ending June 2003 through June 2005. On average over this rolling three year analysis, the Fund's total risk averaged 13.7%, or just 3.5% more than the 13.2% three year average rolling risk of the Fund's policy benchmark. The purpose of this frame of analysis is to measure actual rolling volatility over an intermediate period, i.e., what the trustees would observe over a reasonable rolling intermediate time period.

### 3) Benchmark Assessment

## FUNDAMENTAL PRINCIPLES REGARDING BENCHMARK APPROPRIATENESS:

- *Appropriate benchmarks should be used to evaluate total pension fund performance as well as individual investment portfolios. Performance benchmarks are objective standards used to assist in evaluating a fund's asset class or manager's investment performance. Benchmarks should be broad and representative proxies for relatively large economic segments of the capital markets and they should also be investable.*

- *Institutional investors typically use at least two types of performance benchmarks: "policy" benchmarks and "strategic" benchmarks.*

  - ***Policy benchmarks*** *generally represent the investment opportunities of a broad asset class and are used as a reference point against which the investor can compare its total asset class returns. For example, a domestic equity investment structure designed to provide broad asset class exposure may use the Wilshire 5000 Index or the Russell 3000 Index (two broad measures of the domestic stock market) as a policy benchmark as opposed to the S&P 500 Index, which is more concentrated in larger-capitalization stocks. Policy benchmarks can also help define the types of investment managers that a fund should use to achieve its investment objectives for the asset class and the nature of the manager's investment mandate.*

  - ***Strategic benchmarks*** *are generally more narrowly defined and typically focus on a particular investment "style" or strategy within an asset class. They more clearly describe the expected range of investment opportunities for a given manager and more objectively measure the manager's value added, or the manager's return independent of its investment style. For example, an investor setting a strategic benchmark for a domestic equity investment manager that seeks to purchase large capitalization stocks that it believes will grow their earnings above the average rate relative to the market (i.e., a "large cap growth" manager) may select a large cap growth benchmark such as the Russell 1000 Growth Index as an appropriate strategic benchmark. Therefore, the manager's excess return above the "comparable style" strategic benchmark is generally due to its active decisions as opposed to its investment style being "in favor" relative to a style-neutral strategic benchmark. (Note: This report does not discuss benchmarks at the individual manager or strategy level.)*

## OBSERVATIONS REGARDING BENCHMARK APPROPRIATENESS:

- As earlier discussed, the Fund's total blended long-term Policy Benchmark is represented by benchmarks below in the weights prescribed under "Policy Allocation."

**Asset Class & Total Fund Policy Benchmark Summary**

| Asset Class | Policy Benchmark | Policy Allocation | | Low | High |
|---|---|---|---|---|---|
| 1. Domestic Equities | Russell 3000 | 45% | +/- | 43% | 50% |
| 2. International Equities | MSCI World Ex-US 50% hedged (75%)/ MSCI Emerging Markets Free (25%) | 20% | +/- | 15% | 25% |
| 3. Fixed Income | Lehman Universal | 23% | +/- | 13% | 28% |
| 4. Real Estate | NCREIF Hybrid (80% NCREIF/10% Wilshire REIT/10% Timber) | 9% | +/- | 6% | 12% |
| 5. Alternative Investments | Alternative Investment Actual Return | 2% | +/- | 1% | 3% |
| 6. Liquidity Reserves | 91 Day Treasury Bill | 1% | +/- | 0% | 4% |
| Total Fund | | 100% | | | |

- According to the Fund's Investment Policy Statement, and based on the expected return of 8.3% (comprised of the 7.85% expected policy return (from the 2002 Asset Allocation Study) and 0.45% expected 5-year management returns[7]) and risk expectations (an acceptable level or risk in terms of the probability of not achieving the actuarial rate of return over a 20 year time horizon) of the Fund over the long term, coupled with the objective of outperforming the Fund's actuarial assumption, the above benchmarks appear reasonable in benchmarking each particular asset class and respective sub-asset class.

- We suggest a few enhancements for consideration within each asset class section of this report below.

### b. Domestic Equity

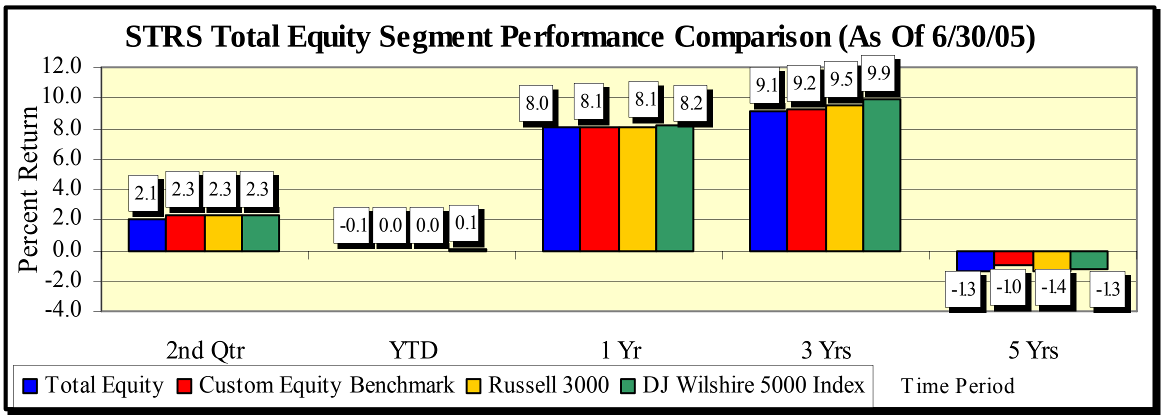
#### 1) Performance Evaluation

## OBSERVATIONS REGARDING DOMESTIC EQUITY PERFORMANCE:

- Overall, after reviewing the Fund's total domestic equity performance over the short and intermediate term, spanning the past five years, the Fund's performance has generally trailed the Fund's primary Custom Equity benchmark (S&P 1500: June 1999 – March

[7] The expected total return was lowered to 7.82% in the January 1, 2006 IPS based on the results of the 2005 Asset/Liability Study.

2003; S&P 1500/Russell 3000 Hybrid: April 2003 – July 2003; and Russell 3000: August 2003 – Present). We observed this underperformance versus the benchmark over the past quarter, six month, three year and five year annualized periods highlighted, on a gross of fee basis through June 30, 2005. Over the past five years, the Fund's total equity composite underperformed the Custom Equity Policy Index by 30 basis points on an annualized basis.




**STRS Equity Segment Performance Comparison**

| * Figures in percent | | | Annualized Returns | | |
|---|---|---|---|---|---|
| | 2nd Qtr | YTD | 1 Yr | 3 Yrs | 5 Yrs |
| **Total Equity** | **2.1** | **-0.1** | **8.0** | **9.1** | **-1.3** |
| *Custom Equity Benchmark* | *2.3* | *0.0* | *8.1* | *9.2* | *-1.0* |
| *Russell 3000* | *2.3* | *0.0* | *8.1* | *9.5* | *-1.4* |
| DJ Wilshire 5000 Index | *2.3* | *0.1* | *8.2* | *9.9* | *-1.3* |
| *Excess (Total Equity - Custom Benchmark)* | *-0.2* | *-0.1* | *0.0* | *-0.1* | *-0.3* |
| *Public Fund Rank* | *58th* | *57th* | *64th* | *61th* | *78th* |

- In addition to lagging the primary benchmark, the Fund's domestic equity program has also lagged behind the domestic equity returns of most public funds in IFS' universe of public pension funds. A comparison of the Fund's relative domestic equity universe rankings versus other public funds is displayed above. For the most part, the Fund's domestic equities rank in either the third or fourth quartiles of IFS' public fund universe of equity returns of total fund composite portfolios over the second quarter 2005 (58$^{th}$ rank), six month period (57$^{th}$ rank), one year (64$^{th}$ rank), three year (61$^{st}$ rank) and five year (78$^{th}$ rank) annualized period.

- The table below represents the domestic equity annualized returns of the custom peer group survey. As can be seen below, the Fund outperformed the average of the peer group over the one and three year time periods and outperformed the median of the peer group for the one year time period.

| Table A3: Custom Peer Group Domestic Equity Cumulative Returns | | | |
|---|---|---|---|
| **Peer Public Pension Fund** | **1 Year** | **3 Years** | **5 Years** |
| Maryland Retirement Agency | 6.9% | 9.7% | -1.3% |
| Ohio Public Employees Retirement System | 8.2% | 9.7% | -0.7% |
| Penn Public School Employees' Retirement System | 8.1% | 9.7% | 1.5% |
| State of Michigan Retirement System | 6.0% | 7.2% | -1.5% |
| State of Wisconsin Investment Board | 7.6% | 9.1% | -0.6% |
| Teachers Retirement System of Georgia (TRS) | 7.9% | 8.1% | -1.3% |
| Teachers Retirement System of Texas | 8.4% | 9.8% | 0.1% |
| **Average Return** | **7.6%** | **9.0%** | **-0.5%** |
| **Median Return** | **7.9%** | **9.7%** | **-0.7%** |
| **State Teachers Retirement System of Ohio** | **8.0%** | **9.1%** | **-1.3%** |

- Upon reviewing the Total Fund's equity program over discrete rolling one year periods over the five year period, the Fund's total equity segment underperformed its primary Custom Equity benchmark in three of the five one year periods (one year ending June 2002, June 2004 and June 2005), and either matched or slightly outperformed the Custom Equity Index in two of the five one year rolling periods (one year ending June 2001 outperformed by 10 basis points and June 2003 matched the Custom Equity Index) as summarized below.

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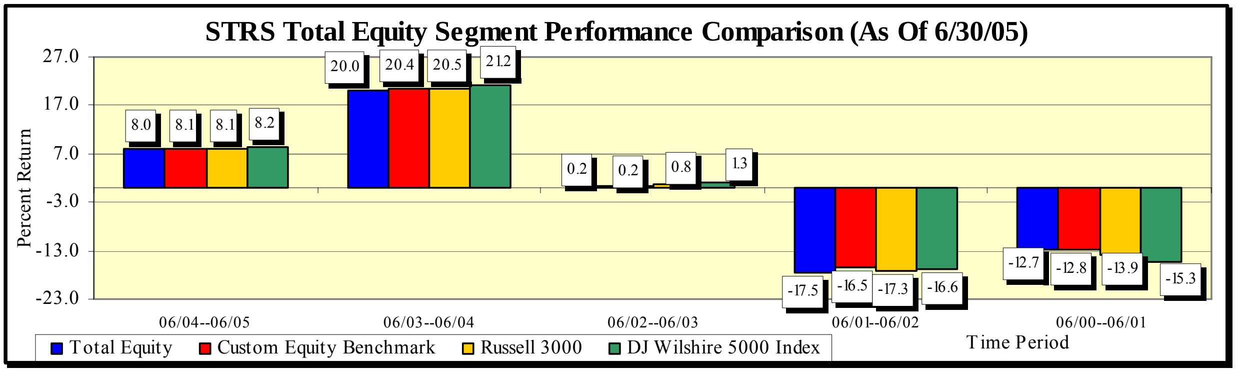


**STRS Equity Segment Performance Comparison**

| * Figures in percent | Rolling One Year Returns | | | | |
|---|---|---|---|---|---|
| | 06/04--06/05 | 06/03--06/04 | 06/02--06/03 | 06/01--06/02 | 06/00--06/01 |
| **Total Equity** | **8.0** | **20.0** | **0.2** | **-17.5** | **-12.7** |
| *Custom Equity Benchmark* | *8.1* | *20.4* | *0.2* | *-16.5* | *-12.8* |
| *Russell 3000* | *8.1* | *20.5* | *0.8* | *-17.3* | *-13.9* |
| DJ Wilshire 5000 Index | *8.2* | *21.2* | *1.3* | *-16.6* | *-15.3* |
| *Excess (Total Equity - Custom Benchmark)* | *0.0* | *-0.4* | *0.0* | *-1.0* | *0.1* |
| *Public Fund Rank* | *64th* | *68th* | *39th* | *72nd* | *59th* |

- Based on review of the Fund's equity structure, it appears that the Fund has maintained a capitalization neutral to slight large cap bias in the recent periods observed. In addition to industry sector and issue selection causes, if this capitalization structure was maintained over much of the past five years, that possible structure explains at least part of the domestic equity program's underperformance compared to the Russell 3000 benchmark, and the overall underperformance versus the U.S. stock market, as measured by the Wilshire 5000 benchmark, in four of the last five rolling one year periods ending June 30, 2005.

- The table below represents the domestic equity consecutive returns of the custom peer group survey. As can be compared below, the Fund's domestic equity composite outperformed the average and median Fund in two of the five annual time periods.

| Table A4: Custom Peer Group Domestic Equity Annual Returns | | | | | |
|---|---|---|---|---|---|
| **Peer Public Pension Fund** | **06/04-06/05** | **06/03-06/04** | **06/02-06/03** | **06/01-06/02** | **06/00-06/01** |
| Maryland Retirement Agency | 6.9% | 21.6% | 1.4% | -16.2% | -15.4% |
| Ohio Public Employees Retirement System | 8.2% | 20.6% | 1.1% | -16.4% | -12.3% |
| Penn Public School Employees' Retirement System | 8.1% | 22.3% | -0.3% | -12.8% | -6.1% |
| State of Michigan Retirement System | 6.0% | 19.4% | -2.7% | -15.4% | -11.1% |
| State of Wisconsin Investment Board | 7.6% | 21.0% | -0.3% | -16.4% | -10.5% |
| Teachers Retirement System of Georgia (TRS) | 7.9% | 19.1% | -1.6% | -14.2% | -13.5% |
| Teachers Retirement System of Texas | 8.4% | 21.3% | 0.5% | -14.7% | -10.8% |
| **Average Return** | **7.6%** | **20.8%** | **-0.3%** | **-15.2%** | **-11.4%** |
| **Median Return** | **7.9%** | **21.0%** | **-0.3%** | **-15.4%** | **-11.1%** |
| **State Teachers Retirement System of Ohio** | **8.0%** | **20.0%** | **0.2%** | **-17.5%** | **-12.7%** |

## 2) Domestic Equity Portfolio Risk Factors

## BACKGROUND

IFS analyzed certain risks as of June 30, 2005, as well as portfolio risks which were measured on a rolling time series over the past five years. As of June 30, 2005, IFS reviewed the Fund's equity portfolio risk versus the equity portfolio's primary benchmark (Russell 3000 benchmark) and the total U.S. equity market benchmark (the Wilshire 5000 benchmark) in terms of equity sector allocation, equity style allocation (based on equity holdings based style analytics), capitalization allocation and a range of relevant portfolio comparative statistics. IFS then analyzed and reviewed other risks of the equity program. This additional risk review included an analysis on a rolling basis over the past five years, including a returns based style analysis (a complementary test to the holdings based analysis to further test the equity program with its stated benchmark) as well as a review of the equity program's standard deviation of returns (again, how much volatility was there in achieving those returns) versus its primary benchmark and the overall total equity market.

## FUNDAMENTAL PRINCIPLES REGARDING EQUITY PORTFOLIO RISK:

- *Equity portfolio risk should be measured in several different ways, such as versus the equity portfolio's benchmark in terms of sector allocation, equity style allocation, capitalization allocation and a range of relevant portfolio comparative statistics (see below).*

- *The Fund can measure its current portfolio risks based on a host of portfolio characteristics versus the benchmark to determine if it is taking any outsized risks from a variety of perspectives. These characteristics include:*

    1. *Number of stocks (how concentrated or diversified is the portfolio),*
    2. *Beta (how volatile is the portfolio versus the volatility of the S&P 500 which is set at 1.0),*
    3. *Portfolio yield (indicates whether portfolio is value, core or growth oriented),*
    4. *Price to earnings ratio (P/E),*
    5. *R-squared ( measures suitability of portfolio to given benchmark),*
    6. *Market capitalization (weighted average and median market capitalization)*

- *Equity style is generally defined along the lines of large cap (generally over $10 billion in market capitalization), mid cap (generally $2.5 billion to under $10 billion in market capitalization) and small cap securities (generally $250 million to under $2.5 billion in market capitalization), as well as securities being characterized as being value (possess higher yields, lower price to book ratios and favorable price to cash flow ratios), neutral (or core – which possess market like characteristics within in a range of the market) and growth (lower than market yields, higher than market book values and accelerating earnings growth) oriented securities.*

- *Based on our experience, IFS believes that most larger institutional investors seek to structure a broadly diversified domestic equity portfolio and use either the Wilshire 5000 Index or the Russell 3000 Index as their domestic equity Policy Index. The Wilshire 5000 and Russell 3000 Indices represent approximately 100% and 98% of the entire U.S. equity market capitalization whereas the S&P 500 represents only about 80%.*

- *More broadly diversified equity portfolios can offer less volatility of returns than portfolios concentrated in one style. Historical analysis suggests that all styles come into and out of favor over time, with no one style consistently outperforming others. Therefore, a bias to any style may introduce added "risk" (i.e., performance which varies significantly from the benchmark which the Trustees have adopted as the "benchmark" for the Fund in that asset class) to the Fund with no expected additional long-term return. Thus, a "style neutral" approach is often sought by many funds.*

- *An investment structure which is significantly different from the equity policy benchmark introduces a "bias" or "bet" both to and away from another style within that benchmark:*
  - *An "overweight" to any one style (e.g., overweight to large-cap growth) must also include an "underweight" in another style (e.g., underweight to small cap or to value) relative to the overall equity benchmark.*
  - *The result of the above is a "bet" that the overweight style will outperform the underweight styles.*
- *As mentioned above, one method to measure portfolio risk by asset class is to measure each asset class composite's total standard deviation over a specific time frame or over a rolling time period.*

## OBSERVATIONS REGARDING DOMESTIC EQUITY PORTFOLIO RISK:

### Equity Sector Allocation Risk

- As of June 30, 2005, the Fund's total equity program was well diversified across all of the equity market's 10 major sectors as highlighted on the "Equity Sector Allocations" chart on the following page. Overall, most equity sectors of the Fund were virtually neutral weighted to the Russell 3000 benchmark as of June 30, 2005, all being within plus or minus 1.0% of the benchmark. An allocation of the total domestic equity program as compared to the Fund's primary benchmark, the Russell 3000 benchmark and the overall stock market (Wilshire 5000) is displayed below.

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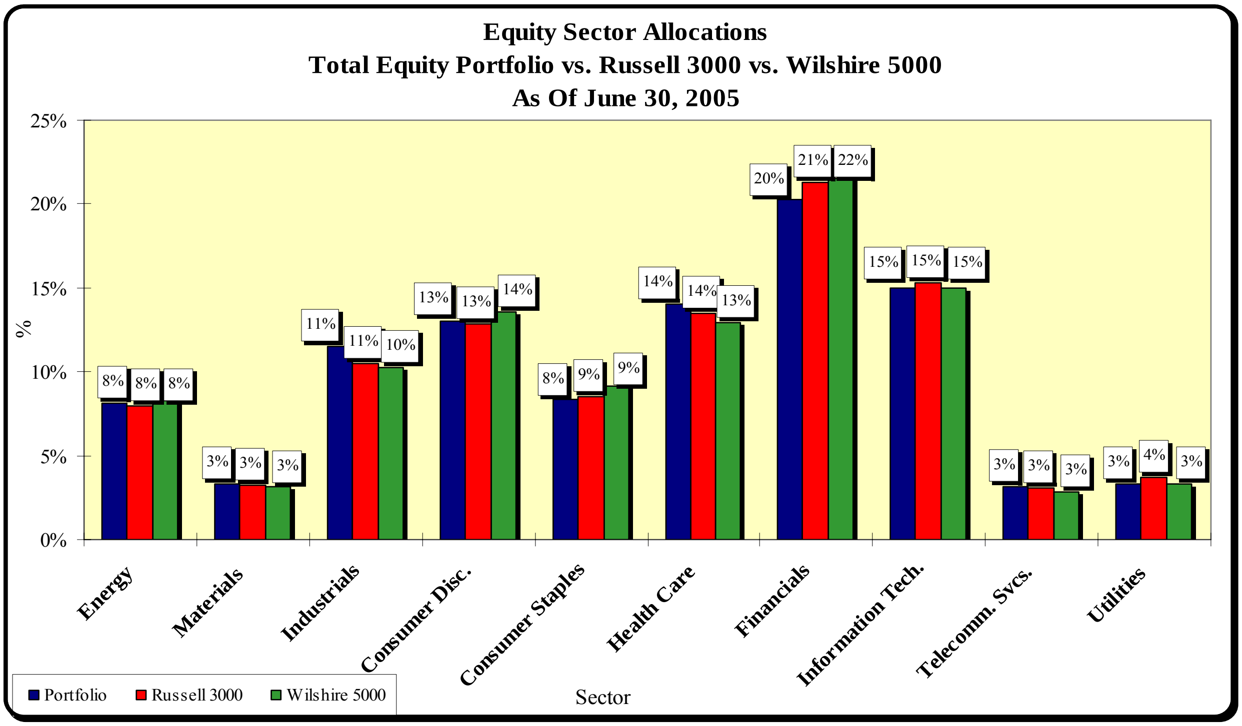



| Equity Sector Exposure Comparison | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Energy | Materials | Industrials | Con. Disc. | Con. Staples | Health Care | Financials | Info. Tech. | Telco. Svcs. | Utilities |
| Tot. Dom. Eq. | 8.1% | 3.3% | 11.5% | 13.0% | 8.4% | 14.0% | 20.3% | 15.0% | 3.1% | 3.3% |
| Russell 3000 | 8.0% | 3.2% | 10.5% | 12.9% | 8.5% | 13.5% | 21.3% | 15.3% | 3.1% | 3.7% |
| *Difference* | *0.1%* | *0.1%* | *1.0%* | *0.2%* | *-0.1%* | *0.5%* | *-1.0%* | *-0.4%* | *0.1%* | *-0.5%* |

- Again, as displayed above, and consistent with the Fund's risk budgeting process, the Fund's total domestic equity program seems to be fairly risk controlled based on its overall sector allocation versus the benchmark, and diversified across all the equity sectors of the market. The Fund is taking virtually no sector risk versus the benchmark as summarized above.

## Equity Portfolio Characteristic Risks

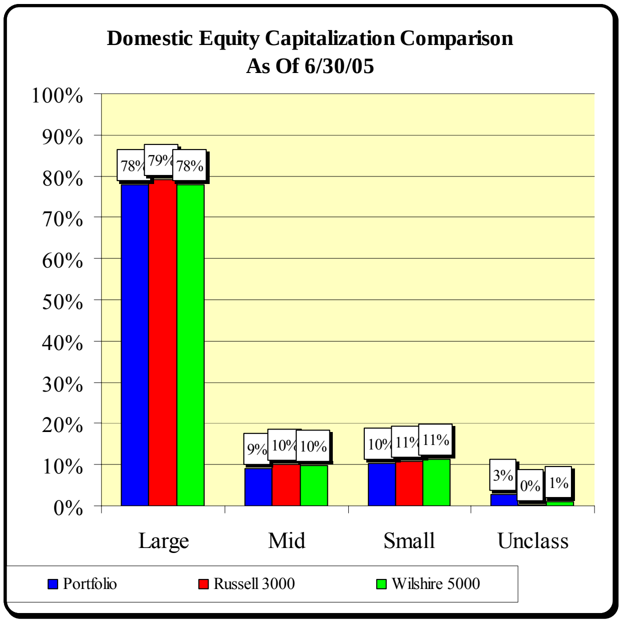
- A summary sampling of the Fund's total equity portfolio characteristics is found below:

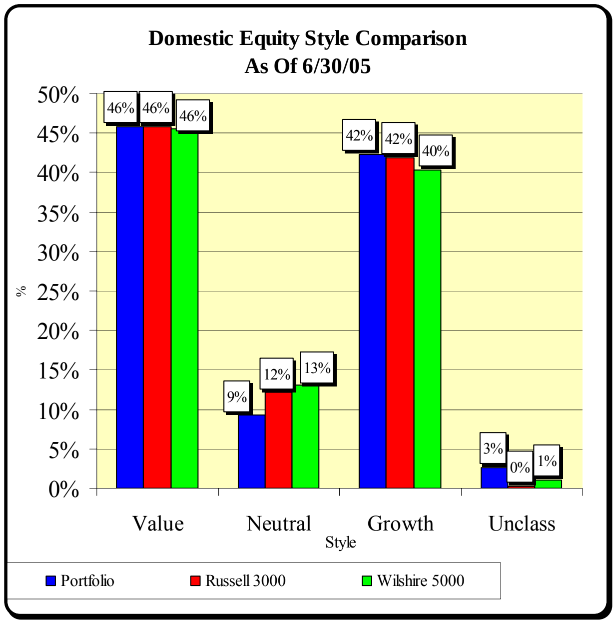
| Portfolio Characteristics | | | |
|---|---|---|---|
| | Total Domestic Equity | Russell 3000 | Wilshire 5000 |
| Number of Stocks | 2,915 | 2,999 | 4,937 |
| Beta (vs. S&P 500) | 1.02 | 1.02 | 1.05 |
| Yield | 1.67 | 1.71 | 1.69 |
| P/E | 20.72 | 21.15 | 21.40 |
| Standard Error | 1.58 | 1.56 | 1.55 |
| R-Squared | 0.96 | 0.96 | 0.96 |
| Wtd. Avg. Mkt. Cap. | $72.6B | $72.2B | $72.1B |
| Median Mkt. Cap | $1.3B | $1.0B | $0.3B |

- Overall, in addition to diversification by sector, the portfolio is nearly as diversified, in terms of the number of securities in the portfolio (2,915 equity securities), as the benchmark (2,999 equity issues). The domestic equity portfolio beta of 1.02 is equal to the 1.02 beta of the Russell 3000 benchmark beta, whereas the beta of the Wilshire 5000 benchmark was 1.05 versus the S&P 500 benchmark. The Fund's equity portfolio beta of 1.02 means the Fund's equity portfolio and the Russell 3000 is 2% more volatile in both up and down equity markets as compared to the S&P 500. From a yield perspective, the Fund's yield is 1.67%, slightly less than the 1.71% and 1.69% yields of the Russell 3000 and Wilshire 5000 benchmarks. The Fund's P/E of 20.7 is also lower than the Russell 3000 and Wilshire 5000 P/Es of 21.2 and 21.4. The lower P/E implies the Fund's equity program is possibly slightly more oriented to value based securities than the market benchmarks. Generally, R-squared is used to measure a portfolio's relevance to a certain benchmark, and typically any portfolio R-squared measure of 0.7 or greater versus a specific benchmark indicates that the benchmark is a "reasonable fit", or significant, for adequate benchmarking purposes. In terms of total weighted average and median market capitalization of the portfolio, the weighted average market capitalization of the portfolio is nearly equal to the Russell 3000 and Wilshire 5000 benchmarks, whereas the median market capitalization of the portfolio of $1.3 billion is 30% larger than the Russell 3000, and nearly four times larger than the Wilshire 5000's total U.S. equity market median market capitalization.

## Equity Portfolio Holdings Style Risk

- The allocation of the Fund's domestic equity portfolio by capitalization and equity style is highlighted below.




- As of June 30, 2005, the Fund's domestic equity program was diversified across all categories of the equity capitalization and style spectrum. In terms of capitalization allocation risk, the Fund appears to be fairly equal weight large cap equities (78%, versus 79% and 78% for the Russell 3000 and Wilshire 5000 benchmarks) relative to the Russell 3000 benchmark, and very slightly underweight mid (9%, versus 10% and 10% for the two benchmarks) and small cap equities (10%, versus 11% and 11% for the two benchmarks) as of June 30, 2005. Securities with insufficient operating history, or non-equity securities, are categorized as Unclassified, and this portion of the equity portfolio represented a 2% allocation.

- A portion of the Fund's domestic equity program underperformance versus the market benchmarks is due to the slight underweight in small and mid cap equities (generally the least efficient area of the equity market where more anomalies can be exploited) which led the equity market through both the bear market in 2000 through late 2002, and over the course of the equity market rebound in late 2002 through mid 2005. In general, if the Fund investment staff identifies compelling valuations or growth opportunities in mid and small caps, and inefficiencies to exploit, then the Fund investment staff should consider implementing tactical or strategic allocation overweights to this area of the market as and when appropriate, along with routine and prudent monitoring to ensure that capitalization overweights do not become too outsized given the Fund's agreed upon risk budget.

## Equity Portfolio Returns Style Risk

- In addition to the holdings based risk summary, IFS also conducted an equity style analysis of the Fund's domestic equity program using a returns based style analysis procedure. In this analysis, the Fund's domestic equity program three year rolling returns, for the five year period ending June 30, 2005, were regressed against the large value, large growth, small value and small growth benchmarks. The results of the analysis are exhibited below.

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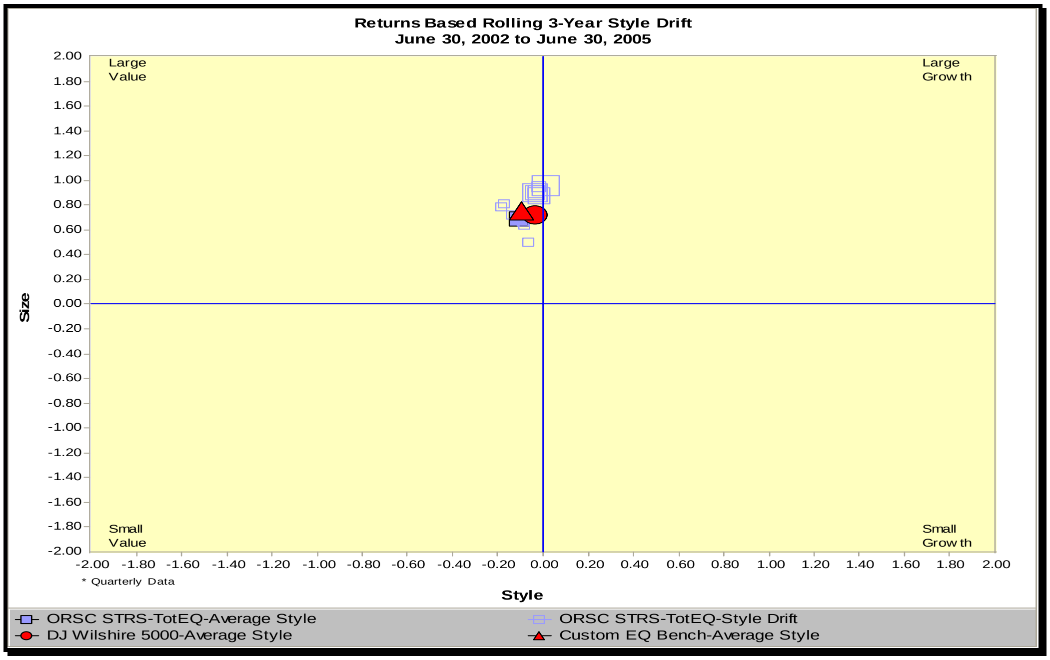
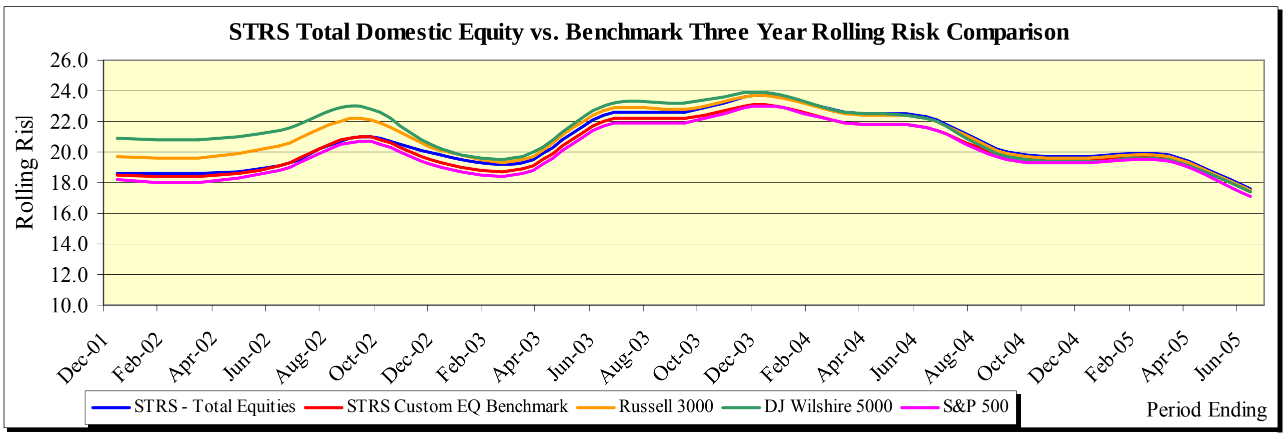



- As was shown in IFS' holdings based analysis, the results of the equity returns based style analysis confirm that the Fund's domestic equity program has maintained an average market capitalization approximately equal to the Russell 3000 and Wilshire 5000 benchmarks overtime. Additionally, the results of the returns based analysis also suggest that the Fund's domestic equity program has maintained a fairly style neutral allocation to the market benchmarks over the past five years ending June 30, 2005.

## Equity Portfolio Rolling Three Year Risk Analysis (Standard Deviation of Returns)

- After analyzing the pattern of performance over the past five years on a discrete and rolling three year basis, IFS concludes that the Fund's investment staff (and the Fund's combined domestic internal and external equity investment strategies on a combined basis) have been successful in controlling the risk of the Fund's domestic equity program over the long and intermediate term versus its appropriate benchmarks.

- Although three year rolling risk has been converging for the Fund's domestic equity program and the appropriate benchmarks more recently, over the long period, the Fund's equities produced a marginally higher three year rolling risk versus the Custom Equity Benchmark over the observation period, but a lower average three year rolling risk versus the Russell 3000 and Wilshire 5000 benchmarks. A summary of the Fund's domestic equity portfolio risk on a rolling three year basis (ending quarterly) versus that of the Fund's domestic equity benchmarks is exhibited below.




| Three Year Rolling Average Risk | | | | | |
|---|---|---|---|---|---|
| | STRS Total Domestic Equities | STRS Custom EQ Benchmark | Russell 3000 | DJ Wilshire 5000 | S&P 500 |
| Average | 20.5 | 20.1 | 20.8 | 21.1 | 19.9 |

- On average over the past five years, the Fund's three year rolling risk averaged 20.5%, 2.0% more than the Custom Benchmark on a relative basis, and 1.4% and 2.8% less than the Russell 3000 and Wilshire 5000 benchmarks also over the same time period on a relative basis.

### 3) Benchmark Assessment

## OBSERVATIONS REGARDING DOMESTIC EQUITY BENCHMARK APPROPRIATENESS:

- After review of the Fund's domestic equity program, including its current equity structure from a style and capitalization perspective, as well as upon review of the Fund's stated domestic equity program objectives in the Investment Policy Statement, the Russell 3000 benchmark, the Fund's current domestic equity benchmark, seems to be an appropriate benchmark for this program given the current equity portfolio structure. Although the Russell 3000 is not the broadest equity benchmark which exists for benchmarking U.S. equities, it is still very suitable for the Fund's domestic equity benchmarking purposes. The Wilshire 5000 benchmark is the broadest measure of all publicly traded equities in the U.S. domestic equity market. The Wilshire 5000, like the Russell 3000, reflects the performance of large, mid and small capitalization securities, however, the Wilshire 5000 includes another nearly 2,000 micro-cap and small cap securities. Although these securities have helped the performance of the index over the past several years, these securities are also generally more illiquid than the more limited number of other small cap securities which comprise the Russell 3000 benchmark. We understand that STRS did consider the Wilshire 5000 as an alternative U.S. equity benchmark to the Russell 3000. However, upon additional consideration, Fund staff and STRS elected to not change the Fund's equity policy benchmark to the Wilshire 5000.

### c. International Equities

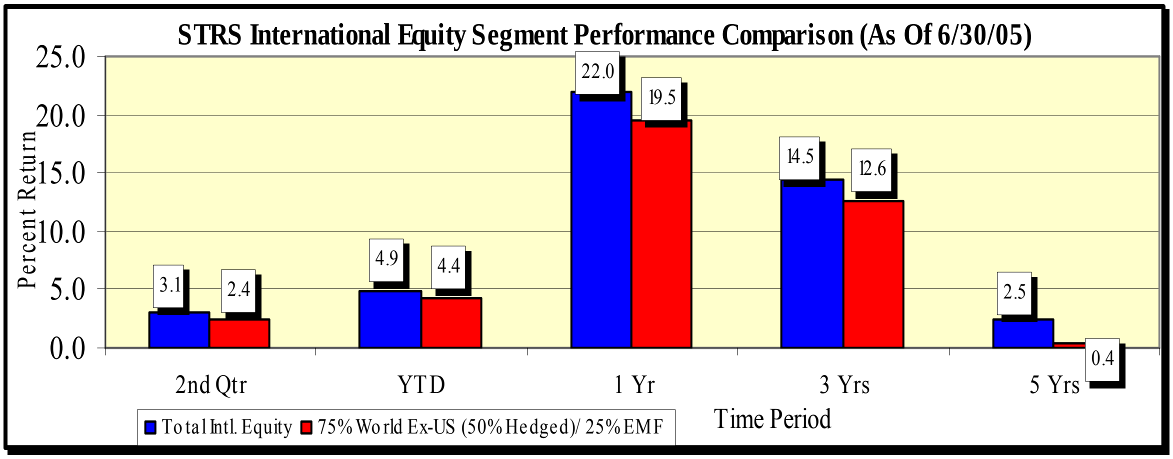
#### 1) Performance Evaluation

## OBSERVATIONS REGARDING INTERNATIONAL EQUITY PERFORMANCE:

- Upon considering both the U.S. bear market in equities and the equity market rebound of 2003 and 2004, the Fund's international equity program has provided benefits in terms of excess performance over U.S. equities, as well as to the Custom International Equity Policy Index (blended benchmark of 75% MSCI World Ex-U.S./25% MSCI Emerging Markets) over the last one year, three year and five year annualized periods on a gross of fee basis.

- For the six month period ending June 30, 2005, the international equity program gained 4.9%, exceeding the custom benchmark by 50 basis points (gross of fees) and ranking 1st in IFS' public fund universe of international equity composite portfolios. The Fund's international equity program has also produced favorable results versus the blended international equity policy benchmark over the intermediate and longer term. For the one year, three year and five year period, ending June 30, 2005, the Fund's total international equities returned 22.0%, 14.5% and 2.5% on an annualized basis. These results outperformed the blended international equity benchmark by an annualized 2.6% (one year excess) over the one year period, 1.9% (three year excess) over the three year period and 2.1% (5 year excess) over the five year period, respectively, on a gross of fee basis. This performance over the one, three and five year periods rank the Fund's international equity composite 5th and 11th over the one and three year annualized periods in IFS' universe of public fund international equity returns. At the time of the writing of this report, a five year annualized international equity return comparison and ranking for the Fund was unavailable due to data limitations.

- The Fund's international equity program annualized performance, excess returns versus the custom international equity benchmark and rankings in IFS' public fund international equity return universe is highlighted below.




**STRS International Equity Segment Performance Comparison**

* Figures in percent

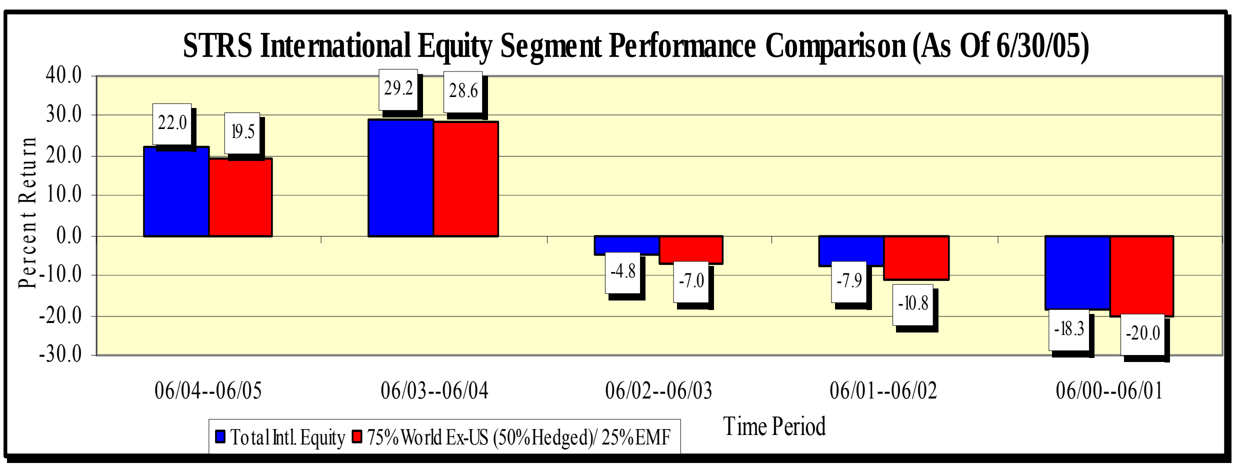
| | | | | Annualized Returns | |
|---|---|---|---|---|---|
| | 2nd Qtr | YTD | 1 Yr | 3 Yrs | 5 Yrs |
| **Total Intl. Equity** | **3.1** | **4.9** | **22.0** | **14.5** | **2.5** |
| *75% World Ex-US (50% Hedged)/ 25% EMF* | *2.4* | *4.4* | *19.5* | *12.6* | *0.4* |
| *Excess (Total Intl EQ - Custom Benchmark)* | *0.7* | *0.6* | *2.6* | *1.9* | *2.1* |
| *Public Fund Rank* | *2nd* | *1st* | *5th* | *11th* | *N/A* |

- When analyzing rolling one year returns over the past five years ending June 30, 2005, the Fund's international equities outperformed the policy benchmark in five out of the five one year rolling periods reviewed. With the exception of the one year ending June 30, 2004, the Fund's total international equities also ranked equal to or better than the median public fund international equity program in four out of five years.

- The table below includes the international equity cumulative investment performance results of the custom peer group survey. As summarized below, the Fund outperformed the average and the median of the peer group for the one, three, and five year periods.

| Table A5: Custom Peer Group International Equity Cumulative Returns | | | |
|---|---|---|---|
| **Peer Public Pension Fund** | **1 Year** | **3 Years** | **5 Years** |
| Maryland Retirement Agency | 14.0% | 10.4% | -1.0% |
| Ohio Public Employees Retirement System | 16.6% | 13.8% | 0.4% |
| Penn Public School Employees' Retirement System | 17.0% | 13.8% | 1.4% |
| State of Michigan Retirement System | 14.2% | 10.8% | -0.2% |
| State of Wisconsin Investment Board | 17.3% | 14.0% | 1.3% |
| Teachers Retirement System of Georgia (TRS) | 13.7% | 11.6% | -0.9% |
| Teachers Retirement System of Texas | 17.0% | 13.6% | 0.7% |
| **Average Return** | **15.7%** | **12.6%** | **0.2%** |
| **Median Return** | **16.6%** | **13.6%** | **0.4%** |
| **State Teachers Retirement System of Ohio** | **22.0%** | **14.5%** | **2.5%** |

- A summary of the Fund's total international equity program rolling one year performance, excess returns versus the custom benchmark and rankings in IFS' public fund universe is highlighted below.




**STRS International Equity Segment Performance Comparison**

| * Figures in percent | Rolling One Year Returns | | | | |
|---|---|---|---|---|---|
| | 06/04--06/05 | 06/03--06/04 | 06/02--06/03 | 06/01--06/02 | 06/00--06/01 |
| **Total Intl. Equity** | **22.0** | **29.2** | **-4.8** | **-7.9** | **-18.3** |
| *75% World Ex-US (50% Hedged)/ 25% EMF* | *19.5* | *28.6* | *-7.0* | *-10.8* | *-20.0* |
| *Excess (Total Intl EQ - Custom Benchmark)* | *2.6* | *0.6* | *2.2* | *2.9* | *1.7* |
| *Public Fund Rank* | *5th* | *75th* | *29th* | *47th* | *25th* |

- Overall, the international equity program has been successful and the Fund should proceed with maintaining an allocation to both developed and emerging markets which fits within the Total Fund's optimized asset allocation and liability considerations.

- The table below includes the international equity consecutive investment performance results of the custom peer group survey. In fairly consistent fashion, as can be seen below, the Fund generally outperformed its custom peer group in four of the past rolling one year periods ending June 30.

**Table A6: Custom Peer Group International Equity Annual Returns**

| Peer Public Pension Fund | 06/04-06/05 | 06/03-06/04 | 06/02-06/03 | 06/01-06/02 | 06/00-06/01 |
|---|---|---|---|---|---|
| Maryland Retirement Agency | 14.0% | 28.6% | -8.1% | -10.6% | -21.0% |
| Ohio Public Employees Retirement System | 16.6% | 32.9% | -4.8% | -8.6% | -24.3% |
| Penn Public School Employees' Retirement System | 17.0% | 32.2% | -4.8% | -6.8% | -21.8% |
| State of Michigan Retirement System | 14.2% | 29.0% | -7.6% | -12.9% | -16.7% |
| State of Wisconsin Investment Board | 17.3% | 32.1% | -4.3% | -6.5% | -23.1% |
| Teachers Retirement System of Georgia (TRS) | 13.7% | 29.4% | -5.6% | -10.6% | -22.8% |
| Teachers Retirement System of Texas | 17.0% | 31.1% | -4.3% | -7.8% | -23.6% |
| **Average Return** | **15.7%** | **30.8%** | **-5.6%** | **-9.1%** | **-21.9%** |
| **Median Return** | **16.6%** | **31.1%** | **-4.8%** | **-8.6%** | **-22.8%** |
| **State Teachers Retirement System of Ohio** | **22.0%** | **29.2%** | **-4.8%** | **-7.9%** | **-18.3%** |

## 2) International Equity Portfolio Risk Factors

## BACKGROUND

Like the domestic equity program, IFS also analyzed certain risk factors of the Fund's composite International Equity portfolio. As outlined below, IFS analyzed certain risks as of June 30, 2005, as well as portfolio risks which were measured of a rolling time series over the past five years. As of June 30, 2005, IFS reviewed the Fund's international equity portfolio risk versus the portfolio's primary benchmark regional diversification, a range of relevant portfolio comparative statistics and the portfolio's sector diversification. IFS then analyzed and reviewed other risks of the equity program including a rolling risk analysis over the past five years of the international equity program's standard deviation of returns (or volatility) versus its primary benchmark.

## OBSERVATIONS REGARDING INTERNATIONAL EQUITY PORTFOLIO RISK:

### International Equity Portfolio Regional Diversification Risk

- As of June 30, 2005, the Fund's international equity composite (including developed and emerging market strategies) was allocated comparably to the primary benchmark, the Non-U.S. Hybrid Index (MSCI World Ex. U.S. hedged [75%]/MSCI Emerging Markets Free Index [25%]). As of June 30, 2005, the Fund's international equity program was underweighted by an absolute 2% to Developed Markets and was overweighted 2% to Emerging Markets. At that time, the Fund's international equity program was slightly underweighted to the Pacific Basin and Europe, and overweighted by 2% to the Americas, while equal weighted to Africa and the Middle East regions as outlined below.

| Regional Diversification | | | | |
|---|---|---|---|---|
| | STRS | Non-U.S. Hyrbrid Index | Overweight/ Underweight | MSCI All Country ex-US |
| Developed Markets | 73% | 75% | -2% | 88% |
| Emerging Markets | 27% | 25% | 2% | 12% |
| | | | | |
| Pacific Basin | 34% | 35% | -1% | 31% |
| Europe | 50% | 51% | -1% | 59% |
| Americas | 12% | 10% | 2% | 8% |
| Africa/Mideast | 4% | 4% | 0% | 2% |
| Total | 100% | 100% | 0% | 100% |

- Given the international equity program's demonstrated ability of adding excess returns over the custom international equity benchmark in all periods observed (both for the one quarter, one year, three year and five year annualized periods, as well as for the five one year rolling periods ending June 30, 2005) the Fund has been able to achieve these results while being disciplined in its risk controlled regional allocation approach and has not taken additional undue risk in this regard.

- The following section reviews and compares the Fund's total international equity portfolio allocation risk, by economic sector, versus the benchmark's overall portfolio sector allocation.

## International Equity Sector Allocation Risk

- The Fund's total international equity program, as of June 30, 2005, was diversified across all of the equity market's 10 major sectors as highlighted on the "Sector Exposure Comparison" chart below. All sectors were within an absolute 0.1% to 2.2% overweight or underweight versus the benchmark. An allocation of the total international equity program as compared to the benchmark is displayed below.

**Sector Exposure Comparison**

| | Total Non-U.S. Equity | Non-U.S. Hybrid Equity Index | Difference |
|---|---|---|---|
| Technology | 5.3% | 7.5% | -2.2% |
| Health Care | 5.6% | 6.5% | -0.9% |
| Con. Disc & Svcs. | 7.5% | 8.2% | -0.7% |
| Consumer Staples | 5.5% | 5.2% | 0.3% |
| Integrated Oils | 8.9% | 8.2% | 0.7% |
| Other Energy | 1.9% | 2.0% | -0.1% |
| Mat. & Processing | 13.6% | 12.8% | 0.8% |
| Producer Durables | 5.2% | 5.1% | 0.1% |
| Autos. & Trans. | 6.3% | 5.5% | 0.8% |
| Financial Services | 24.8% | 24.5% | 0.3% |
| Utilities | 12.0% | 11.9% | 0.1% |
| Other | 3.3% | 2.6% | 0.7% |
| Total | 100.0% | 100.0% | |

- Again, as evidenced above, the Fund's total international equity program is fairly risk controlled based on its overall sector allocation versus the benchmark. The program is diversified across all the equity sectors of the market and the Fund did not maintain a material bias to any one sector in the benchmark.

## International Equity Portfolio Characteristic Risks

- Similar to the domestic equity portfolio, IFS measured the international equity portfolio risks based on a host of portfolio characteristics versus the benchmark to determine if it was taking any outsized risks from a variety of perspectives as of June 30, 2005.

- A summary sampling of the Fund's total international equity portfolio characteristics is found below:

| Portfolio Characteristics | | |
|---|---|---|
| | Total Non-U.S. Equity | Hybrid Non-U.S Equity Index |
| Number of Stocks | 2,063 | 2,051 |
| P/E | 14.2 | 15.3 |
| P/E (ex. Neg. Earnings) | 13.1 | 14.0 |
| Price/Book | 2.0 | 2.1 |
| 1 Yr EPS Forecast | 14.6% | 13.6% |
| Weighted Avg. Mkt. Cap. | $15.2B | $17.8B |

- Overall, in addition to diversification by sector, the portfolio is very well diversified by number of securities in the portfolio. In fact, as of June 30, 2005, there were actually more international equity securities than found in the benchmark (2,063 as compared to 2,051).

- As exhibited above, the portfolio P/E ratio of 14.2 is marginally lower than the benchmark P/E ratio of 15.3, suggesting a slight value orientation to the total international equity portfolio. The portfolio P/E ratio, excluding negative earnings, of

13.1 is also lower than the comparable benchmark P/E ratio of 14.0. The P/B ratio of 2.0 also implies the Fund's international equity program may be very slightly more oriented to value securities than the market benchmark of 2.1. Since value oriented securities and value strategies have generally performed better than most growth oriented securities and strategies over the past four to five years, this orientation could also help explain the international equity program's outperformance in five of the past five rolling one year periods ending June 30, 2005.

- Another characteristic to consider the international equity portfolio's future growth prospects, as part of overall valuation, is to review the portfolio's one year EPS forecast (based on median forecasted growth rates according to I/B/E/S). This forecast over the total international portfolio, from a top down perspective, gauges the portfolio's forecasted earnings power versus the benchmark. As of June 30, 2005, the portfolio's 14.6% one year EPS forecast exceeds the benchmark forecast of 13.6% by 7.4% on a relative basis. Given the lower portfolio P/Es stated above versus the benchmark, and these higher forecasted EPS growth rates as compared to the benchmark, the relationship demonstrates that the Fund's overall international equity investment approach has valuation sensitive, but also sensitive to growth characteristics. Based on the portfolio structure as of June 30, 2005, the Fund's international equity approach is generally paying less than the benchmark for its share of earnings over the past year, and prospectively, those same shares are expected to produce a greater than benchmark level of earnings power over the forecasted year. Overall, these sorts of characteristics are positive attributes to observe for a risk-controlled investment approach like the international equity portfolio.

- Regarding weighted average market capitalization, the international equity portfolio is 14.6% less than the benchmark's weighted average capitalization ($15.2 billion versus $17.8 billion) as of June 30, 2005. A further breakdown of the international equity portfolio's weighted average capitalization is summarized below:

| Capitalization Attribution | | | |
|---|---|---|---|
| | Allocation | Non-U.S. Hybrid Index | Overweight/ Underweight |
| Large Cap | 20.5% | 25.4% | -4.9% |
| Mid/Large Cap | 24.9% | 26.1% | -1.2% |
| Mid Cap | 24.0% | 21.3% | 2.7% |
| Mid/Small Cap | 17.1% | 16.7% | 0.4% |
| Small Cap | 11.4% | 9.9% | 1.5% |
| Unclassified | 2.1% | 0.6% | 1.5% |

* Large = > $47.4 billion; Med/Large = $15.6 billion – $47.4 billion;
Median = $6.4 billion – $15.6 billion; Med/Small = $2.3 billion – $6.4 billion;
Small = < $2.3 billion

- The above capitalization attribution shows that the international equity portfolio capitalization structure is marginally underweighted to large cap securities and overweighted to mid cap and small cap securities. Similar to domestic equity performance, international equity performance has also been led by small cap, mid cap and smaller large cap companies over the bear market in equities and the ensuing equity market rebound over the past five years ending June 30, 2005. The small and mid cap portions of the international equity market are also less efficient than the large cap sector, similar to the domestic equity market, so it is sensible that the Fund has positioned its portfolio structure to seek to exploit some of these same inefficiencies which exist in the international equity marketplace.

- Fund staff may want to request that its outside consultant add, or consider having Fund staff add to its internal reports to the Board, several additional portfolio summary characteristics, which did not appear to be found in the consultant's report, including:

    - Beta (how volatile is the portfolio versus the volatility of the S&P 500, which is set at 1.0, or some other market benchmark),

    - Portfolio Yield (indicates whether portfolio is value, core or growth oriented),

- R-Squared (measures the level of significance of a portfolio to a specific index for benchmarking suitability), and

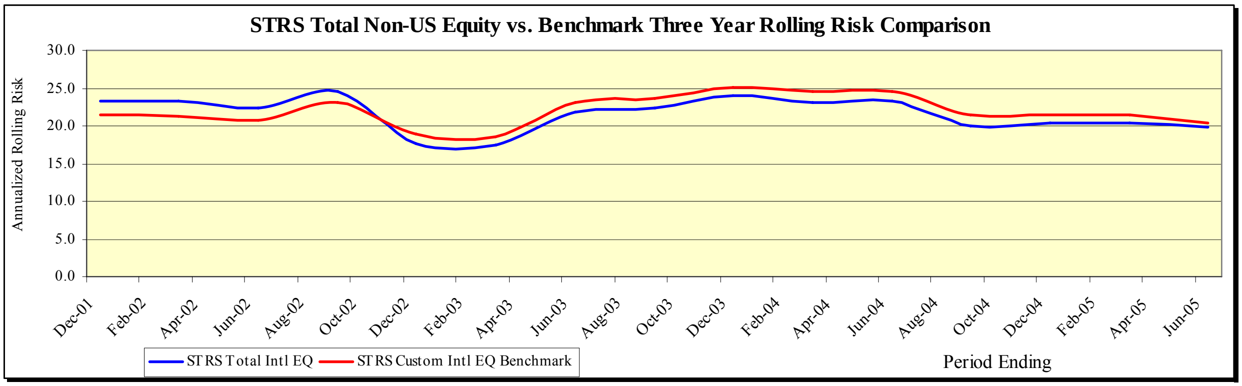
- Median Market Capitalization (point where one half of security capitalizations are above and below the median; test a portfolio's capitalization characteristics in addition to average and weighted average measures).

- If the trend in small cap and mid cap international security performance continues, the current structure of the Fund's international equity portfolio should continue to benefit the Fund going forward. Based on IFS' general asset class review of the international equity portfolio, the review does not seem to indicate risks contained in the portfolio which are materially different than investing in the respective international equity custom benchmark.

| **Recommendation A10** |
| --- |
| *Consider adding additional international equity portfolio characteristics to the regular quarterly reporting* |

## International Equity Portfolio Rolling Three Year Risk Analysis

- In addition to the representative risks described and summarized above, IFS evaluated what kind of risk the Fund has taken to achieve the international equity performance returns versus its benchmark. Based on the performance over the past five years on a discrete and rolling three year basis, IFS concludes that the Fund's international equity investment staff (and the international equity composite) has been successful in controlling the risk of the Fund's international equity program, within a reasonable band of tolerance, over the long and intermediate term versus its appropriate benchmark. A summary of the Fund's international equity portfolio risk on a rolling three year basis (ending quarterly) versus that of the Fund's custom international equity benchmark is displayed below.




| Three Year Rolling Average Risk | |
|---|---|
| STRS Non-US Equity | STRS Custom Intl EQ Benchmark |
| 21.6 | 22.0 |

- On average, over the past five years, the Fund's three year rolling risk averaged 21.6%, an absolute 0.4% less than the Custom International Equity Benchmark rolling risk of 22.0%, or 2.0% less than the benchmark on a relative basis.

### 3) Benchmark Assessment

## OBSERVATIONS REGARDING INTERNATIONAL EQUITY BENCHMARK APPROPRIATENESS:

- After review of the Fund's international equity program, including its developed market and emerging market allocation mandates, as outlined in the IPS, the MSCI World Ex-US Index 50% hedged (developed international equity index) and the MSCI Emerging Markets Free Index (emerging market index for companies classified to be in emerging and developing countries) seem to be reasonable benchmarks for benchmarking the separate components of this international equity program, as well as the combined Non-U.S. equity program.

- If the Fund seeks to measure performance and risk of the entire international equity program on a composite basis against the single benchmark, IFS advises that it consider studying the MSCI All Country World ex-U.S. Index (50% hedged) as a possible secondary or new primary benchmark. The MSCI All Country World ex-U.S. Index, like the Fund's International Hybrid Index, includes both developed and emerging market country allocations as of June 30, 2005. However, as of the drafting of this report, the MSCI All Country World ex-U.S. Index also includes a few additional countries (Venezuela and Singapore Free) in the index which are not found in either the MSCI World ex. U.S. Index or the MSCI Emerging Markets Free Index. This index could also serve as an international equity market proxy against which the Fund could be measured to determine whether the Fund's active allocation decisions to overweight or underweight emerging markets are paying off for STRS.

| Recommendation A11 |
|---|
| *We recommend that the Fund consider the MSCI All Country World ex. U.S. Index (50% hedged) as a possible secondary or new primary benchmark to measure the performance and risk of the composite international equity program since the MSCI All Country World ex-U.S. Index includes both developed and emerging market country allocations which are slightly broader in number of emerging market countries than the current International Equity Hybrid Index.* |

### d. Fixed Income

#### 1) Performance Evaluation

## OBSERVATIONS REGARDING FIXED INCOME PERFORMANCE:

- Overall, when reviewing the Fund's total fixed income performance over the five year period ending June 30, 2005, IFS observed that the Fund performed very well over the one, three and five year annualized periods versus both the Fund's fixed income policy benchmark and the universe of comparable public fund fixed income programs. The Lehman Brothers U.S. Universal benchmark, an appropriate fixed income benchmark given the Fund's fixed income program, is the broadest dollar denominated U.S. fixed income market benchmark, and predominantly includes investment grade fixed income securities, although a smaller portion of the benchmark includes an allocation to foreign domiciled and sovereign fixed income securities issued in U.S. dollars, as well as non-traditional fixed income security components.

- Over the six month period ending June 30, 2005, the Fund's fixed income program matched the benchmark's return of 2.5% and the Fund's fixed income program ranked 30th among comparable public fund fixed income programs. For the one year period, the Fund's 7.5% fixed income composite return outperformed the Lehman Universal's 7.4% return by 10 basis points and ranked 14th in the universe of comparable public funds in IFS' universe. Over the three year period and five year annualized periods, ending June 30, 2005, the Fund's total fixed income composite advanced impressively by 7.2% and 8.2% annualized over the respective periods and outperformed the Lehman Universal benchmark over both periods by excess returns of an annualized 70 basis points and 60 basis points gross of fees. Fixed income performance of the total Fund was also very extremely competitive versus its peer group of public funds as the Fund ranked 2nd and 11th in the public fund universe over the three year and five year annualized periods.

- A summary of the fixed income program's annualized performance, excess returns versus the Fund's Custom Fixed Income benchmark (Lehman Universal benchmark) and rankings in IFS' public fund universe is highlighted below.

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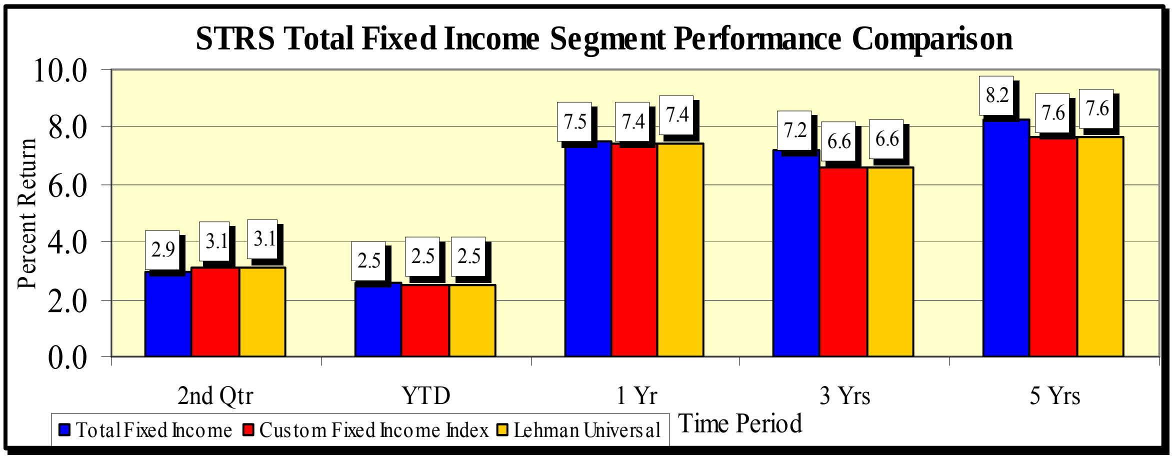



**STRS Total Fixed Income Performance Comparison**

| * Figures in percent | 2nd Qtr | YTD | 1 Yr | Annualized Returns 3 Yrs | 5 Yrs |
|---|---|---|---|---|---|
| **Total Fixed Income** | **2.9** | **2.5** | **7.5** | **7.2** | **8.2** |
| *Custom Fixed Income Index* | *3.1* | *2.5* | *7.4* | *6.6* | *7.6* |
| *Lehman Universal* | *3.1* | *2.5* | *7.4* | *6.6* | *7.6* |
| *Excess (Total Fixed Income - Custom Benchmark)* | *-0.2* | *0.0* | *0.1* | *0.7* | *0.6* |
| *Public Fund Rank* | *31st* | *30th* | *14th* | *2nd* | *11th* |

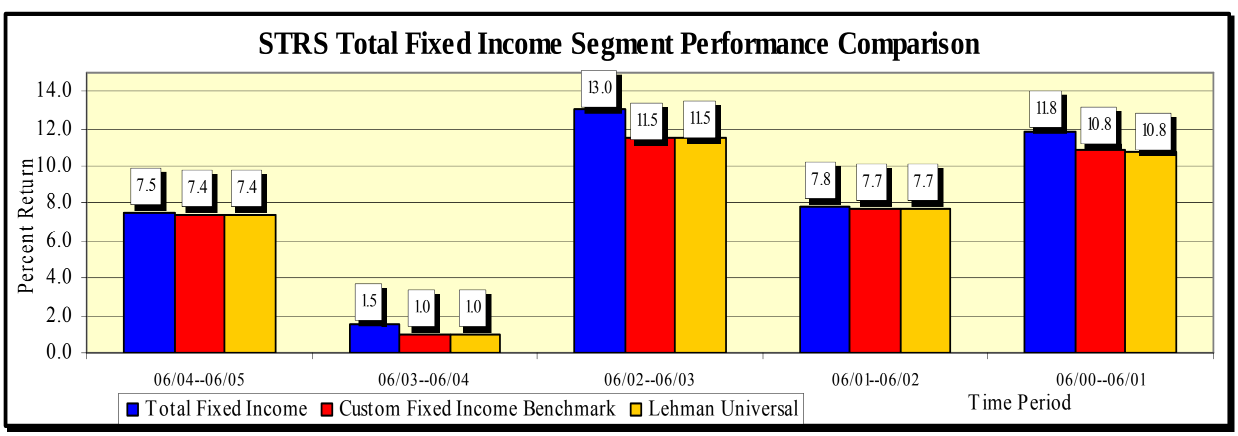
- The Fund has been able to generate these excess returns in a fairly consistent manner over all five one year periods on a gross of fee basis. Over the five rolling one year periods, the excess return ranged from a low of 10 basis points to a high of 150 basis points, gross of fees. The Fund's total fixed income program ranked near or within the top quartile of public fund fixed income returns in four of the five one year rolling periods. The Fund's fixed income performance ranked in the third quartile for the one year period ending June 2002. This period contained a lot of uncertainty in the fixed income markets (as well as equity market) and was characterized as the period where the fixed income and other investors were marred by corporate scandals and fraud including Worldcom, Enron, Tyco and other companies which engaged in fraudulent activities with co-conspirators, such as the now defunct Arthur Anderson & Co., and a number of other Wall Street investment banks which have since been the subjects of a multitude of class action lawsuits and state's attorney general investigations.

- The table below includes the fixed income cumulative investment performance results of the custom peer group survey. The Fund's fixed income composite is made up of both domestic fixed income securities and international fixed income securities. The peer groups, on the other hand, are broken out into a domestic fixed income composite. Therefore, a direct comparison is not entirely applicable.

| Table A7: Custom Peer Group Domestic Fixed Income Cumulative Returns | | | |
|---|---|---|---|
| **Peer Public Pension Fund** | **1 Year** | **3 Years** | **5 Years** |
| Maryland Retirement Agency | 7.8% | 6.9% | 7.4% |
| Ohio Public Employees Retirement System | 8.1% | 7.1% | 7.9% |
| Penn Public School Employees' Retirement System | 8.7% | 8.3% | 8.4% |
| State of Michigan Retirement System | 5.3% | 4.9% | 7.0% |
| State of Wisconsin Investment Board | 7.7% | 7.0% | 7.9% |
| Teachers Retirement System of Georgia (TRS) | 7.1% | 6.0% | 7.8% |
| Teachers Retirement System of Texas | 7.2% | 7.2% | 8.4% |
| **Average Return** | **7.4%** | **6.8%** | **7.8%** |
| **Median Return** | **7.7%** | **7.0%** | **7.9%** |
| **State Teachers Retirement System of Ohio*** | **7.5%** | **7.2%** | **8.2%** |

*Includes domestic and international fixed income securities

- A summary of the Fund's total fixed income program rolling one year performance, excess returns versus the Fund's fixed income benchmark and rankings in IFS' public fund universe is highlighted below.



| **STRS Total Fixed Income Performance Comparison** | | | | | |
|---|---|---|---|---|---|
| * Figures in percent | Rolling One Year Returns | | | | |
| | 06/04--06/05 | 06/03--06/04 | 06/02--06/03 | 06/01--06/02 | 06/00--06/01 |
| **Total Fixed Income** | **7.5** | **1.5** | **13.0** | **7.8** | **11.8** |
| *Custom Fixed Income Benchmark* | *7.4* | *1.0* | *11.5* | *7.7* | *10.8* |
| *Lehman Universal* | *7.4* | *1.0* | *11.5* | *7.7* | *10.8* |
| *Excess (Total Fixed Income - Custom Benchmark)* | *0.1* | *0.5* | *1.5* | *0.1* | *1.0* |
| *Public Fund Rank* | *14th* | *17th* | *10th* | *63rd* | *27th* |

- The table below includes the domestic fixed income consecutive investment performance results of the custom peer group survey. As mentioned above, the Fund's fixed income return includes both domestic and international fixed income securities; therefore the peer group returns are not directly comparable.

**Table A8: Custom Peer Group Domestic Fixed Income Annual Returns**

| **Peer Public Pension Fund** | **06/04-06/05** | **06/03-06/04** | **06/02-06/03** | **06/01-06/02** | **06/00-06/01** |
|---|---|---|---|---|---|
| Maryland Retirement Agency | 7.8% | 1.6% | 11.4% | 6.5% | 10.2% |
| Ohio Public Employees Retirement System | 8.1% | 1.4% | 11.9% | 6.9% | 11.7% |
| Penn Public School Employees' Retirement System | 8.7% | 3.3% | 13.1% | 7.1% | 10.0% |
| State of Michigan Retirement System | 5.3% | 1.8% | 7.8% | 8.8% | 11.3% |
| State of Wisconsin Investment Board | 7.7% | 0.7% | 13.0% | 6.6% | 11.8% |
| Teachers Retirement System of Georgia (TRS) | 7.1% | -1.4% | 12.8% | 10.9% | 10.2% |
| Teachers Retirement System of Texas | 7.2% | -0.1% | 15.0% | 8.9% | 11.9% |
| **Average Return** | **7.4%** | **1.0%** | **12.1%** | **7.9%** | **11.0%** |
| **Median Return** | **7.7%** | **1.2%** | **12.8%** | **7.5%** | **11.3%** |
| **State Teachers Retirement System of Ohio*** | **7.5%** | **1.5%** | **13.0%** | **7.8%** | **11.8%** |

*Includes domestic and international fixed income securities

## 2) Fixed Income Portfolio Risk Factors

## FUNDAMENTAL PRINCIPLES REGARDING FIXED INCOME PORTFOIO RISK:

- *In order to determine if the fixed income portfolio is more risky than the index from a number of perspectives as of June 30, 2005, IFS identified a number of portfolio characteristics to review versus the benchmark. Some of these general portfolio characteristics include the portfolio's:*

1. *Number of issues (how concentrated or diversified is the portfolio),*
2. *Effective duration (level of portfolio sensitivity to changes in interest rates),*
3. *Years to effective maturity (option adjusted average portfolio maturity date),*
4. *Yield to effective maturity (option adjusted yield to maturity),*
5. *Current yield (blended coupon interest divided by market value),*
6. *Average quality (average credit rating of the composite fixed income portfolio)*

## OBSERVATIONS REGARDING FIXED INCOME PORTFOLIO RISK:

### Fixed Income Portfolio Characteristic Risks

- In IFS' risk factor analysis, IFS often reviews a variety of fixed income portfolio risk characteristics, fixed income sector allocation risk and other levels of risk taken to generate a certain level of portfolio returns. After review of certain reports available to IFS, it appears that certain fixed income portfolio characteristics and other levels of risk reporting may not be included in standard reporting. Several of these types of risks are summarized below.

1. Number of issues (how concentrated or diversified is the portfolio),
2. Effective duration (level of portfolio sensitivity to changes in interest rates),
3. Years to effective maturity (option adjusted average portfolio maturity date),
4. Yield to effective maturity (option adjusted yield to maturity),
5. Current yield (blended coupon interest divided by market value), and
6. Average quality (average credit rating of the composite fixed income portfolio to gauge portfolio credit risk).

### Fixed Income Sector Allocation Risk

- Another sort of risk comparison, which could also be included in reporting to the Fund, is a fixed income sector allocation comparison to the Fund's appropriate fixed income benchmark such as the Lehman Universal or the Lehman Aggregate benchmarks. A fixed income sector comparison of the Lehman Aggregate benchmark is found below:

| Fixed Income Sector Comparison | |
|---|---|
| Sector | Lehman Aggregate |
| Finance | 8% |
| Foreign (Yankees) | 9% |
| Treasuries/Non Mtg. Govs. | 37% |
| Industrials | 10% |
| Govt. & Corp. Mortgages | 0% |
| Transportation | 35% |
| Utilities | 0% |
| Misc, Cash & Cash Equiv. | 2% |
| Total | 100% |

- IFS was informed that STRS publishes fixed income portfolio risk statistics and manager commentary in the Investment Committee's Gray Book, which Board members receive each month prior to the Board meeting. IFS understands that Board members may access past Gray Books via the BoardAccess intranet site. IFS further recommends that this reporting be combined with other standard fixed income reporting.

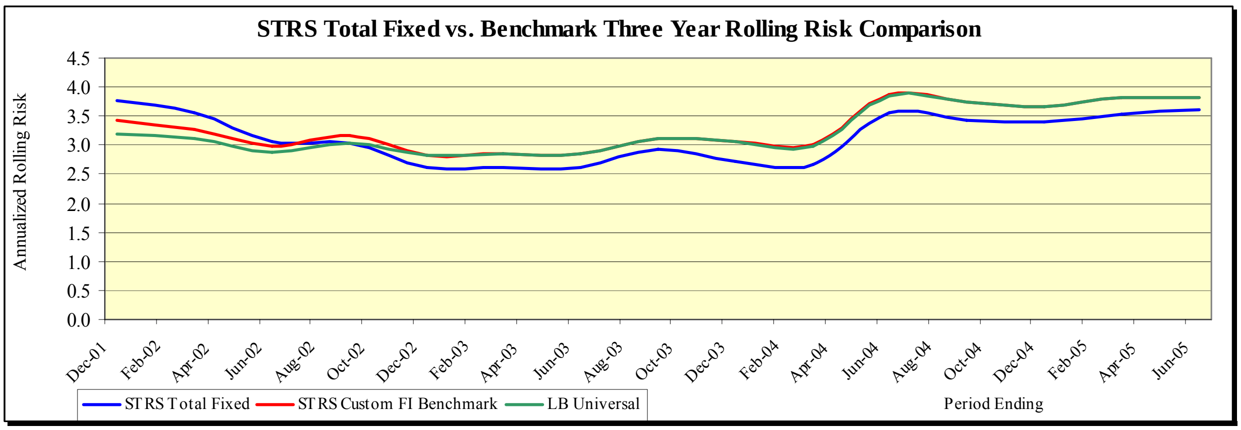
**Recommendation A12**

*IFS recommends that Fund staff review the current fixed income reporting provided to the Board and staff and work with its outside consultants to include additional fixed income reporting as determined necessary.*

## Fixed Income Portfolio Rolling Three Year Risk Analysis

- Although IFS was unable to review certain fixed income portfolio risks based on limited reporting, IFS was able to evaluate the historic risk (volatility, or standard deviation of returns) that the fixed income portfolio has taken over the past five years. Over that time, it appears that the Fund's fixed income staff has performed well controlling and mitigating the risk of the fixed income program. On average, over the past five years, the three year rolling risk of the Fund's fixed income program has averaged 3.0%, marginally lower as compared to the 3.1% average risk figures of Custom Fixed Income and Lehman Universal benchmarks.

- A summary of the Fund's rolling three year fixed income portfolio risk versus the benchmarks is summary below for the five year period ending June 30, 2005.




| Three Year Rolling Average Risk | | |
|---|---|---|
| **STRS Total Fixed** | **STRS Custom FI Benchmark** | **LB Universal** |
| 3.0 | 3.1 | 3.1 |

### 3) Benchmark Assessment

## OBSERVATIONS REGARDING FIXED INCOME BENCHMARK APPROPRIATENESS:

After review of the Fund's fixed income program, including the stated objectives outlined in the IPS, the Lehman Universal benchmark appears to be a reasonable benchmark for the Fund's composite fixed income program given the allocation to investment grade, non-U.S. and non-investment grade high yield strategies.

### e. Real Estate

#### 1) Performance Evaluation

## OBSERVATIONS REGARDING REAL ESTATE PERFORMANCE:

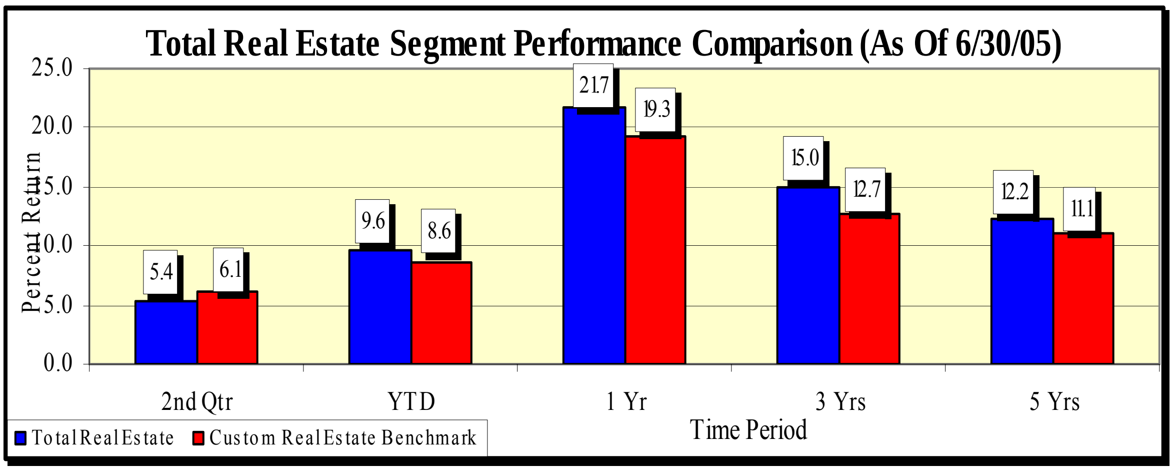
- The Fund's real estate program is a composite of real estate strategies including Core, REITs ("Real Estate Investment Trusts"), International, Natural Resources and Opportunity Funds. On a return attribution basis (as well as implied risk), the bulk of performance is derived from the program of Core oriented strategies which encompasses nearly 72% of the Fund's real estate program as of June 30, 2005, according to reports provided by Russell.

- Real estate returns for the Fund, similar to other institutional real estate programs, have been quite strong over all periods analyzed in this study over the past five year period ending June 30, 2005. Real estate as an asset class has been an important diversifier for the Fund, like other institutional investors, and the Fund's real estate asset class was actually the Fund's best performing asset class over both the three and five year annualized periods ending June 30, 2005.

- For the first six months, through June 30, 2005, the Fund's real estate composite generated a return of 9.6% versus the 8.6% custom benchmark return, producing an excess return over the benchmark of 100 basis points. The Fund's six month real estate return ranked 27th among real estate returns (including a range of leveraged and unleveraged programs) in IFS' universe of managed real estate portfolios. For the one year period, the Fund's real estate composite gained an impressive 21.7%, and generated an excess return over the benchmark of 240 basis points, ranking 25th in IFS' universe of managed real estate programs. Over the three and five year annualized period, as of June 30, 2005, the Fund's real estate composite again advanced impressively, returning 15.0% and 12.2% on an annualized basis, outperforming its benchmarks by 230 basis points and

120 basis points on an annualized basis. Over the same time periods the Fund's real estate composite portfolio ranked 32nd and 31st in IFS' universe of managed real estate programs.

- The Fund's real estate annualized performance, excess returns versus the Fund's Custom Real Estate benchmark and rankings in IFS' public fund universe, is summarized below.




**Total Real Estate Performance Comparison**

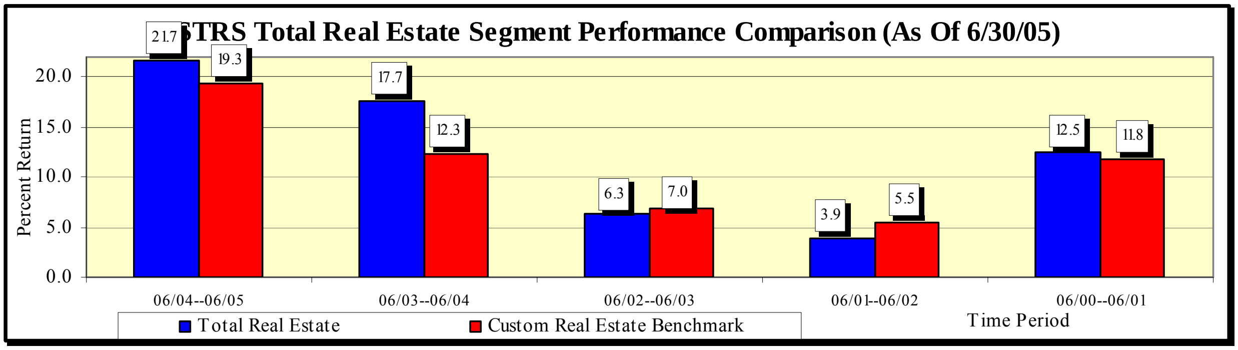
| * Figures in percent | | | | Annualized Returns | |
|---|---|---|---|---|---|
| | 2nd Qtr | YTD | 1 Yr | 3 Yrs | 5 Yrs |
| **Total Real Estate** | **5.4** | **9.6** | **21.7** | **15.0** | **12.2** |
| *Custom Real Estate Benchmark* | *6.1* | *8.6* | *19.3* | *12.7* | *11.1* |
| *Excess (Total RE - Custom RE Benchmark)* | *-0.8* | *1.0* | *2.4* | *2.3* | *1.2* |
| *Rank vs. All Real Estate Portfolios* | *38th* | *27th* | *25th* | *32nd* | *31th* |

- In addition to competitive performance over the one, three and five year annualized periods, the Fund's real estate program has also performed consistently better than the performance of the median real estate program in four out of the five rolling one year periods through June 2005. The Fund's real estate performance results have accelerated on both an absolute and relative basis over the past several years ending June 2005. Both on a relative basis versus the peer group, as well as against the Custom Real Estate benchmark, the Fund's real estate program has improved to the point where the program ranked in the top 25% of IFS' managed real estate program universe for the past two rolling one year periods ending June 2005. As compared to the Fund's Custom Real Estate benchmark, the Fund outperformed the benchmark in three out of five rolling one year periods, and the Fund's real estate program outperformed the Custom Real Estate benchmark by and impressive 540 basis points and 240 basis points for the one year periods ending June 2004 and June 2005.

- The table below includes the real estate investment performance results of the custom peer group survey. As exhibited below, the Fund outperformed the average and the median of the peer group for the one and three year periods.

| Table A9: Custom Peer Group Real Estate Cumulative Returns | | | |
|---|---|---|---|
| **Peer Public Pension Fund** | **1 Year** | **3 Years** | **5 Years** |
| Maryland Retirement Agency | 27.5% | 17.1% | 15.6% |
| Ohio Public Employees Retirement System | 14.0% | 10.6% | 10.9% |
| Penn Public School Employees' Retirement System | 23.2% | 16.8% | 13.5% |
| State of Michigan Retirement System | 13.7% | 9.2% | 9.3% |
| State of Wisconsin Investment Board | 23.3% | 15.5% | 13.1% |
| Teachers Retirement System of Georgia (TRS) | N/A | N/A | N/A |
| Teachers Retirement System of Texas | -5.0% | 3.7% | N/A |
| **Average Return** | **16.1%** | **12.1%** | **12.5%** |
| **Median Return** | **18.6%** | **13.1%** | **13.1%** |
| **State Teachers Retirement System of Ohio** | **21.7%** | **15.0%** | **12.2%** |

- The rolling one year performance, excess returns versus the Custom Real Estate benchmark and rankings in IFS' universe of managed real estate programs is outlined for the Fund's composite real estate program below.




**Total Real Estate Performance Comparison**

| * Figures in percent | Rolling One Year Returns | | | | |
|---|---|---|---|---|---|
| | 06/04--06/05 | 06/03--06/04 | 06/02--06/03 | 06/01--06/02 | 06/00--06/01 |
| **Total Real Estate** | **21.7** | **17.7** | **6.3** | **3.9** | **12.5** |
| *Custom Real Estate Benchmark* | *19.3* | *12.3* | *7.0* | *5.5* | *11.8* |
| *Excess (Total RE - Custom RE Benchmark)* | *2.4* | *5.4* | *-0.7* | *-1.5* | *0.8* |
| *Rank vs. All Real Estate Portfolios* | *25th* | *25th* | *49th* | *60nd* | *38th* |

- Overall, as discussed before, the Fund's real estate program has contributed materially in enhancing the absolute and risk adjusted performance of the Fund, as well as providing additional benefits of improved diversification over the past five years. The Fund's real estate allocation has also offered a compliment to the public market strategies employed by the Fund. Many experts in the real estate industry have expressed concern about the compression of cap rates among core Class A property types in the primary in-demand commercial districts and urban centers in many U.S. markets. While we understand that STRS utilizes real estate in the total Fund for its return/risk characteristics, based on the performance of core property and other traditional real estate management strategies over the past five years, the Fund may want to reconsider an expanded role for "value-added" or "opportunistic" strategies in the Fund's real estate program, if compelling investment opportunities on a risk adjusted basis are identified in that part of the real estate sector. According to the Fund's Russell report, as of June 30, 2005, Opportunity Funds comprised just 1.7% of the Fund's total real estate program (versus 71.5% for Core, 10.4% for REITs, 6.4% for International and 10% for Natural Resources).

- The table below includes the real estate consecutive investment performance results of the custom peer group survey. As can be seen below, the Fund outperformed the average and the median of the peer group for two of the most recent five annual time periods.

| Table A10: Custom Peer Group Real Estate Annual Returns | | | | | |
|---|---|---|---|---|---|
| **Peer Public Pension Fund** | **06/04-06/05** | **06/03-06/04** | **06/02-06/03** | **06/01-06/02** | **06/00-06/01** |
| Maryland Retirement Agency | 27.5% | 20.4% | 4.6% | 10.3% | 16.7% |
| Ohio Public Employees Retirement System | 14.0% | 11.7% | 6.4% | 7.0% | 16.0% |
| Penn Public School Employees' Retirement System | 23.2% | 21.8% | 6.1% | 1.4% | 16.6% |
| State of Michigan Retirement System | 13.7% | 7.9% | 6.2% | 8.7% | 9.9% |
| State of Wisconsin Investment Board | 23.3% | 15.7% | 8.1% | 7.9% | 11.5% |
| Teachers Retirement System of Georgia (TRS) | N/A | N/A | N/A | N/A | N/A |
| Teachers Retirement System of Texas | -5.0% | 7.0% | 9.5% | 8.2% | N/A |
| **Average Return** | **16.1%** | **14.1%** | **6.8%** | **7.2%** | **14.1%** |
| **Median Return** | **18.6%** | **13.7%** | **6.3%** | **8.0%** | **16.0%** |
| **State Teachers Retirement System of Ohio** | **21.7%** | **17.7%** | **6.3%** | **3.9%** | **12.5%** |

**Recommendation A13**

*As part of the Annual Investment Plan and the Fund's investment objectives, the Fund may wish to reconsider an expanded role for "value added" or "opportunistic" real estate strategies if compelling investment opportunities on a risk adjusted basis are identified.*

### 2) Real Estate Portfolio Risk Factors

## FUNDAMENTAL PRINCIPLES REGARDING REAL ESTATE PORTFOLIO RISK:

- *Real estate risk factors include the real estate program's allocation by property type, size and geographic location.*

- *Risk can also be measured and monitored in terms of the standard deviation of returns.*

## BACKGROUND

Regarding the Fund's Real Estate program, IFS was able to review risk from a few different perspectives while referencing the Fund's 2005 Real Estate Report provided by Russell. The report contains key sections measuring or establishing various levels of risk including:

a. Real Estate Activity and Policy Guidelines,
b. Core Portfolio Diversification, and
c. Leverage Summary

IFS' evaluation of certain risk factors within the areas above include the real estate program's stated strategic real estate allocation, regional property allocation, property type allocation, summary of leverage and the calculation of rolling three year risk (standard deviation of quarterly returns) over the past five years based on the performance information which was provided to IFS by the Fund office. This assessment of risk factors is found below.

## OBSERVATIONS REGARDING REAL ESTATE PORTFOLIO RISK:

### Strategic Real Estate Allocation

- Based on IFS' review of Russell's Real Estate Report, one of the primary risk controls employed by STRS is the real estate program's strategic allocation. In an effort to outperform the Custom Real Estate Index (80% NCREIF Property Index, 10% NCREIF Timberland Index and 10% Wilshire Real Estate Investment Trust Index) by 75 basis points over rolling five year periods, Fund and its investment staff have set a policy that the real estate program will be allocated based on a combined allocation to "Core" (generally conservative property types which are income producing, stabilized and associated with lower expected returns), "REITS" (Real Estate Investment Trusts which are often publicly traded), International (non-U.S. public and private strategies) Natural Resources (correlated to prices of raw land and commodity price movements) and

Opportunity Funds (Non-Core or Value Added Funds associated with higher expected returns).

- As part of the risk management approach and Real Estate portfolio Policy Guidelines, Core investments should represent at least a 70% allocation, whereas Non-Core investments (Opportunity Funds, International and Natural Resources) should represent no more than a 20% allocation of the real estate program. As part of the same policy, Public REITs should represent less than 10% of the real estate program. As of June 30, 2005, Core assets were allocated at approximately 71.5%, Non-Core investments were allocated at approximately 18.1% and REITs represented 10.4% of the real estate program.

- As of June 30, 2005, for the most part, the Fund's real estate program appeared to be within its Strategic allocation policy and its property type guidelines, although the REIT allocation of 10.4% was 0.4% above the targeted guideline.

## Property Type and Regional Property Allocation

- Based on IFS' review of the property type allocation, IFS confirmed that the real estate program risk is being contained within its prescribed property type policies as outlined above. As of the latest Fund's Russell Report, as of June 30, 2005, 33.3% of the real estate portfolio was allocated to Office, 15.0% allocated to Apartments, 10.9% to Retail, 12.1% to Industrials and the balance was allocated to Non-Core type real estate assets. In terms of these allocations only REITS seemed to be marginally higher than the allowable policy guidelines.

- IFS' review of the Fund's real estate program also identified that its Core investment allocation was well diversified by regional locations around the U.S. and does not appear to pose undue risk based on these allocations. Nearly 59% of the program was allocated to the West and South, and approximately 27% was allocated to the East, whereas the remainder of the real estate program was allocated to the Mid-West at 14% around the United States. A summary of the Fund's real estate program allocated by property type and region is summarized below.

| Composite Real Estate Property Type Allocation | | |
|---|---|---|
| Property Type | Fund Allocation | Policy Index |
| Office | 33.3% | 37.3% |
| Apartments | 14.7% | 16.8% |
| Retail | 11.0% | 12.2% |
| Natural Resources | 10.0% | 10.0% |
| Industrial | 12.1% | 13.5% |
| REITS | 10.4% | 10.0% |
| International | 6.4% | |
| Opportunity Funds | 1.7% | |
| Other/Land | 0.4% | 0.4% |
| Total | 100% | 100% |

| Core Regional Property Allocation | | | |
|---|---|---|---|
| Region | STRS | NCREIF | Difference |
| West | 35.3% | 34.7% | 0.6% |
| East | 26.8% | 32.1% | -5.3% |
| Mid-West | 14.8% | 12.8% | 2.0% |
| South | 23.1% | 20.4% | 2.7% |
| Total | 100.0% | 100.0% | |

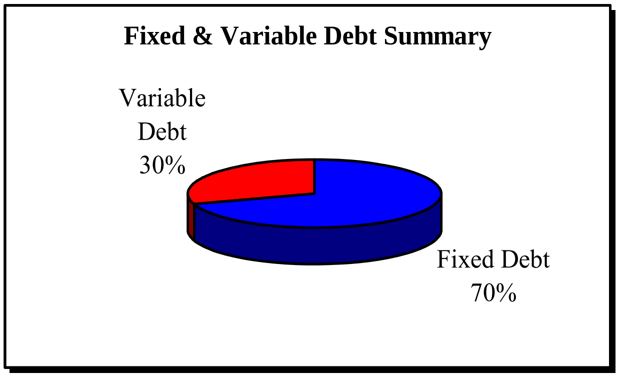
| Core Property Type Allocation | | | |
|---|---|---|---|
| Type | STRS | NCREIF | Difference |
| Apartments | 21.0% | 20.1% | 0.9% |
| Retail | 15.3% | 22.5% | -7.2% |
| Industrial | 16.9% | 18.2% | -1.3% |
| Office | 46.6% | 37.4% | 9.2% |
| Other | 0.5% | 1.8% | -1.3% |
| Total | 100% | 100% | |

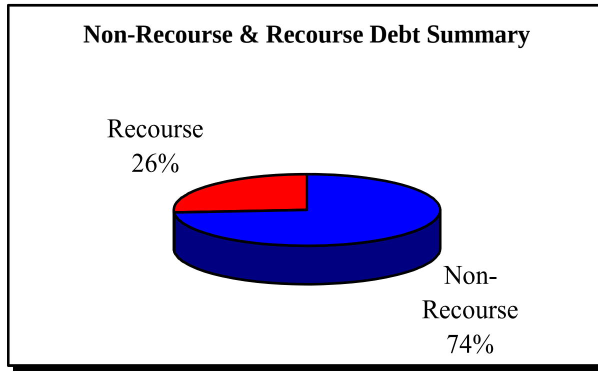
******Note: numbers may not add to 100% due to rounding.*

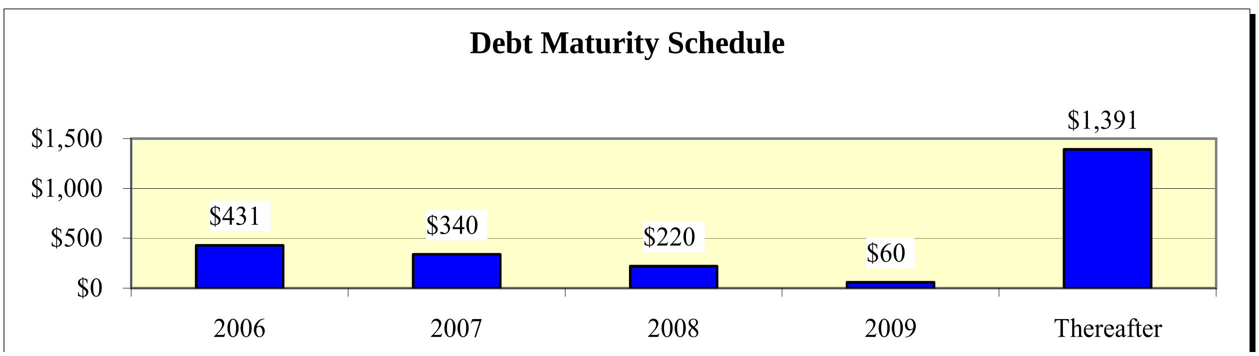
- The real estate program's use of leverage is another type of risk reviewed by IFS. Overall, the Fund's use of leverage appears to be at a reasonable level, cost and structure. The Fund's consolidated debt as a percentage of the total Real Estate program is 30.9%, a reasonably conservative level as compared to industry standards. When calculating the leverage ratio as a percentage of the Core Real Estate program, preferred by Fund staff, the leverage ratio is 37.3%, well below the 50% limit as outlined below. Approximately 70% of the Fund's real estate debt is fixed and 30% is variable. Additionally, 74% of the Fund's debt is non-recourse and 26% is recourse debt**.** A summary of the Fund's Leverage Summary and Debt Maturity Schedule is summarized below.

| Fund Real Estate Leverage Summary | |
|---|---|
| Wtd. Avg. Debt Cost | 5.3% |
| Wtd. Avg. Fixed Rate Debt | 6.0% |
| Wtd. Avg. Variable Rate Debt | 3.8% |
| Consolildated Debt to Total Asset Ratio | 30.9% |

* STRS measures leverage ratio based on direct (core) real estate and is subject to a limit of 50%. As of 6/05 the ratio was 37.3% according to STRS.



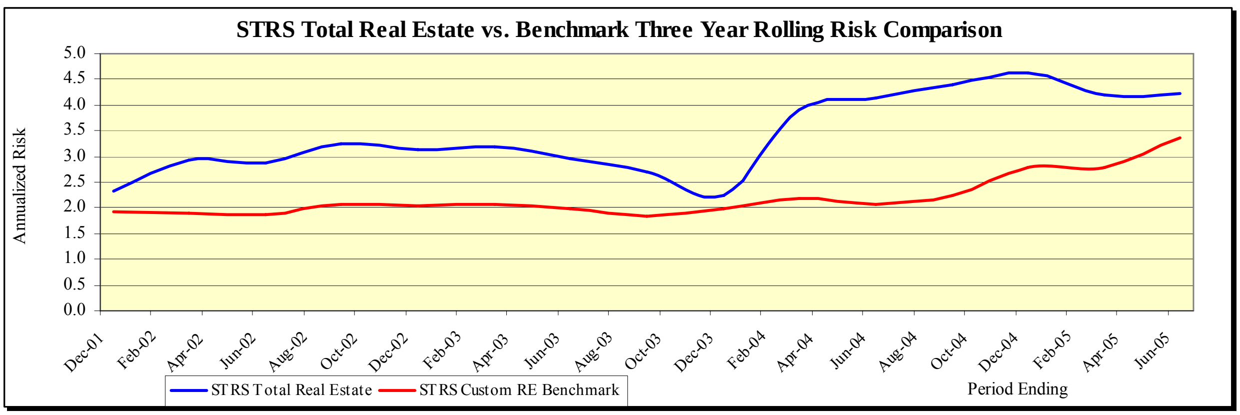




## Rolling Three Year Real Estate Risk Analysis

- In addition to the representative risks described and summarized above, IFS evaluated what kind of risks the Fund has taken to achieve the level of real estate performance returns versus its Custom Real Estate Index. Based on the performance over the past five years on a discrete and rolling three year basis, IFS concludes that the Fund's real estate investment staff (and the real estate composite) have produced slightly more risk than the benchmark over the past five years, however the majority of risk, as well as the more elevated level over the benchmark, has occurred over the last year or two through June 30, 2005.

- Over the five year period, the Fund's real estate program has produced an average three year rolling risk of 3.4%. This is 54.2% higher than the benchmark average three year rolling risk of 2.2% on a relative basis. A summary of the Fund's real estate program risk on a rolling three year basis (ending quarterly) versus that of the Fund's real estate benchmark is displayed below.




| Three Year Rolling Average Risk | |
|---|---|
| STRS Total Real Estate | STRS Custom RE Benchmark |
| 3.41 | 2.21 |

**Recommendation A14**

*Although the Real Estate program's performance has registered solid gains over the past five year period, ending June 30, 2005, versus the custom real estate benchmark, IFS suggests attempting to identify the sources and reasons for the Real Estate program's increased volatility over the past one to two years as a way to further monitor and control risk.*

#### 3) Benchmark Assessment

### OBSERVATIONS REGARDING REAL ESTATE BENCHMARK APPROPRIATENESS:

After review of the Fund's real estate program, including its current portfolio structure and the objectives set forth in the Investment Policy Statement, the Custom Real Estate Index (80% NCREIF Property Index, 10% NCREIF Timberland Index and 10% Wilshire Real Estate Investment Trust Index), the Fund's current real estate benchmark, seems to be the most appropriate benchmark for this program given the Fund's real estate portfolio structure. The NCREIF Property Index is the most recognized institutional real estate index in the U.S., and the two other benchmarks, the NCREIF Timberland Index and Wilshire Real Estate Investment Trust Index, are suitable and appropriate benchmarks on a composite index basis, as described above, for the real estate program as of June 30, 2005.

### f. Alternatives

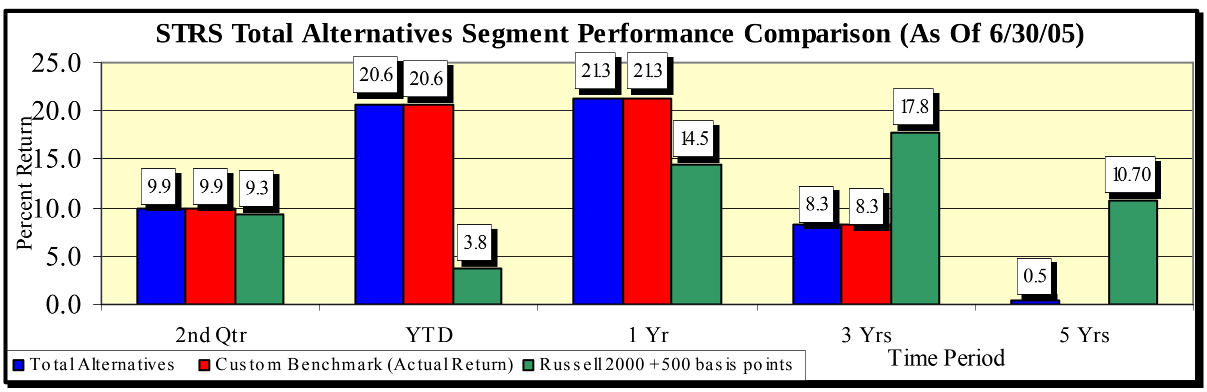
#### 1) Performance Evaluation

### BACKGROUND

The Fund's Alternatives investment program, like its Real Estate program, is a private markets strategy which serves to improve absolute returns, risk adjusted returns and diversification of the overall Fund. In practice however, the Alternatives program has not delivered similarly impressive performance as the Fund's Real Estate program over the past five years. The Fund's Alternatives program is biased to the private equity markets with an emphasis on a variety of venture capital and private equity investment strategies. As a result of this bias, the Fund's Alternatives program maintains a relatively high correlation to the public equity markets and consequently, performance for this asset class has performed similarly to the equity markets both in down and up markets over the past five years. After the Fund's Domestic Equity program, STRS' Alternatives investment program was the second worst performing asset class over the past five year period.

## OBSERVATIONS REGARDING ALTERNATIVES PERFORMANCE:

- Overall, after several rough years in 2000, 2001 and 2002, the Alternatives program performance has rebounded with the rebound in the public equity markets in 2003 through 2005's second quarter. For the second quarter 2005 and six month period through June 30, 2005, the Alternatives program returned 9.9% and 20.6%. Over the past three years the Alternatives program returned 8.3% on an annualized basis, and generated a 0.5% return over the five year annualized basis through June 30, 2005. A summary of the program's annualized performance is exhibited below.




**STRS Total Alternatives Performance Comparison**

| * Figures in percent | | | | Annualized Returns | |
|---|---|---|---|---|---|
| | 2nd Qtr | YTD | 1 Yr | 3 Yrs | 5 Yrs |
| **Total Alternatives** | **9.9** | **20.6** | **21.3** | **8.3** | **0.5** |
| *Custom Benchmark (Actual Return)* | *9.9* | *20.6* | *21.3* | *8.3* | *N/A* |
| *Russell 2000 + 500 basis points* | *9.3* | *3.8* | *14.5* | *17.8* | *10.70* |
| *Excess (Total Alternatives - Actual Return)* | *0.0* | *0.0* | *0.0* | *0.0* | *N/A* |
| *Excess (Total Alternatives - Russell 2000 + 500 bps)* | *0.6* | *16.9* | *6.9* | *-9.5* | *-10.2* |
| *Public Fund Rank* | *N/A* | *N/A* | *N/A* | *N/A* | *N/A* |

- As you can observe from the comparative summary above, the Custom Benchmark is equal to the actual performance of the Alternatives program over time. It is IFS' understanding that STRS decided to use the actual return of the Fund's Alternatives program on a quarterly basis until an appropriate and adequate benchmark for the Alternatives program was agreed upon and implemented. (See more complete discussion below at section 3. Benchmark Assessment.)

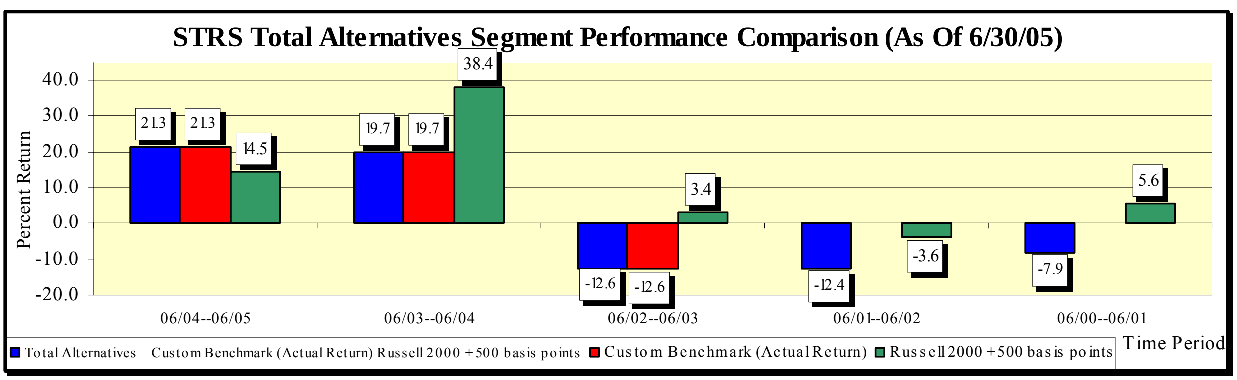
- In our calculations, IFS used the Russell 2000 +500 basis points as an additional benchmark. The premium over the market index is designed to account for additional risks involved with private equity such as the high rates of failure of portfolio investments, illiquidity factors (concerning both the relevant investment vehicles in which the Fund may invest as well as the actual underlying portfolio investments) and other issues, which add risks to investing in the private markets that are included within the Fund's Alternatives program.

- When compared against this benchmark, long term performance of Alternatives is not very impressive over the three and five-year periods and this demonstrates that the current Alternatives program could likely be improved. If performance in the intermediate term does not continue to improve versus the newly established benchmark, if adopted, IFS would suggest that the Fund consider a formal search and take action to identify additional prospective private equity and/or venture capital managers that could add value for the Alternatives program over and above an adequate benchmark.

- The table below includes the alternatives performance results of the custom peer group survey. Five of the seven custom peer group funds provided returns for the alternatives segment. The Fund's performance in this asset class generally lags this limited peer group. As can be seen below, the Fund underperformed the average and the median of the peer group for the one, three, and five year periods.

| Table A11: Custom Peer Group Alternatives Cumulative Returns | | | |
|---|---|---|---|
| **Peer Public Pension Fund** | **1 Year** | **3 Years** | **5 Years** |
| Maryland Retirement Agency | 20.9% | 3.2% | -1.8% |
| Ohio Public Employees Retirement System | N/A | N/A | N/A |
| Penn Public School Employees' Retirement System | 25.4% | 14.0% | 2.5% |
| State of Michigan Retirement System | 14.8% | 10.1% | -0.4% |
| State of Wisconsin Investment Board | 35.6% | 18.4% | 7.4% |
| Teachers Retirement System of Georgia (TRS) | N/A | N/A | N/A |
| Teachers Retirement System of Texas | 38.4% | 17.3% | 6.0% |
| **Average Return** | **27.0%** | **12.6%** | **2.7%** |
| **Median Return** | **25.4%** | **14.0%** | **2.5%** |
| **State Teachers Retirement System of Ohio** | **21.3%** | **8.3%** | **0.5%** |

- Additionally, we note that a universe rankings comparison for this asset class due to the difficulty and weakness of comparing certain strategies within a peer group comparison resulting from the different objectives, investment styles, portfolio structure, amounts of leverage and other factors which make universe comparisons a less meaningful comparison for alternatives investing. A summary of rolling one year returns for the Alternatives program is displayed below.




**STRS Total Alternatives Performance Comparison**

* Figures in percent

| | Rolling One Year Returns | | | | |
|---|---|---|---|---|---|
| | 06/04--06/05 | 06/03--06/04 | 06/02--06/03 | 06/01--06/02 | 06/00--06/01 |
| **Total Alternatives** | **21.3** | **19.7** | **-12.6** | **-12.4** | **-7.9** |
| *Custom Benchmark (Actual Return)* | *21.3* | *19.7* | *-12.6* | *N/A* | *N/A* |
| *Russell 2000 + 500 basis points* | *14.5* | *38.4* | *3.4* | *-3.6* | *5.6* |
| *Excess (Total Alts. - Actual Return)* | *0.0* | *0.0* | *0.0* | *N/A* | *N/A* |
| *Excess (Total Alts. - Russell 2000 + 500 bps)* | *6.9* | *-18.7* | *-15.9* | *-8.8* | *-13.5* |
| *Public Fund Rank* | *N/A* | *N/A* | *N/A* | *N/A* | *N/A* |

- The program lost between 7.9% and 12.6% on a rolling one year basis, ending June (between 2001 and 2003), while for the one year period ending June 2004 and June 2005 the program produced strong returns of 19.7% and 21.3%, respectively.

- The table below includes the alternatives consecutive investment performance results of the custom peer group survey. As can be seen below, the Fund has generally underperformed its custom peer group.

**Table A12: Custom Peer Group Alternatives Annual Returns**

| Peer Public Pension Fund | 06/04-06/05 | 06/03-06/04 | 06/02-06/03 | 06/01-06/02 | 06/00-06/01 |
|---|---|---|---|---|---|
| Maryland Retirement Agency | 20.9% | 13.6% | -20.1% | -12.3% | -5.3% |
| Ohio Public Employees Retirement System | N/A | 32.9% | -5.9% | -6.8% | -18.8% |
| Penn Public School Employees' Retirement System | 25.4% | 20.6% | -2.0% | -8.0% | -16.9% |
| State of Michigan Retirement System | 14.8% | 27.1% | -8.5% | -13.9% | -14.9% |
| State of Wisconsin Investment Board | 35.6% | 19.0% | 2.9% | -0.2% | -13.7% |
| Teachers Retirement System of Georgia (TRS) | N/A | N/A | N/A | N/A | N/A |
| Teachers Retirement System of Texas | 38.4% | 26.1% | -7.6% | -18.6% | 2.0% |
| **Average Return** | **27.0%** | **23.2%** | **-6.9%** | **-10.0%** | **-11.3%** |
| **Median Return** | **26.2%** | **23.2%** | **-6.9%** | **-10.0%** | **-13.7%** |
| **State Teachers Retirement System of Ohio** | **21.3%** | **19.7%** | **-12.6%** | **-12.4%** | **-7.9%** |

## 2) Alternatives Portfolio Risk Factors

## BACKGROUND

In terms of identifying portfolio risk factors, IFS' main gauges of risk are the IPS and the Annual Investment Plan, which outline how the Fund should implement its Alternatives investments program and outline the Fund's investing guidelines and allowable investments. According to the Fund's IPS, asset class risk should be diversified by investing across different types of alternative investments including private equity (venture capital, leverage buyouts, mezzanine debt, sector and international funds), distressed debt and hedge funds. The IPS also highlights that private equity risk be diversified by investing across vintage years, industry sectors, investment size, development stage and geography.

## FUNDAMENTAL PRINCIPLES REGARDING ALTERNATIVES PORTFOLIO RISK:

- *Alternatives or private equity portfolio risks stem from the type of investments made, such as: private equity, mezzanine debt, buyout and venture capital limited partnerships and fund-of-funds as well as direct company investments. By their nature, limited partnerships are fairly illiquid; although the stated expected life of a partnership may be seven to ten years, the amount and timing of the final distributions are unpredictable.*

- *Within each type of fund or partnership, risks associated with the diversification of the portfolio apply, including geographic diversification (within the U.S. by region, non-U.S., in-state investing, etc.), size of investments and the industry classification of investments.*

## OBSERVATIONS REGARDING ALTERNATIVES PORTFOLIO RISK:

### Risks Versus IPS

- The IPS indicates that in diversifying the asset class, the Fund shall invest only in eligible private equity partnerships or funds and shall avoid individual direct company investments. Based on IFS' review, the Alternatives portfolio appeared to comprise a variety of investments including single manager private equity (venture capital, leverage buyouts, mezzanine debt, sector and international funds), distressed debt and hedge funds. Based on this report there was no indication that the Fund had invested in direct company investments, hence from this perspective, these certain strategic risks are contained and the Fund is in compliance with the provisions of its IPS.

### Other Risks Being Monitored By Fund Staff

- In addition to the other risks being monitored above, IFS confirmed through the Fund's internal report cited above that the Fund staff is also monitoring other structural risks within the Alternatives program as compared to other established guidelines by Fund staff. These other risks include the allocation of the Alternatives program to venture capital, buyout, distressed debt and other/special situation strategies versus the Fund's reported guidelines. Risk's based on geographic/regional allocation, as well as industry allocation are also monitored and reported.

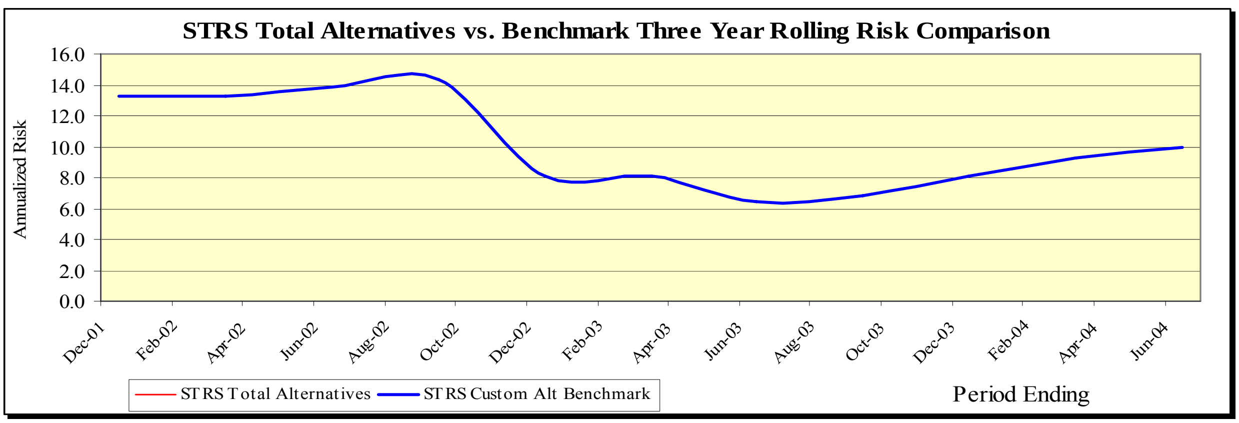
- Based on past performance, however, it seems that the Alternatives program has room for additional enhancement. IFS suggests that Fund staff consider other ways to assess the program's allocation, portfolio structure and related risks, either through additional research or by working with a private equity consultant. We note that STRS could not invest in private equity outside Ohio until 1997 and staff reports that access to top venture funds has been a problem and therefore they have been working to reduce exposure to venture capital and to increase exposure to top buyout funds. For example, Fund staff may also want to consider comparing investments by industry sector to those of the overall economy and/or versus the sector allocations of the Wilshire 5000 and Russell 2000 to assess how the program compares to the overall broad equity market, as well as the small cap equity market. This would perhaps create more awareness of certain risks which currently may not be monitored by Fund staff.

| **Recommendation A15** |
| --- |
| *IFS recommends Fund staff consider ways to improve monitoring the program's allocation, portfolio structure and risks.* |

## Rolling Three Years Alternatives Risk Analysis

- IFS also evaluated what kind of risk the Fund has taken to achieve the level of Alternatives performance returns. Based on the performance over the past five years on a discrete and rolling three year basis, IFS concludes that the Fund's Alternatives investment staff have generated much less risk than a Custom Alternatives Index proxy (identified as public equity markets plus 5% net of fees in the IPS; e.g. Wilshire 5000 plus 5%) over the past five years, however, much of this low risk has been created with consistently negative returns over almost three fourths of the period which was evaluated.

- We acknowledge that performance has been severely impacted by the second worst bear market in the modern equity capital markets since 1926, and this market has been even more punishing to many types of venture capital and other private equity market strategies during this time. Over the five year period, the Fund's Alternatives program has produced an average three year rolling risk of 10.2%. This is nearly 52% less than the Custom Alternatives Index proxy average three year rolling risk of 21.4%. A summary of the Fund's Alternatives program risk on a rolling three year basis (ending quarterly) is displayed below.




| Three Year Rolling Average Risk | |
|---|---|
| STRS Tot Alternatives | STRS Tot Alternatives Benchmark (STRS Tot Alt) |
| 10.2 | 10.2 |

### 3) Benchmark Assessment

## OBSERVATIONS REGARDING ALTERNATIVES BENCHMARK APPROPRIATENESS:

- The IPS currently states that the alternatives program has an objective of earning at least 5% net of fees above domestic public equity markets over very long time horizons. As mentioned above, the Fund is currently not benchmarking its alternatives program as outlined in the IPS in its quarterly reports. IFS believes that the Russell 2000 plus 500 basis points, the Russell 3000 plus 500 basis points or the Wilshire 5000 plus 500 basis points, would be appropriate policy benchmarks for this program as of June 30, 2005, given the expected risks that are assumed with investing in this sort of asset class.

- IFS was informed that the Board addressed the issue of identifying an appropriate benchmark for alternatives and that Frank Russell Company, the Board's alternative investment consultant, presented on the topic of alternative investments in 2002 and concluded:

  - No public market index based benchmark could be constructed that would adequately track these long-term investments, particularly due to the pattern of returns for this asset class commonly referred to as the "J-Curve",

  - Attempts to incorporate an equity based benchmark in the total fund benchmark focused on one year returns could result in serious attribution problems, and

  - That no industry accepted benchmark exists, or would exist for some time, that does not exhibit critical weaknesses, such as survivor bias and unacceptably small sample sizes.

- Based on the above, according to Fund staff, the Board decided to adopt the actual Alternative Investment return as the actual benchmark for the asset class and as part of the Total Fund Policy benchmark. According to Fund staff, this rationale would assure that this long-term asset class would have no impact on the Total Fund return relative to its benchmark, but on the other hand, contribute to the Fund's absolute return.

- Due to the importance of measuring the performance of this asset class and the manager selection skill of the Fund staff, staff informed IFS that the Board's consultant, on an annual basis, measures and reports: a) the long-term absolute return relative to the return assumption utilized in the most recent asset allocation study; b) relative return benchmarks at 300 basis points over the Russell 3000 returns for 3-year and longer periods; and c) fund by fund comparisons to Venture Economics vintage year returns.

- IFS believes that STRS' methodology of benchmarking individual alternative investment fund returns is sound and reasonable, as described immediately above. However, IFS disagrees with the approach at the Total Fund level and believes the Fund could still improve the benchmarking of risk, return and opportunity cost of its alternative investment asset class at the Total Fund level.

- Additional more "strategic" public equity benchmarks that the Fund might consider to better benchmark volatility of start up, emerging and early stage companies (similar to those found in the private equity program) would be the Russell 2000 Index plus 500 basis points, or the S&P MicroCap Index plus 500 basis points. These underlying benchmarks contain a concentration of small cap and micro-capitalization equity securities (securities generally under $250 million in market capitalization) which may be more representative of the underlying private equity portfolio.

- The Fund may also want to consider the Cambridge Associates Private Equity and Cambridge Associates Venture Capital benchmarks as strategic benchmarks. Both of these benchmarks replicate the performance of actual private equity and venture capital managers within Cambridge's database of private equity and venture capital managers.

| **Recommendation A16** |
|---|
| *IFS recommends the Fund consider formally adopting a new benchmark to benchmark risk and performance in the Alternative program and to better reflect the benchmarking process outlined in the IPS such as the Wilshire 5000, Russell 3000 or Russell 2000 small cap index, plus an additional risk premium of 500 basis points to compensate the Fund for additional risk in the private markets which is being assumed. The Cambridge Associates Private Equity and Venture Capital benchmarks could also be utilized.* |

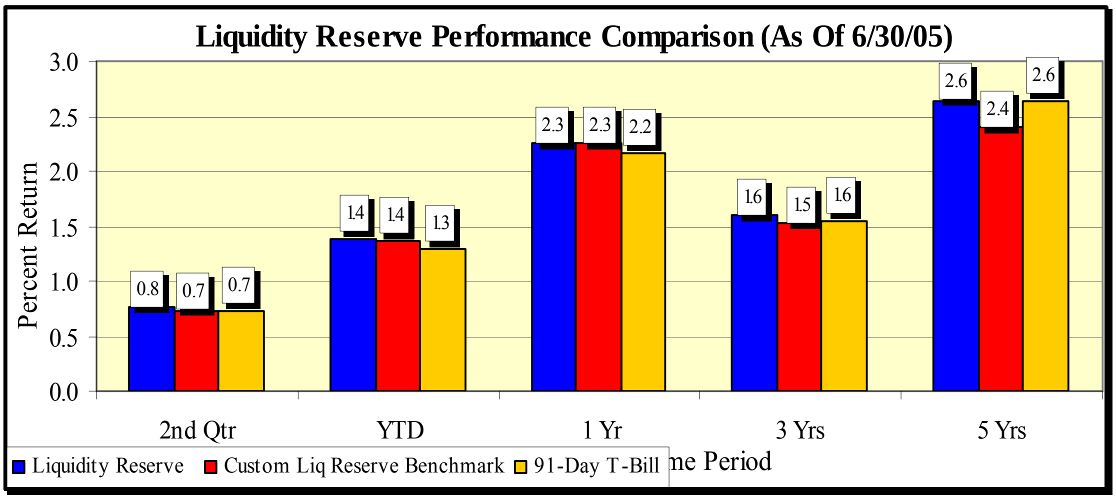
### g. Liquidity Reserves (Cash)

## OBSERVATIONS REGARDING LIQUIDITY RESERVES:

### 1) Performance Evaluation

- Overall, when reviewing the Fund's total Liquidity Reserve performance over the five year period ending June 30, 2005, IFS observed that the Fund performed very well over the three and five year annualized periods versus both the Fund's short terms policy benchmark and IFS' universe of short-term cash programs; STRS' Liquidity Reserve outperformed the policy benchmark by 10 basis points and 20 basis points, respectively. During these periods the Fund also ranked 26$^{th}$ and 33$^{rd}$ within IFS' short term universe. Over the second quarter 2005, six month and one year period, the Fund's Liquidity Reserve performance generated returns in line with its short term policy benchmark, however, the Fund's Liquidity Reserve actually ranked 22$^{nd}$, 18$^{th}$ and 20$^{th}$ within IFS' universe of short term cash programs. As short rates have been rising markedly over the past year through June 30, 2005, this implies that many short term cash portfolios have maintained longer maturities than the 91 Day T-Bill as the Liquidity Reserve and the index have outperformed around 80% of the short term cash strategies in IFS' short term universe.

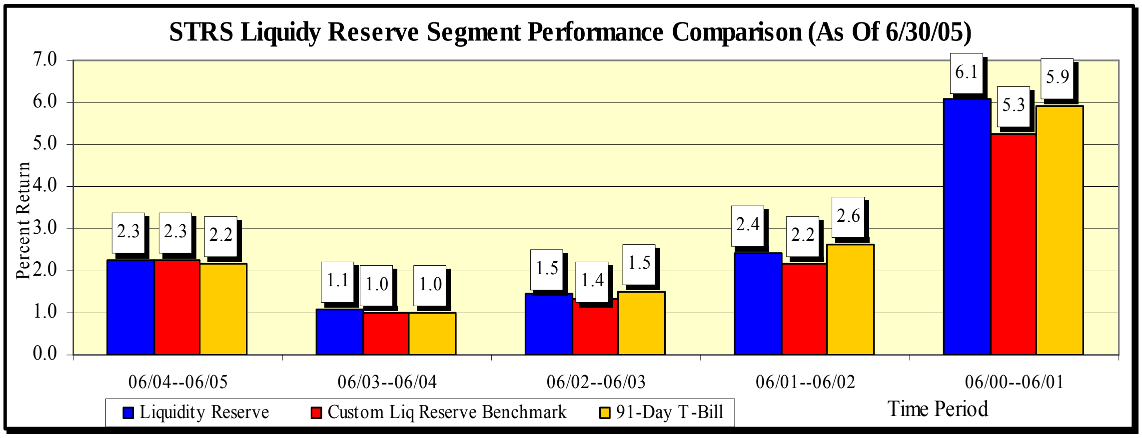
- A summary of the Fund's Liquidity Reserve program annualized performance, excess returns versus the Fund's Custom Liquidity Reserve benchmark (and 91 Day T-Bills) and rankings in IFS' universe of short term cash programs is highlighted below.




**Liquidity Reserve Performance Comparison**

| * Figures in percent | | | Annualized Returns | | |
|---|---|---|---|---|---|
| | 2nd Qtr | YTD | 1 Yr | 3 Yrs | 5 Yrs |
| **Liquidity Reserve** | **0.8** | **1.4** | **2.3** | **1.6** | **2.6** |
| *Custom Liq Reserve Benchmark* | *0.7* | *1.4* | *2.3* | *1.5* | *2.4* |
| *91-Day T-Bill* | *0.7* | *1.3* | *2.2* | *1.6* | *2.6* |
| *Excess (Liquidity Reserve - Custom Benchmark)* | *0.0* | *0.0* | *0.0* | *0.1* | *0.2* |
| *Rank vs. All Short Term Portfolios* | *22nd* | *18th* | *20th* | *26th* | *33th* |

- The following summary demonstrates the Fund's Liquidity Reserve program on a rolling one year basis ending June over the last five years. Overall, the Fund's Liquidity Reserve outperformed the Custom Liquidity Reserve benchmark and outperformed the median short term cash reserve program in four out of five rolling one year periods. The Fund only underperformed the median short term cash program in one period, the one year period ending June 30, 2002.



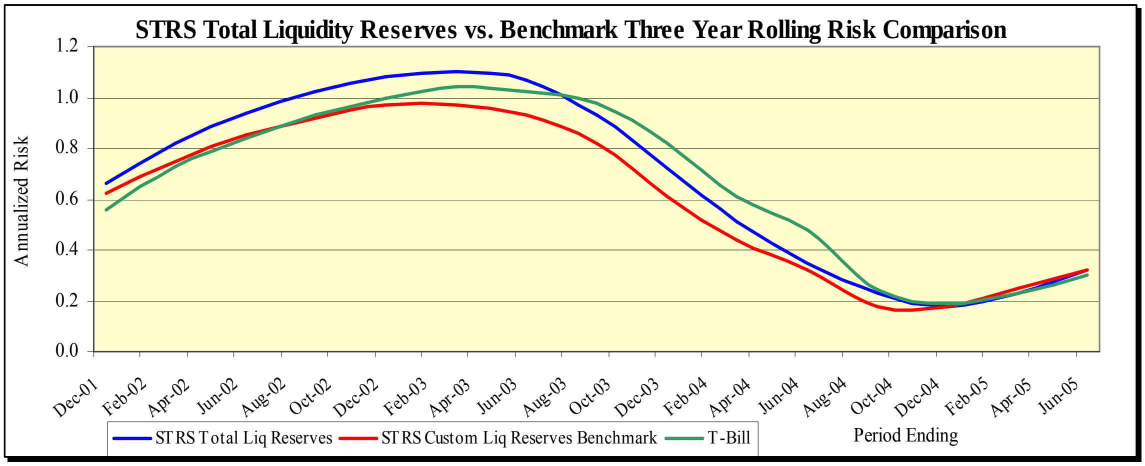

**Liquidity Reserve Performance Comparison**

| * Figures in percent | Rolling One Year Returns | | | | |
|---|---|---|---|---|---|
| | 06/04--06/05 | 06/03--06/04 | 06/02--06/03 | 06/01--06/02 | 06/00--06/01 |
| **Liquidity Reserve** | **2.3** | **1.1** | **1.5** | **2.4** | **6.1** |
| *Custom Liq Reserve Benchmark* | *2.3* | *1.0* | *1.4* | *2.2* | *5.3* |
| *91-Day T-Bill* | *2.2* | *1.0* | *1.5* | *2.6* | *5.9* |
| *Excess (Liquidity Reserve - Custom Benchmark)* | *0.0* | *0.1* | *0.1* | *0.3* | *0.8* |
| *Rank vs. All Short Term Portfolios* | *20th* | *22nd* | *37th* | *56th* | *35th* |

- Again, as described above, the Fund's Liquidity Reserve program has performed well, and in a manner consistent with its mandate, over the short and intermediate term, as well as over discrete rolling one year periods over the past five year.

### 2) Liquidity Reserves (Cash) Rolling Risk

- The following is a review of the liquidity reserves composite rolling three year average risk (or standard deviation of returns) as compared to its benchmark, as well as the 91 Day T-Bill, over the last five year period.




| Three Year Rolling Risk | | |
|---|---|---|
| Liquidity Reserves | Custom Benchmark | T-Bill |
| 0.8 | 0.7 | 0.8 |

- As demonstrated above the Fund's liquidity reserve has maintained a level of risk or volatility similar to that of its benchmark and the 91 Day T-Bill on a three year rolling basis over the last five years. The average rolling three year risk of the Fund's liquidity reserves was 0.8% versus 0.7% for the custom benchmark and 0.8% for T-Bills over the same measurement period.

### h. Investment Performance Measurement & Reporting Process

## BACKGROUND

The following section will address issues which concern the investment performance measurement process including: 1) data collection, verification and addressing of conflicts; 2) performance reporting methodology and compliance with industry standards; and 3) timeliness, frequency and detail of performance reporting measurement process.

## FUNDAMENTAL PRINCIPLES REGARDING PERFORMANCE MEASUREMENT:

- *Performance should be calculated in accordance with CFA Institute (formerly AIMR) Global Investment Performance Standards (GIPS) and received in a timely manner.*

- *The value of performance reporting is only as good as the quality of the data used to calculate performance, therefore the processes of data collection and reconciliation should be closely monitored.*

### 1) Data Collection, Verification & Addressing of Conflicts

## OBSERVATIONS REGARDING PERFORMANCE DATA COLLECTION:

- Based on IFS' interview we understand that staff collects electronically (and by other means) all relevant financial information on a daily, monthly and quarterly basis (as applicable) from the Fund's custodian (Fifth Third and Bank of New York) via various electronic downloads (and related procedures) into the Fund's Maximis System (portfolio accounting and measurement system) and Data Warehouse (MS sequel server database). Fund staff perform the performance calculation and measurement process on a daily basis, using a daily internal rate of return methodology, and calculates those daily returns to derive returns on monthly basis for all applicable individual and composite accounts. Those monthly returns are then linked to calculated quarterly returns. Fund staff then send electronically monthly returns for all portfolios and composites to Russell and CRA Rogers Casey. Both of those outside consultants calculate quarterly returns at the Total Fund and asset class level. On a quarterly basis, Russell and CRA Rogers Casey generate quarterly investment performance analysis and risk evaluation reports on the Total Fund, the asset classes and individual accounts where applicable.

- It is IFS' understanding that Fund staff and Russell collect investment manager reported returns on at least a quarterly basis to compare against the internally generated monthly performance reporting results. If there are issues or discrepancies in performance reporting between Fund staff and the investment manager, IFS understands that Fund staff routinely request its internal and external investment managers to provide portfolio account level reconciliations by security. This process and related reconciliation procedures allow Fund staff and their investment managers to work out and resolving discrepancies which may exist between Fund, Fund custodian(s) and investment manager reported data through established procedures. Overall, Fund staff indicated that when issues do arise, performance discrepancies or other issues are more common with the Fund's external fixed income managers, particularly emerging market and high yield managers when there is an issue.

- Fund staff also perform additional performance reporting and evaluation work on the Total Fund, the Fund's asset classes and individual account strategies with and without investment management fees. Based on interviews with Fund staff, net of fee investment performance reporting is a focus with the Board in its periodic reports to the Board.

### 2) Performance Reporting Methodology & Compliance With Industry Standards

## BACKGROUND

As a matter of background information, IFS uses the Wilshire Co-op system (a separate and independent entity from the Wilshire Consulting Group, although a subsidiary of Wilshire Associates) for performance evaluation, analysis and reporting. IFS' performance measurement and evaluation system calculates performance using the Modified Dietz methodology, a time-weighted dollar weighted monthly rate of return methodology which is the industry standard for calculating portfolio performance (same methodology used by Fund staff when performance is not calculated on a daily IRR basis). Monthly returns are then linked together to calculate quarterly rates of return. This method allows the evaluation of investment management skill between any two time periods without regard to the total amount invested at any time during that period. It is unaffected by any cash flows to the portfolio, therefore, it measures the actual rate of return earned by the portfolio manager. Like the Fund staff's performance reporting methodologies, this method is in compliance with the CFA Institute (formerly known as AIMR or the Association for Investment Management and Research) standards for investment performance measurement.

## OBSERVATIONS REGARDING PERFORMANCE METHODOLOGY:

- In order to ensure the Fund's performance is calculated and reported accurately and consistent with CFA Institute standards, IFS conducted a performance review for the second quarter 2005 on a spot check basis. Based on IFS' performance reporting calculations and methodology, IFS found its results to be in line with Fund staff reporting on those items tested.

- Based on IFS' evaluation of the Fund's investment performance measurement and reporting process, IFS believes the investment performance measurement process is sufficiently independent, objective and reliable and the overall process is satisfactory to support performance based incentive compensation decisions by members of Fund staff or the Board.

### 3) Timeliness, Frequency and Detail of Performance Reporting Measurement Process

## OBSERVATIONS REGARDING TIMELINESS AND DETAIL OF PERFORMANCE REPORTING:

- In general, based on IFS interviews and research conducted with Fund staff and others, it appears that performance reporting and the delivery of reports is executed and implemented in a timely fashion, both internally and externally. Overall, IFS also believes that Fund staff external reporting, Russell reporting and CRA Rogers Casey reporting are sufficiently detailed in a number of areas (regarding performance), although

IFS believes that consideration could be given in several other areas (namely certain levels of risk factor reporting as discussed earlier in this report) to provide more detail for external parties to further assist in the ongoing oversight and management process. (See additional discussion on performance reports in Management Issues Section 4(B).)

## 4. Investment Structure and Costs

### BACKGROUND

Investment structure relates to the following:

- The allocation of System assets to various investment managers and styles within an asset class. It is separate and distinct from asset allocation;
- The use of active and passive strategies;
- The use of internal versus external management; and
- The number of managers used.

### FUNDAMENTAL PRINCIPLES REGARDING INVESTMENT STRUCTURE:

- *Generally, the proper allocation to various investment managers is guided by the asset class "Policy Benchmark." (See discussion above under Performance & Portfolio Risk on each asset class.)*
- *There is no one correct amount of assets that should be actively or passively managed. However, as discussed below, most large public pension funds use passive management for a significant portion of at least their domestic equity assets. A lesser amount of passive management is typically used for international equity and fixed income portfolios.*
- *The number of managers used depends on the size of the total fund, its asset allocation, the types of strategies in which the Board chooses to invest (with advice from staff and*

*consultant) and the Board and staff's ability to monitor those managers effectively. (See discussion below.)*

- *The decision whether or not to use internal or external management is driven in large part by the size of the fund and whether or not internal management can be cost effective and equally successful to that of external management.*

*Investment structure from a style perspective is discussed in Investment Issues Section 3(A) above. We discuss the System's use of active and passive management and the number of managers used below, followed by a discussion of internal versus external management and investment management costs.*

### Active v. Passive Management

### BACKGROUND

The use of active versus passive investment management is a major issue for institutional investors. Active investment managers, through fundamental research, quantitative analysis or a combination of both, seek to build portfolios that provide a rate of return (after fees) in excess of an appropriate market benchmark. Active investing is any investment strategy in which securities are selected in an attempt to achieve a higher investment return. Thus changes are made in the portfolio when the investment manager believes they will generate more attractive returns. The concept of passive investing was created as a result of the development of indexes – sets of securities assembled for the purpose of generating a standard measure of market performance. Passive investing is the practice of creating and maintaining a portfolio that duplicates or replicates the index. Changes in mix and relative weights of securities in the portfolio are made only when the same changes are made in the index.

Empirical research suggests that for developed "efficient" markets passive investing makes sense. Efficiency is the concept that market information disseminates so quickly that, in the absence of illegal insider information, no investor can achieve a greater than market return consistently over time. This leads to the premise that investing in such markets is a "zero-sum" game wherein for every winner, who beats the market, there must also be a loser. Research suggests that, over the long term, after investment-related fees and transaction costs are paid, the majority of investment managers are unlikely to provide added value over a passive portfolio. Nevertheless, many institutional investors still believe they can identify investment managers, or develop a team internally, with the active management skills necessary to provide above-benchmark performance.

The debate among investment academics and practitioners whether active or passive portfolio investing is more effective has raged unsettled since the concept first arose. It is unlikely that a provable conclusion will ever be reached, but the question, when juxtaposed against particular portfolio objectives and risk preferences, is a valid one. The debate centers on whether active management can achieve a more attractive long term net return after costs than passive management. Passive management is clearly capable of achieving a return very close to the return of an index, with a degree of deviation (tracking error) from the index that is very small, as long as the index is investable. In addition, because stock selection in an index is provided to the manager at essentially no cost, and because management of the portfolio can be largely automated, fees on index investing are lower than fees on active investing in the same market.

In summary, the case for passive management includes the following arguments:

- Markets are inherently efficient. In an efficient market, prices adjust to their fair value almost immediately, so it is nearly impossible to invest in mispriced securities.

- While active managers outperform the market at some times, no active manager consistently outperforms the market forever. Active management requires vigilance to attempt to replace managers before they turn bad and lose whatever gains they have achieved, which is an impossible task.

- Even where managers can achieve a rate of return higher than the market, the higher fees and trading costs of active management can consume the out performance.

In summary, the case for active management includes the following arguments:

- Markets are irrational, not efficient. Astute research can identify securities that are mispriced due to investors in the market who act emotionally.

- Discipline in identifying, buying and selling securities unemotionally can lead to higher returns than can be achieved by merely duplicating the index.

- Passive management can not reduce the volatility of returns, since it by definition matches the volatility of the market. Active management offers the opportunity to reduce risk as well as increase it in pursuit of higher return.

- Passive management cannot achieve the index return, since trading costs and friction in the portfolio (that are not in the index) diminish the results. Additional activity such as securities lending or derivative use, which increase costs, is needed to make up for the shortfall.

- Indexes are restructured either periodically (e.g. Russell) or continually (S&P) to reflect changes in security characteristics or existence. The process for recomposing indexes creates trading costs. More critically, the coordinated demand to buy securities being put into an index and to sell securities being taken out of an index affects prices adversely, while disguising the effect within the index return.

As discussed above, additional investment management risk is inherent with active management strategies over passive strategies. Using all passive management, however, would not allow an investor ever to achieve above market returns.

To varying degrees, most institutional investors utilize passive management for at least a portion of their investment portfolios. The percentages of international and domestic equity assets of public plans over $5 billion invested passively and actively reported in the 2004 Greenwich Associates survey of pension funds are set forth in Table A13 below.

**Table A13: Active v. Passive Public Fund Greenwich Associates 2004 Survey Averages**

| | % of Domestic Equities | % of International Equities |
|---|---|---|
| Passively Invested | 56.25% | 27.95% |
| Actively Invested | 43.75% | 72.05% |

The percentages above suggest that many public funds believe domestic equity markets are fairly efficient, as represented by the fact that over 50% of the domestic equity portfolios are passively managed on average. Conversely, the data also suggest that public funds tend to believe greater value added can be achieved by actively managing portfolios of international equities, traded in less efficient markets, although on average they manage a significant portion passively.

## OBSERVATIONS REGARDING ACTIVE VS. PASSIVE MANAGEMENT:

- Table A14 below compares STRS' use of passive and active management versus its custom peer group.

| TABLE A14: Active Passive Split as of 6/30/2005 | % of Domestic Equities | % of International Equities | % of Emerging Market Equity | % of Domestic Fixed Income |
|---|---|---|---|---|
| ***Peer Group Average*** | | | | |
| Passively Invested | 50.5% | 28.7% | 5.3% | 9.6% |
| Actively Invested | 49.5% | 71.3% | 94.7% | 90.4% |
| ***Ohio STRS*** | | | | |
| Passively Invested | 34.1% | 0%[8] | 0% | 0% |
| Actively Invested | 65.9% | 100% | 100% | 100% |

- As shown above, STRS' custom peer group invests about half of their domestic equity allocation passively, which compares to 34% at STRS. Passive exposure can be achieved at very low cost (in many cases, less than five basis points). Incorporating the use of some passive equity investment funds helps reduce overall fees and the total costs of the Fund's investment program.

- The peers also use a sizable amount of passive management (approximately 29%) for international developed market equities, while STRS uses passive management tactically within its Structured EAFE portfolio. They use the passive portion as a core and make modest allocation overweights or underweights around it, depending on the judgment of the staff. While we generally agree that active management is more likely to add value in international equity than in some areas of domestic equity, passive management is a cost effective method of managing a core portion of the portfolio.

- The peer group manages 95% of their emerging markets equity allocation actively, which compares to 100% active at STRS. This is as we would expect for this asset class.

[8] STRS considers the entire international equity portfolio to be actively managed, but they do hold a portion of their Structured EAFE portfolio in an index fund. As of 6/30/05, this was \$1.7 billion of the \$3.6 billion portfolio, 17.9% of developed market equities or 13.0% of total international equities.

- STRS does not use any passive management for its fixed income allocation. The peer group manages an average of approximately 10% of that asset class passively (ranging from 0% to 38%). As with other asset classes, passive exposure can be achieved at very low-cost, and provides broad fixed income market exposure; however many investors believe that it is easier to add value in the fixed income market place and more beneficial, or cost effective, to use active management for fixed income portfolios. IFS believes that passive fixed income can play a role in a well-diversified fixed income portfolio, although we agree that at least the majority of a fixed income portfolio should be actively managed and this should be part of the ongoing investment structure reviews conducted by the consultant.

- For STRS, however, we understand that since STRS manages 100% of their core fixed income internally, within a Board approved risk budget, that it makes sense for them to manage core fixed income with a low cost, risk controlled active management approach.

| Recommendation A17 |
|---|
| *Continue to evaluate the use of passive and active management in the equity and fixed income portfolios.* |

## FUNDAMENTAL PRINCIPLES REGARDING NUMBER OF MANAGERS:

- *"Best practices" suggest that a fund should use enough investment managers to achieve proper diversification in each asset class in which it has chosen to invest. Having too few managers can cause a fund to bear unnecessary risks, such as lack of diversification and organizational risk (i.e., if a fund has a large amount of assets invested with one organization and that manager has problems). On the other hand, too many managers can result in higher overall investment management fees; multiple managers with similar styles can actually cause a fund to lose the benefits of active management by becoming too index like overall; and a large number of managers increases the complexity of due diligence and monitoring.*

- *Generally, a fund should seek a mix of equity, fixed income and other managers, (separate accounts and/or commingled funds) with complementary styles (as opposed to duplicative styles).*
  - *Complementary styles increase overall diversification.*
  - *Duplicative styles can create administrative burdens and increase investment management costs.*
  - *The number of managers required is somewhat dependent upon the asset allocation.*
  - *Generally, a fund should have the number and variety of investment managers necessary to achieve the fund's stated investment objective and to control risk while incurring reasonable costs.*
- *The decision whether or not to use internal or external management is driven in large part by the size of the fund and whether or not internal management can be cost effective and equally successful to that of external management.*

## OBSERVATIONS REGARDING NUMBER OF MANAGERS:

The average number of managers used by the custom peer group IFS surveyed and public fund sponsors with over $5 billion in assets, as reported in the 2005 Greenwich Associates survey (data as of 2004), is shown in Table A15 below. We discuss each asset class separately in the narrative below.

**Table A15: Number of Investment Manager Accounts**

| Asset Class | Ohio STRS | Custom Peer Group External Managers | 2005 Greenwich Associates Survey |
|---|---|---|---|
| U.S. Stocks | 16 | 7.3 | 6.8 |
| International Stocks | 3 | 5.6 | 5.4 |
| Emerging Markets Equity | 4 | 3.3 | NA |
| Fixed Income | 3 | 4.5 | 5.1 |
| International Fixed Income | 2 | 5.0 | NA |

- As of June 30, 2005 the System's assets are allocated among 28 external public market investment manager portfolios – 16 domestic equity managers, three international equity managers (plus the index fund portion of the Structured EAFE portfolio), four emerging markets equity managers, three fixed income managers and two international fixed income managers.

## Domestic Equity:

- The market value of total domestic equities as of June 30, 2005 was approximately $28.9 billion. STRS uses four large cap domestic equity managers with accounts varying in size from approximately $300 million to $900 million, for a total of $2.65 billion. They also have 12 external small cap managers – four growth, four value and four core, whose accounts range in size from approximately $12 million to over $150 million, for a total of $1.1 billion as of June 30, 2005.[9] On the small cap side, this is a fairly large number of managers, despite the fact that funds typically need a larger quantity of small managers given the fact that managers will tend to keep their product offerings small so they can be more nimble in the market.

- The vast majority of this asset class is internally managed (as discussed below) in eight different portfolios, seven large and mid cap (six active and quantitative and one passive portfolio) and one small cap quantitative portfolio.

## International Equity:

- STRS retains three external EAFE managers, for a total of $3.7 billion, to manage its developed market non-U.S. equity and manages $5.8 billion of EAFE mandates internally in three portfolios (one structured, one quantitative and one value).

- The $3.5 billion emerging markets portfolio is split between two internal portfolios for a total of $985 million and four external mandates totaling $2.5 billion.

[9] *Per Russell's report, one small cap manager was down graded and terminated post June 30.*

**Fixed Income:**

- STRS uses external fixed income managers only for the high yield and emerging market debt (EMD) portions of this asset class. This includes three high yield managers for a total of approximately $700 million and two EMD managers for a total of $430 million.

- The remaining $10.1 billion of domestic fixed income is managed internally.

**Real Estate and Private Equity:**

- STRS' $4.7 billion real estate composite is composed of three portfolios – private equity real estate ($3.7 billion), timber ($468 million) and REITS ($485 million).

- On the private market side, STRS is invested with 54 private equity partnerships, 15 real estate equity investments, one hedge fund and one other alternative asset manager (an internally run post-distribution stock portfolio to liquidate shares received from the various private equity partnerships).

- Overall, the number of managers used by STRS appears appropriate for their strategies and in line with their peers, except that the number of domestic equity small cap managers is on the high side.

| Recommendation A18 |
|---|
| *Consider reevaluating the number of external small cap domestic equity managers to determine whether there is unnecessary overlap and whether it is cost effective to retain them all.*[10] |

[10] Since our fieldwork and initial due diligence, we were informed by STRS staff that there has been a significant consolidation of the manager accounts for domestic equities. Five external manager accounts have been terminated between the time of our interviews and the writing of this report.

## FUNDAMENTAL PRINCIPLES REGARDING INTERNAL VS. EXTERNAL MANAGEMENT:

### *General Considerations*

*In determining whether and to what extent a public fund's assets are better managed internally (hiring employees to operate an investment operation) or externally (hiring professional investment management companies), several general considerations are essential. These include legal, cost, continuity and investment performance. We discuss each of these below as well as other advantages and disadvantages of internal management.*

***Legal*** *– does applicable law prohibit hiring external managers, prohibit managing assets in house, or prohibit certain essential structures such as incentive compensation?*

***Cost*** *– what is the relative cost for the particular asset class and overall, given the size of the portfolios? For example, passive management is less expensive to manage both internally and externally, the costs should be weighed.*

***Continuity*** *– is the System able to retain experienced investment managers in-house? High turnover creates substantial investment risk for an internally managed portfolio.*

***Value achieved*** *– what is the relative return? Have the internal portfolio managers beaten their benchmarks? How does their performance compare to their peers?*

### *Advantages of Internal Management*

*There are several advantages to managing assets internally. These include:*

- *Internal management can be less costly. External managers must compensate well to attract and retain highly qualified professionals, cover overhead for facilities that serve as well as portfolio management, and earn a profit, thus management fees are relatively high.*

- *There can be greater control over the investment process and compliance with guidelines. Monitoring compliance with external manager guidelines may be complex, and often can be done only after the fact, sometimes weeks after. Understanding the investment process may also be difficult.*

- *There can be greater control over trading and brokerage usage.*

- *At least for certain types of assets and strategies, the performance of external managers (net of all fees and expenses) is often disappointing relative to index returns. Internal management can reasonably be expected to do as well for these strategies, at least if properly structured and administered.*

*In addition, cost considerations may differ for a very large fund versus a smaller fund. As the value of fund assets increases, the possibilities of enjoying substantial economies of scale from internal management also increase. These economies may include:*

- *greater clout in negotiating and controlling transactions costs;*
- *lower unit costs for acquiring and maintaining investment hardware and software; and*
- *staffing costs and related matters.*

### *Advantages of External Management*

*On the other hand, external management has its advantages. Given the limited resources often faced by many public pension funds, their ability to attract and retain qualified professional investment staff with the skills necessary to manage assets is typically frustrated.*

- *Lower compensation at public funds may lead to higher turnover, especially among the most qualified professionals. Proven investment managers can command large compensation packages in the private sector and be lured away from public funds.*
- *The pension fund must still pay the many costs of investment management firms that are fixed or largely fixed, requiring a sizable asset base to maintain cost competitiveness. These include salaries and support systems: internal asset management requires sufficient securities processing, order management/routing systems, trade entry systems and overall investment accounting systems.*
- *Staff needs are significant, particularly for asset classes requiring considerable hands on management such as directly owned real estate.*
- *Greater direct control by the Board over the investment process may expose the Board to greater fiduciary risk as well as create the potential for political interference. Effectively controlling an internal asset management department requires significant internal discipline and organization, including proper separation of functions and internal controls, e.g., portfolio management versus measurement and evaluation, and portfolio management (front office) versus accounting and settlement (back office). Tighter ethical controls may also be needed for concerns such as personal trading policies.*
- *All asset classes, sub classes, types of securities, and geographic locations can be covered by external management.*

- *Replacement of a poorly performing external manager, or one whose firm structure, focus or staffing has changed, is relatively easy, and bears little risk of wrongful discharge suits, whereas it can be difficult to terminate an internal investment manager.*

- *Most investment managers are subject to regulation and oversight by the SEC and various security exchanges.*

- *An external manager relationship can be clearly and precisely crafted through a commercial contract with the manager.*

*The vast majority of assets managed internally by public pension funds appear to be publicly traded domestic stocks and bonds – relatively traditional and straightforward assets, traded in relatively efficient markets. By contrast, strategies or assets that require more esoteric expertise or research, with substantial prospects of materially outperforming (or underperforming) the relevant benchmarks often are better managed externally. One example would be a portfolio of equities of companies in emerging international markets, which may require unusual research, including foreign travel. Another example would be a portfolio of equities of fast-growing, newly formed companies with low capitalization, where very prompt, specialized information and delicate trading strategies may be essential to success. In that instance, purchased research may be insufficiently timely, detailed or insightful, while the cost of a capable, in-house staff may be prohibitive.*

*Another possible hazard of internal management is homogenization, i.e., the dominance of a single investment discipline running across all parts of the fund. By contrast, outside management by distinct firms may help diversify a fund's overall investment program through a true diversity of investment disciplines.*

## OBSERVATIONS REGARDING INTERNAL VS EXTERNAL MANAGEMENT:

As can be seen in the table below, STRS manages a very significant portion of its assets internally (77%). This compares to an average of 68.5% for the peers surveyed who use internal management.

| Table A16: Internal vs. External Management Comparison | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ohio STRS | | | | | | Peer Group | | | | | |
| Asset Class | Internally Managed | | | Externally Managed | | | Internally Managed | | | Externally Managed | | |
| | % of Asset Class | % Passive | % Active | % of Asset Class | % Passive | % Active | % of Asset Class | % Passive | % Active | % of Asset Class | % Passive | % Active |
| Domestic Equity | ***86.2%*** | 39.6% | 60.4% | ***13.8%*** | 0% | 100% | ***68.6%*** | 47.8% | 52.2% | ***31.4%*** | 24.7% | 75.3% |
| Domestic Fixed Income | ***94.0%*** | 0% | 100% | ***6.0%*** | 0% | 100% | ***64.1%*** | 0.1% | 99.9% | ***35.9%*** | 17.4% | 82.6% |
| International Equity | ***61.0%*** | 0% | 100% | ***39.0%*** | 0% | 100% | ***43.8%*** | 45.9% | 54.1% | ***56.2%*** | 14.2% | 85.8% |
| Emerging Markets Equity | ***28.0%*** | 0% | 100% | ***72.0%*** | 0% | 100% | ***0.0%*** | NA | NA | ***100%*** | 5.3% | 94.5% |
| International Fixed Income | ***0.0%*** | NA | NA | ***0.0%*** | NA | NA | ***14.1%*** | 0% | 100% | ***85.9%*** | 4.9% | 95.1% |
| Emerging Markets Fixed Income | ***0.0%*** | NA | NA | ***100%*** | 0% | 100% | ***0.0%*** | NA | NA | ***100%*** | 0% | 100% |
| Total Fund | ***77%*** | - | - | ***23%*** | | | ***68.5%***[11] | - | - | ***31.5%*** | - | - |

## Domestic Equity

STRS manages the majority of its domestic equity assets internally and actively. A large percentage of the internally managed domestic equity assets are either managed quantitatively or passively, e.g., the Large Cap Passive portfolio makes up approximately 35% of this asset class. It uses external management for 13.8% of this asset class and that portion is managed actively. The custom peer group also manages a significant portion of this asset class internally (68.6%), but is more split in its use of active and passive management.

As of June 30, 2005, there is limited historical performance data for all of the large cap domestic equity portfolios and the internally managed Quantitative 2000 portfolio (only one-year numbers are shown in Russell's report), so while it is premature to give a definitive assessment, we believe it is appropriate for a large fund such as STRS to continue to manage much of its

[11] Total fund averages include the six peer funds that use internal management (excludes Maryland). Asset class averages only include those peer funds who invest in any particular asset class.

domestic equity assets internally. (See additional discussion on performance in Investment Issues Section 3(A).)

### International Equity

STRS manages over 60% of its developed markets international equity portfolio internally and uses only active management for this asset class, although about 14.5% of the internally managed portfolio is managed with a quantitative strategy (approximately 6% of the total asset class). The peers, on average, use slightly less internal management in this asset class (44%) and manage almost half of their internal portfolios passively. Given the additional resources required for active international equity management, for items such as research and international travel, it is typical for funds to manage less of this asset class internally. Although the STRS Internal EAFE Managers composite has lagged the Combined External EAFE Managers composite over the one and 10 years ended June 30, 2005, it has beat its benchmark (the World ex-US 50% Hedged) over the 10 year period analyzed in Russell's report and outperformed over the three and five year periods.

Unlike its peers, STRS also manages over a quarter of its emerging markets equity portfolio internally and actively. Here again, although the internally managed composite has beaten its benchmark (MSCI Emerging Markets Index) over the one, three, and five year periods ended June 30, 2005 (there is no 10 year data for this composite), it has lagged the externally managed composite slightly over those same time periods. However, these numbers are gross of fees, so that net of fees the internally managed portfolios should be even more competitive. (See additional discussion on performance in Investment Issues Section 3(A).)

### Fixed Income

STRS manages almost all of its domestic fixed income internally and actively and only uses external management for 6% of its domestic fixed income. It does use external management for its emerging markets fixed income exposure, however. The custom peer group manages an average of 64% of their domestic fixed income internally, virtually 100% of that actively as well, and the few peers that use international fixed income manage an average of 86% externally. STRS internal fixed income portfolio has beaten its benchmark for the five years ending June 30, 2005. We believe it is appropriate for a large fund such as STRS to continue to manage a portion of its fixed income assets internally and to outsource the more research demanding sectors such as high yield and emerging markets.

### Real Estate and Private Equity

STRS manages almost all of its real estate assets internally (86% of private real estate and 100% of REITs), while using 100% external management for private equity. Few of the peers manage these asset classes internally – they manage an average of 16.7% of private equity internally (one fund manages 100% internally) and 33% of real estate internally (two funds manage 100% internally[12] and one fund manages their REITs internally). These asset classes are very labor intensive and require significant staff time and resources to manage them internally and effectively, but as long as they are able to add value and maintain the necessary staff to do an effective job, there is no reason why they should not be able to continue managing these asset classes internally. (See additional discussion on performance in Investment Management Section 3(A).)

## FUNDAMENTAL PRINCIPLES REGARDING INVESTMENT MANAGEMENT COSTS:

- *The costs of an investment program should be reasonable when compared to organizations of similar size and complexity. Consideration must be made regarding:*
    - *Total assets under management;*
    - *The proportion of internally and externally managed assets;*
    - *The investment strategies employed, particularly active versus passive; and*
    - *The multiple assignments given to the organization (retirement plans, trust funds, short term investment funds, and other asset pools).*

[12] As reported to IFS for the STRS custom peer group survey.

- *External manager fees are determined as a part of the process to hire managers. Most investment managers maintain set fee schedules, typically with break points applying lower fee rates to assets above particular levels. This results in lower average fees for larger accounts. While the explicit fee tables may be negotiable, often they are not if only because other clients may have negotiated fee provisions providing for parity with similar clients. In addition, fees can vary significantly by the capitalization size (e.g., small cap accounts are more expensive than large cap accounts) or the style of the account.*

- *Large investors such as STRS have opportunities to achieve additional fee savings in a couple of other ways. Many manager fee schedules cover only up to an asset level that captures the majority of the manager's clients. Accounts above that level have "negotiable" fees. These may result in discounts if assets exceed a given amount, very low incremental fee rates above a given amount, and similar structures.*

- *Competitiveness of fee schedules is a complex matter. Data is predominately available only from surveys or inquiries of other managers either obtained directly or through an investment consultant who maintains such data. This research can generate a range in which similar mangers set their fees, but cannot identify the one "right" fee. At best it can identify outliers and give comfort that the fee is competitive. Ultimately, though, the goal is to achieve a net return, so a lower fee savings can be more than offset by poor returns.*

- *Partnership fees for private equity limited partnerships are generally not negotiable for a fund. Certain strategies are more labor intensive than others and private equity is typically considered to be very labor intensive. It is not unusual for the fee schedule to be reduced in the later years of the partnership. Most partnerships also have some form of carried interest where the General Partner will receive 20% of profits after any preferred return is earned by the Limited Partners.*

- *It is also difficult to compare real estate fees since they include many different types of fees such as asset management fees, property acquisition fees, incentive fees and property management fees. Here too, fees will vary by fund strategy type.*

- *A system that does not monitor its asset management fees risks paying higher than necessary investment management program costs.*

## OBSERVATIONS REGARDING INVESTMENT MANAGEMENT COSTS:

- As discussed above, STRS' portfolio is invested through a combination of internally and externally managed portfolios. The ultimate investment objective is to maximize net return (at a reasonable level of risk) – return after all costs.

- Internal asset management for at least some investment strategies is a common, but not universal, approach among large public pension funds. In a few jurisdictions internal management is mandated; in most it is an investment choice. The economic conclusion for many very large funds that can achieve economies of scale is that the explicit cost is considerably less than retaining similar outside managers, provided the returns that are achieved long term are not worse than the external managers would achieve net of costs. Measuring this benefit involves measuring costs and returns of each approach, factoring in risks to those returns including personnel turnover risk.

- The CEM Cost Effectiveness Analysis Study for the five years ending December 31, 2004 calculated STRS total direct investment costs to be 22.1 basis points, 18 of which are attributable to external management fees and four basis points for internal managers. Oversight, custodial and other costs were an additional 2.5 basis points.

- Given the fact that the majority of STRS' assets are internally managed, it appears that internal management has saved STRS millions of dollars in external management fees. According to CEM, STRS lesser use of external active management saved STRS 6.7 basis points versus its peer group (approximately $37 million). Additionally, STRS external management costs would have been 13.4 basis points (or $74 million) higher if STRS assets were 100% externally managed.

- As discussed earlier, Greenwich Associates produces an annual Investment Management survey of corporate, public and union pension funds and endowments. The 2005 Greenwich survey shows an average fee of 34.9 basis points paid to outside investment managers by all public funds (241 funds), 29.8 basis points by state funds (87 funds) and 25.2 basis points for public funds over $5 billion. The average across all funds surveyed (1,113 funds) was 44.1 basis points. This survey does not take into account what their asset allocation is (i.e., STRS' use of private equity and real estate limited partnerships increases the overall fee rate paid). STRS' external management costs of 18 basis points are quite low when compared to these groups of funds.

- STRS custom peer group reported "Total Investment Costs" ranging from a low of 5.5 basis points at Teachers Retirement System of Georgia to a high of 37.2 at Pennsylvania Public School Employees' Retirement System, for an average of 19 basis points. Given the limited nature of this survey, STRS 22 basis points appears reasonable when compared to these five peers who reported this data.

- In the table below, we provide some manager fee data from a few third party surveys (manager fee data provided by the custom peer group was not meaningful). We reviewed a sampling of STRS' managers' fee schedules (we show representative manager fees in the table below) and when compared to the range of survey data, the fees paid by STRS for investment management are reasonably competitive overall, although the active small cap manager fees are on the higher side, but this is likely due to the smaller account size which means that STRS may not be able to take advantage of fee break points offered to larger accounts (see earlier recommendation on revisiting the number of active small cap managers).

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| Table A17: Investment Manager Fees | | | | | |
|---|---|---|---|---|---|
| **Manager** | **STRS Manager Fee (sample)** | **Custom Peer Group[13]** | **ICC Median Fee[14]** | **Casey, Quirk & Acito Median Manager Fee[15]** | **Greenwich Mean Manager Fee[16]** |
| **Domestic Equity** | | | | | |
| **Active Large Cap** | 32 | 21.6 | 46 | 42 | 29.4 |
| **Active Small Cap** | 89 | 42.0 | 87 | 63 | - |
| **Passive U.S.** | NA | 3.0 | - | 6 | 3.1 |
| **International Equity** | | | | | |
| **Active Developed Markets** | 33 | 29.6 | 48 | 70 | 39.7 |
| **Active Emerging** | 58 | 57.6 | - | 100 | 57.3 |
| **Passive International** | - | 2.0 | - | 15 | - |
| **Fixed Income** | | | | | |
| **Active Core US** | - | 13.5 | 31 | 21 | 14.9 |
| **Passive US** | - | - | - | 7 | - |
| **High Yield** | 50 | 39.9 | - | - | - |
| **International** | - | 13.0 | - | 27 | - |
| **Emerging Mkts** | 45 | - | - | - | - |

## 5. Use of External Consultants

### FUNDAMENTAL PRINCIPLES REGARDING THE USE OF EXTERNAL CONSULTANTS:

- *The majority of statewide pension funds and public investment entities utilize an investment consultant.*

- *Although the investment consultant's role varies from fund to fund, the role typically includes advising on investment policy and guidelines, assistance with asset allocation, evaluating additional investment strategies and types of assets, selection and monitoring of investment managers, and measuring and evaluating risk and return for the overall portfolio, each asset class and each investment account.*

[13] Only two funds provided meaningful manager fee data so this data is not statistically valid and is provided for informational purposes only.
[14] Median fee in basis points paid by public pension funds clients of consulting firms that belong to the Independent Consultants Cooperative (ICC).
[15] Median Published Management Fees in basis points for active and index accounts over $500 million as of December 31, 2003. Source: Casey, Quirk & Acito.
[16] Mean fee paid to outside managers for public funds with over $5 billion in assets, from Greenwich Associates 2003 Market Characteristics Report.

- *The level of reliance on the investment consultant also varies from fund to fund. The consultant's role, responsibilities and reporting lines of authority should be defined contractually.*

- *Consultants provide a variety of information that helps directors, trustees and staff make better investment decisions. If there are gaps in that information, the fund's leaders may be unable to make effective and successful decisions.*

### a. Summary of Contractually Required Consulting Services vs. the Service Provided by the Investment Consultant

Table A18, in the first column, lists the general consulting services typically provided by investment consultants. A checkmark in this column indicates that this particular service is a routine part of a full-retainer assignment for a general investment consultant. The second column identifies which typical general consulting services are required in the 2002 contract between STRS and its retainer consultant (Frank Russell). The third column reflects services the consultant provides in practice which are not specifically called for in the provisions of the 2002 contract between STRS and its retainer consultant (Frank Russell). The fourth column identifies, where applicable, the entity that provides the service if the retainer consultant is not providing the service.

**Table A18: Comparison of Typical Retainer Consulting Services**

| Typical General Consulting Services | Service Required by the Contract with STRS | Service Provided in Practice by Consultant | Service Provided by |
|---|---|---|---|
| **Fiduciary Status** | | | |
| Consultant serves as a fiduciary | ✓ | ✓ | |
| **Essential Services** | | | |
| ***Asset Allocation and Asset/Liability Studies*** | | | |
| • Produce capital markets assumptions | | ✓ | |
| • Produce asset allocation study and recommendations | ✓ | ✓ | |
| • Produce asset/liability report | | ✓ | |
| ***Investment Policy and Structure*** | | | |
| • Prepare or review Fund's Investment Policy Statement | ✓ | ✓ | |

| Table A18: Comparison of Typical Retainer Consulting Services | | | |
|---|---|---|---|
| Typical General Consulting Services | Service Required by the Contract with STRS | Service Provided in Practice by Consultant | Service Provided by |
| • Review and recommend Fund's investment structure | ✓ | ✓ | |
| • Recommend performance benchmarks for asset classes and investment managers | ✓ | ✓ | STRS Staff |
| ***Periodic Investment Performance Reports*** | | | |
| • Produce investment performance reports | ✓ | ✓ | |
| • Calculate investment rates of return for total fund and asset classes | | | CRA Rogers Casey<br>STRS Staff |
| • Calculate investment rates of return for external investment managers | | | CRA Rogers Casey<br>STRS Staff |
| • Calculate investment rates of return for internal investment staff | | | CRA Rogers Casey<br>STRS Staff |
| • Rank fund and managers against appropriate peer universes | | | EAI as the investment consultant to the ORSC |
| • Produce portfolio characteristics or risk analytics for each asset class | | ✓ | |
| • Produce portfolio characteristics or risk analytics for each investment portfolio | | ✓ | |
| • Monitor personnel, process and business issues at external managers | ✓ | ✓ | |
| • Reconcile return calculations with external managers | | | STRS Staff |
| ***Internal Portfolio Management*** | | | |
| • Review processes and procedures of internal portfolio management at STRS | | ✓ | |
| • Evaluate value-added by internal investment management at STRS | | ✓ | |
| ***Selection of External Investment Managers*** | | | |
| • Recommend external investment managers | ✓ | ✓ | |
| • Prepare profiles or analysis of recommended external managers | ✓ | ✓ | |
| • Prepare guidelines for managers hired by Fund | | | STRS Staff |
| **Collateral Services** *(to be provided if requested by Fund)* | | | |
| • Evaluate investment process and performance of internal fund staff | ✓ | ✓ | |
| • Real estate analysis or manager selection | ✓ | ✓ | |
| • Hedge fund analysis or selection | N/A | N/A | |

| Table A18: Comparison of Typical Retainer Consulting Services | | | |
|---|---|---|---|
| TYPICAL GENERAL CONSULTING SERVICES | SERVICE REQUIRED BY THE CONTRACT WITH STRS | SERVICE PROVIDED IN PRACTICE BY CONSULTANT | Service Provided by |
| • Private equity analysis or selection | | General advice on the asset class, but no advice selection of investment vehicles. | |
| • Check compliance of external managers with Fund guidelines | | | STRS Staff |
| **Education and Research** | | | |
| • Conduct educational programs for Board and staff | ✓ | ✓ | |
| • Provide research papers on investment topics | | ✓ | |
| **SECONDARY SERVICES** | | | |
| • Custodial evaluation or monitoring | | | Under the jurisdiction of the Treasurer of State |
| • Securities lending analysis | | | STRS staff |
| Brokerage analysis | | ✓ | STRS staff |
| • Transition management analysis | | | |
| • Commission recapture or brokerage discount analysis | | | STRS staff |
| • Review of soft dollar services | | ✓ | |
| • Proxy voting or analysis of other party's voting record | | | IRRC[17] is the proxy voting agent |

## OBSERVATIONS:

Russell provides and/or assists the STRS staff in providing the types of services typically provided by a full-service retainer consultant. Based on Table A18 above the functional services provided by Russell exceed the contractually required services.

[17] IRRC – Investor Responsibility Research Center. IRRC is commonly recognized as the leading source of information on corporate governance and social responsibility. It provides proxy research and analysis, benchmarking products, as well as proxy voting services to more than 500 institutional investors, corporations, law firms, foundations, academics and other organizations. In July 2005, IRRC sold its commercial proxy voting and screening business to Institutional Shareholder Services (ISS). The new "IRRC Institute for Corporate Responsibility" will be funded with an initial endowment and ongoing support from ISS.

### b. Investment Consultant's Scope of Work

The Frank Russell Company has provided investment consulting services to STRS since 1991. The scope of their services has expanded steadily over that period, starting with real estate services in 1991, and growing to provide consulting services regarding international investments (1993), alternative investments (1999), external manager consulting services (2000) and to provide additional services not covered by the 1998, 1999, and 2000 agreement (in 2002). Currently, all services provided to STRS by Russell are covered in a single contract that expired on June 30, 2005. As of the writing of this Report, Staff reports that Russell is continuing to provide consulting services on a month-to-month basis during the process of re-bidding the consulting contract. Russell is submitting a proposal.

**OBSERVATIONS REGARDING THE CONSULTANT'S SCOPE OF WORK**:

- Russell's consulting services are generally consistent with the needs of STRS and industry practices.
  - Russell advises STRS on asset allocation, investment policy, selection of external investment managers, processes employed by internal investment staff, investment performance, use of brokerage and soft dollar services by internal staff, and proxy voting.
  - In particular, Russell provides in-depth and specialized advice to STRS on real estate and alternative investments generally (however Russell does not advise on the selection of alternative investments vehicles or individual private equity partnerships).
- Based on our interviews, several points deserve special note because they qualify the general observations made by IFS regarding whether the level of services provided by Russell are consistent with the needs of STRS and industry practices:

- Russell provides general advice regarding alternative investment strategy, policy, and trustee education (for which they are paid a fee). However, Russell does not advise STRS on the selection of alternative investments managers because STRS did not request this service from Russell. Staff handles the identification of and due diligence on alternative investment vehicles itself without input or advice from a consultant. IFS notes that Russell offers its own alternative investment vehicles, creating the potential for a conflict of interest were Russell to advise on selection of alternative investments.

- Russell's contract does not include responsibility for advice on guidelines for external investment managers.

- IFS reviewed the quarterly report on the investment performance of the Fund and its investment managers prepared by Russell for the first quarter of 2004. The report does not contain peer universe comparisons for the Total Fund, asset classes within the Fund, portfolios managed internally by STRS staff, or individual external investment managers. ORSC receives quarterly performance reports from Evaluation Associates (EAI) that contain peer group rankings and these reports are available to STRS. However, to avoid any issues regarding alignment of interests or potential conflict between STRS and ORSC, STRS should be able to rely on its own retainer consultant to provide sufficient information for the Trustees and staff for comparative purposes.

- Russell does not verify or reconcile investment manager rates of return. Russell relies on the return calculations produce by STRS' internal investment performance measurement system.

- STRS also receives performance reports from CRA Rogers Casey.[18] These reports include peer universe comparisons (comparisons that were noticeably absent from the Russell investment performance report). IFS did not interview CRA Rogers Casey or discuss this firm with staff at STRS. We question the use of multiple consultants to calculate various aspects of performance and produce separate reports as it may not be the most cost effective approach.

- Russell appears to provide consulting services that go beyond the requirements of its contract with STRS. Although not mentioned in the contract with STRS, Russell reviews reports prepared annually by STRS staff on proxy voting and internal staff trading. In the case of trading performed by STRS staff, Russell obtains input from Frank Russell Securities for an opinion on the use of domestic and international brokers. Russell also reports that it reviews the use by STRS staff of soft dollar services.

**Recommendation A19**

*Russell's contract with STRS should be amended to ensure that the contract reflects all the services/advice STRS expects its consultant to provide, including, but not limited to, advice from Russell on:*

- *Guidelines for external investment managers;*
- *Review of the investment strategy and processes employed by STRS internal portfolio management teams;*
- *Evaluate the value-added by internal investment management at STRS;*
- *Review of proxy voting practices; and*
- *Review of internal brokerage practices, transition management advice and STRS' use of soft dollar services.*

[18] CRA Rogers Casey is an investment consulting firm that serves over 150 clients from seven offices around the United States. The firm provides a full array of investment consulting services to corporate and public retirement plans, endowments, foundations, healthcare systems, not-for-profit organizations, high net worth individuals, financial intermediaries and Taft-Hartley plans.

### c. Consultant's Fiduciary Status

## FUNDAMENTAL PRINCIPLES REGARDING CONSULTANT'S FIDUCIARY STATUS:

- *Investment consultants give strategic advice to fund directors, trustees and staff. If the consultant has earned the trust of the client, the client will use that advice to make some of the most important decisions affecting the financial success of the fund.*

- *Consultants should be willing to back their advice with the full strength of their experience and conviction. They can do so by agreeing to serve the fund in a fiduciary capacity, a step that represents best practices in the consulting industry. In the absence of this commitment, a fund risks that the quality of advice it receives from its consultant may not be the highest.*

## OBSERVATIONS REGARDING CONSULTANT'S FIDUCIARY STATUS:

- Russell has agreed to serve as a fiduciary.

- Russell's contract with STRS states that the consultant serves in a fiduciary capacity (as defined by Ohio state law) and that it will comply with all state and federal laws governing fiduciaries. This contract provision conforms to best practices in the consulting industry.

### d. Consultant's Knowledge and Experience

## FUNDAMENTAL PRINCIPLES REGARDING CONSULTANT'S KNOWLEDGE AND EXPERIENCE:

- *Good investment consulting advice requires consultants with broad and deep experience in the areas of capital markets behavior; asset allocation theory and practice; investment strategies, processes and techniques; brokerage practices; custody services; investment performance measurement; pension fund governance; and presentation skills.*

## OBSERVATION REGARDING CONSULTANT'S KNOWLEDGE AND EXPERIENCE:

- Russell's work product and interviews with STRS staff indicate clearly and confirm that the consultant has substantial knowledge and experience regarding investment management, pension plan management, and the consulting services it provides to the Fund.

### e. Consultant's Fees

## FUNDAMENTAL PRINCIPLES REGARDING CONSULTANT'S FEES:

- *Investment consultants' fees are often difficult to evaluate against industry standards. This is because each consultant relationship is unique in its combination of scope, responsibility, complexity of the portfolio, amount of assets and particular demands of the client. Thus, comparability of services tends to be an issue.*

## OBSERVATION REGARDING CONSULTANT'S FEES:

- Several points of reference allow us to compare consultant fees. First, a nationally recognized survey of 37 state public employee pension funds that voluntarily pooled their cost data, showed that consultant fees averaged $559,000 per year, with a median fee of $320,000.

- Funds that relied primarily on internal asset management tended to pay dramatically lower consulting fees. The average internally managed fund paid an average of $177,000, with the median fund paying $169,000.

- As reflected in Table A19 below, the same survey found that the average consulting fee paid by 11 funds with assets over $25 billion (using both internal and external investment managers) was $1,087,000, with a median fee of $535,000.

**Table A19: Consultant Fee Survey (by Decile)**

| National Survey of Public Funds | Internally Managed Funds | Externally Managed Funds | Funds with Less Than $25 Billion | Funds with More Than $25 Billion |
|---|---|---|---|---|
| Top Decile (10%) | $289,000 | $1,409,000 | $546,000 | $1,493,000 |
| Top Quartile (25%) | $186,000 | $544,000 | $387,000 | $1,367,000 |
| Median | $169,000 | $338,000 | $266,000 | $535,000 |
| Bottom Quartile (75%) | $135,000 | $238,000 | $180,000 | $325,000 |
| Bottom Decile (90%) | $78,000 | $164,000 | $63,000 | $186,000 |

- Another comparison is possible based on an estimation of expected consulting fees paid by funds relying primarily on external management derived from the public employee fund survey cited in Table A19 above.

**Table A20: Consultant Fee Survey (by Fund Size)**

| National Survey of Public Funds | Internally Managed Expected Fee in Dollars | Internally Managed Expected Fee in Basis Points | Externally Managed Expected Fee in Dollars | Externally Managed Expected Fee in Basis Points |
|---|---|---|---|---|
| $1 Billion | $13,000 | 0.13 | $ 96,432 | 0.96 |
| $2 Billion | $19,000 | 0.10 | $142,684 | 0.71 |
| $5 Billion | $32,000 | 0.06 | $239,502 | 0.48 |
| $10 Billion | $48,000 | 0.05 | $354,376 | 0.35 |
| $20 Billion | $71,000 | 0.04 | $524,348 | 0.26 |
| $50 Billion | $118,000 | 0.02 | $880,142 | 0.18 |

- Separately, according to the 2005 Greenwich Associates survey of pension plan sponsors, the mean investment consulting fee for public funds with over $5 billion is $379,000.

- Over the years STRS relationship with Russell has evolved from a single specialized real estate assignment to a much broader multi-service consulting assignment. Based on the 2002 contract, STRS pays Russell three annual fees for three distinct lines of service provided to the Fund, as follows:

| | |
|---|---|
| Real Estate Consulting Services | $120,000 |
| External Managers & Alternative Investments | $315,000 |
| Financial Consultant Services[19] | $350,000 |
| Total Annual Fees | $785,000 |

[19] Russell's term for general retainer consulting.

The contract provided for an increase of 5% per year, starting July 1, 2003. We therefore assume that STRS paid $824,250 for the twelve months starting July 1, 2003 and will pay $865,463 for the twelve months starting July 1, 2004.

- IFS received five responses to the survey of peer funds. The annual fee paid by these funds to their general consultants ranged from $199,000 to $600,000. The average of the five peers was $428,000. STRS pays its general consultant, Frank Russell, for a combination of services (as described above). For purposes of comparison to peers, the fee paid by STRS for "Financial Consultant Services" ($350,000) appears to be most relevant, and this fee is within the range observed for STRS peers and is below the average paid by the five other funds.

- With respect to private equity specialty consultants, the peer group paid from $750,000 to $2,248,000, with an average fee of $1,196,000. STRS paid Russell $350,000 for similar services, an amount that is far below the bottom of the range of STRS' peers. However, STRS does not rely on Russell for advice on the selection of specific private equity managers or funds, and hence the level of services received by STRS justifies a much lower fee than that paid by STRS' peers.

- With respect to real estate specialty consultants, the peer group paid from $42,000 to $320,000, with an average fee of $224,000. STRS paid Russell $120,000 for similar services, an amount that is again far below the average of the range of STRS' peers.

- Overall, the consulting fees paid by STRS appear reasonable when compared to the fees paid by STRS' peers.

### f. Consultant's Potential Conflicts Of Interest

## FUNDAMENTAL PRINCIPLES REGARDING CONSULTANT POTENTIAL CONFLICTS OF INTEREST:

- *In May, 2005, the Office of Compliance Inspections and Examinations of the Securities and Exchange Commission released a staff report concerning the SEC's examination of a number of investment consultants.[20] The SEC described its analysis as follows:*

> *Under the Investment Advisers Act of 1940 (Advisers Act), an investment adviser providing consulting services has a fiduciary duty to provide disinterested advice and disclose any material conflicts of interest to their clients. In this context, SEC staff examined the practices of advisers that provide pension consulting services to plan sponsors and trustees. These consulting services included assisting in determining the plan's investment objectives and restrictions, allocating plan assets, selecting money managers, choosing mutual fund options, tracking investment performance, and selecting other service providers. Many of the consultants also offered, directly or through an affiliate or subsidiary, products and services to money managers. Additionally, many of the consultants also offered, directly or through an affiliate or subsidiary, brokerage and money management services, often marketed to plans as a package of "bundled" services. The SEC examination staff concluded in its report that the business alliances among pension consultants and money managers can give rise to serious potential conflicts of interest under the Advisers Act that need to be monitored and disclosed to plan fiduciaries.[21]*

- *The SEC examined in detail the practices of 24 major pension consulting firms that are registered investment advisers. The SEC found that:*
  - *More than half of the firms provided services to both pension funds and investment managers.*
  - *A significant number hold conferences that involve the participation of both pension fund clients and investment managers.*
  - *Many sell the consulting firm's performance evaluation software to investment managers.*

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[20] A copy of the May 2005 SEC report on investment consultants can be found at www.sec.gov/news/studies/pensionexamstudy.pdf. Additional advice from the SEC on the selection of consultants can be found at www.sec.gov/investor/pubs/sponsortips.htm.
[21] "Selecting and Monitoring Pension Consultants: Tips for Plan Fiduciaries", first published by the SEC on June 1, 2005 at www.sec.gov/investor/pubs/sponsortips.htm.

- *Most are affiliated with broker-dealers and they often receive payment for their consulting services based on the amount of client brokerage directed through the affiliated broker-dealer.*

- *Many consultants do not consider themselves to serve their pension fund clients in the capacity of a fiduciary.*

- *Many do not maintain policies and procedures designed to prevent conflicts of interest and to disclose the nature of their other business relationships.*

- *In December, 2005 it was reported that the SEC had concluded its two-year investigation of investment consultants and "determined that the firms found with the most conflicts of interest on advice to pension funds were doing much better in identifying, disclosing and managing the problems."* [22]

- *Conflicts of interest are pervasive in the financial services business. The potential for conflicts, particularly at full-service financial services firms, is numerous. Therefore, investors that rely on such firms should install processes to (a) effectively* ***identify*** *such conflicts and (b) properly* ***manage*** *them. By the same token, the service providers should install processes to identify and disclose conflicts to its clients as well as managing them (including eliminating them when possible).*

- *It is very important to distinguish between* ***actual*** *and* ***potential*** *conflicts. An* ***actual conflict*** *of interest is a situation where the quality or objectivity of a service provider's services is actually, in practice, compromised, because of conflicting duties, either between its self-interest and its duty to a client or among its various duties to different clients. A* ***potential conflict*** *of interest is a situation where the quality or objectivity of services could conceivably be compromised because of such conflicts, although in fact, it may never manifest itself – it may never become "actual." In both cases, processes to identify and manage such conflicts are key. Sufficiently identifying and managing potential conflicts may prevent them from ever becoming actual conflicts.*

## OBSERVATIONS REGARDING CONSULTANT POTENTIAL CONFLICTS OF INTEREST:

- STRS' current retainer investment may have conflicts (actual and potential) which can be minimized if STRS adopts a reporting and disclosure process.

[22] Pensions & Investments article by Vineeta Anand, December 12, 2005,

- Russell and its affiliates offer a variety of services to investment managers. These services include various analytical products, such as performance attribution systems.

- There is the potential for conflicts of interest arising from the regular course of business of among the Russell affiliates. For example, Russell Consulting could recommend money managers that Russell employs in its manager-of-managers program in order for Russell to gain a financial or business advantage with that manager. This potential conflict limits the objectivity and effectiveness of its advice to the STRS.

- Russell should have extensive policies and procedures in place which are designed to adequately contain many of these potential conflicts of interest and prevent them from becoming actual conflicts. Russell should be able to provide copies of these polices and procedures for STRS' review. Further, STRS' contract with Russell does not have a provision requiring Russell to make annual disclosures to STRS of any business relationship Russell has with investment managers or vendors who also serve STRS[23].

- Russell's "Conflict Disclosure Document", dated December 2005, describes the conflicts that may arise in the course of its consulting work. It also provides some general indication of how Russell attempts to manage those conflicts. However, it does not represent the specific disclosure of business relationships and revenues necessary for STRS to evaluate the nature and extent of any conflicts.

[23] STRS reports that it receives disclosure statements from Russell, starting in June 2005, after the date of IFS' field work and due diligence.

**Recommendation A20**

*Russell's contract with STRS should be amended to require Russell to provide annual disclosure of its business relationships with all investment managers or other providers of investment services. This contractually-required disclosure should include information from Russell on the specific amounts paid to Russell by those investment managers employed by STRS and on the specific services provided to those managers.*[24]

## 6. Asset Allocation

### a. Asset Allocation in General

**FUNDAMENTAL PRINCIPLES REGARDING ASSET ALLOCATION:**

- *Asset allocation is the process of diversifying an investment portfolio among asset classes (stocks, bonds, real estate, etc.) in order to have a high probability of achieving a particular investment objective, such as consistently attaining a certain level of total return while controlling risk (e.g., volatility or standard deviation). Empirical research*[25] *has shown that asset allocation generally has a far greater effect on investment performance than does the selection of investment managers or individual securities.*

- *Asset allocation is generally considered to be the single most important determinant in minimizing risk and maximizing return over time. However, determining which asset classes to include and the appropriate balance of those asset classes is not an exact science. The use of computer modeling techniques (e.g., mean variance optimization or "MVO") and appropriate assumptions about the expected risk and return of various asset classes can increase the probability of achieving long-term investment objectives.*

- *Establishing an appropriate asset allocation requires an examination of several key factors, including, but not limited to:*

  - *The nature of the fund, e.g., a pension fund is typically considered to have a long-term investment horizon;*

[24] STRS' sister fund, SERS, has developed an excellent investment consultant disclosure policy and annual disclosure document which would be used as a template. SERS also uses Russell.

[25] See for example, Gary P. Brinson, L. Randolph Hood, and Gilbert L. Beebower, "Determinants of Portfolio Performance," *Financial Analysts Journal* (July/August 1986):39-44. "[T]otal return to a plan is dominated by investment policy decisions. Active management, while important, describes far less of a plan's returns than investment policy."

- *The collective risk tolerance of the Board as expressed in the IPS. This includes expressed tolerance for various types of risk by asset class, and the degree to which the Board is willing to engage in more or less aggressive (risky) strategies within an asset class.*

- *Willingness to invest in "alternative" asset classes, e.g., private equity, hedge funds, etc.;*

- *The actuarial condition (such as its funded status and the demographic characteristics of its participant population), cash flow projections and liquidity needs; and*

- *The current and expected future economic and market climate.*

- *A retirement system is responsible for both investing pension fund assets as well as making benefit payments to participants. Therefore, an asset allocation study should take into account the liability structure of the pension funds—or even better—a full-blown asset liability study should be completed.*

- *Some retirement systems are also responsible for retiree health care benefits. Prefunding these liabilities, which involves very different assumptions than funding pension benefits, entails managing a separate trust fund of assets. Based on our observations, most retirement systems do not use a separate asset allocation policy for their healthcare trust fund.*

  - *Ohio PERS recently developed, and is in the process of implementing, an asset allocation for its healthcare trust fund that is significantly different from, and more conservative than, the asset allocation for its pension assets.*[26] *The analysis and subsequent decision by the Ohio PERS Board was sparked by the reduction in the solvency period (i.e., the number of years for which the fund has enough assets to pay estimated benefits) of the healthcare trust fund from 50 years to approximately 17-18 years. Although there is a separate asset allocation policy for the health care assets, it is more cost effective to commingle and unitize them for investment purposes.*[27]

[26] The Ohio PERS Board of Trustees adopted the revised healthcare asset allocation policy in 2004 and is implementing the changes over two years, 2005-2006. Previously, OPERS did not have a separate allocation for the health care trust fund.
[27] See also *The Next Retirement Time Bomb*, by Milt Freudenheim and Mary William Walsh, The New York Times, December 11, 2005.

### b. Asset Allocation Process Overview

## FUNDAMENTAL PRINCIPLES REGARDING ASSET ALLOCATION PROCESS

- *Mean variance optimization continues to be the most common approach used by institutional investors. The MVO model calculates a series of efficient portfolios that form the efficient frontier.*

- *A portfolio is considered "efficient" when, compared to all other possible combinations of permissible assets, it produces the highest expected return for a given level of expected risk (or, conversely, the lowest level of risk given a desired level of expected return).*

- *The optimal portfolio is the efficient portfolio that best matches the pension fund's requirements regarding return, cash flow, risk and other essential criteria.*

- *Asset allocation modeling is only as sound as the quality and objectivity of the inputs employed in the process. The assumed levels of risk, return and correlation for each asset class are critical to the process. Small adjustments to any of the assumptions can profoundly alter the conclusions as to which portfolios are efficient. Asset allocation inputs should be forward looking, i.e., they in effect project how each asset class may be expected to perform in the future. Thus, uncertainty exists and simple mechanistic extrapolations of past data may ignore changed environments and may fail to consider where various markets currently are within their cycles.*

- *Compared to an "asset only" approach, an asset liability model (ALM) allows a board to consider, among other items, a probability analysis of the expected impact of the investment portfolio on future contribution levels and funding ratios, the impact of benefit policy changes, changing demographics and COLAs on funding levels and cash flow, as well as the amount of downside protection across various time periods. Moreover, an ALM analyzes the effect of these elements based not only on the expected average long-term investment returns, standard deviation and correlations for the asset classes which comprise the whole portfolio, but can also analyze many different economic scenarios which incorporate the behavior of inflation and long bond yields over time. This would be in addition to a simple analysis of the probability of achieving negative returns or of meeting the actuarially assumed rate of return.*

- *Given its fundamental importance to the success of an investment program, best practices dictate that asset allocation decisions be made at the Board level, where they can be coordinated with funding policies, actuarial condition and investment objectives. In our view, the ultimate fiduciary decision-maker – the Board – should seek to understand the process used to develop the assumptions and to assure that the process is reasonable and fundamentally sound.*

- *Overall, we believe a full ALM is superior to the "plain vanilla" asset allocation used by many institutional investors and/or investment consultants, although it is not necessary to perform such a study as frequently as a more basic asset allocation study.*

- *A pension plan should have a unique asset allocation study (or preferably at least a limited asset liability study) prepared due to its individual demographics, funding level and cash flow requirements.*

- *Asset allocation is distinguishable from portfolio structure, the former of which can be modeled using MVO, while the latter includes various policy judgments and some quantitative work (such as possible use of risk budgeting).* (*We review the investment structure of the Fund in Section 4(A) Investment Management Structure*.)

### c. Analysis of STRS Asset Allocation Process

We reviewed the process the Board used to set its asset allocation policy, including:

- Who is involved in setting the asset allocation;
- The current asset classes used, how their targets and ranges compare to peers, and whether they are suitable for the System;
- What methodology was used, e.g., a quantitative model was used ;
- What capital market assumptions were employed;
- Risk level and risk tolerance of the Board; and
- Rebalancing policy.

In addition, for illustrative purposes, IFS performed an MVO analysis using our 2004 assumptions and produced a sample efficient frontier to determine how efficient the current asset allocation is. We compared the current asset allocation targets for the STRS portfolio to our model efficient frontier and calculated the probability of these portfolios meeting their actuarial rate of return over various time periods.

## OBSERVATIONS REGARDING STRS ASSET ALLOCATION PROCESS:

- As mentioned previously, IFS received the 2005 Asset Liability Study and the January 2006 IPS from the System after conducting our fieldwork and writing our first draft. We have incorporated our observations below.

- The 2006 asset allocation put forth in the 2006 IPS reflects changes to the asset allocation made as a result of the 2005 Asset Liability Study.

- As mentioned in Investment Management Issues 1(A), the STRS IPS does not mention the Board's responsibilities with regard to establishing the asset allocation, conducting periodic studies or reviewing it in light of any changes in actuarial data or market conditions.

### d. 2005 Asset Liability Study

## OBSERVATIONS REGARDING THE STRS 2005 ASSET LIABILITY STUDY:

- Similar to the earlier studies, the 2005 Asset Allocation Study employed commonly used techniques for establishing the asset allocation: capital market assumptions and mean variance optimization. It is our understanding that a "Blue Ribbon Committee" was formed to make recommendations regarding asset allocation; these findings were reviewed and tested by Russell. The Blue Ribbon Committee consisted of the STRS investment staff, senior staff, the Board's Investment Committee, actuaries and consultants. Russell's 2005 Asset Liability Study had the stated purpose of setting the Board's asset allocation policy and providing insight as to the financial condition of the System over the next ten years. Typical of an asset liability study, Russell forecast the Accrued Actuarial Liability (AAL) Funded Ratio, estimated funding period and health care contribution rate over the 2005-2014 period, using STRS' then current asset allocation targets. To see if changes to the asset allocation would improve these scenarios, they looked at "Broad Allocations" which would implement significant changes to current asset class targets as well as "expanded asset classes" which incorporated hedge funds, commodity futures, more private equity and more real estate.

- Russell used their June 2005 capital market forecast assumptions to calculate 20-year and 9-year expected returns for the then current STRS portfolio and the recommended new asset allocation. Their conclusions included:

  - Increasing equity would not improve the outcome to compensate sufficiently for the additional downside risk and lowering equity would worsen the median outcome but improve downside risk.

  - Adding commodity futures, hedge funds, increasing real estate or private equity would not have a material effect.

  - The "Blue Ribbon Committee" recommended minor changes to the asset allocation: increase equity from 67% to 70% to generate additional expected return, increase real estate and international for increased diversification and eliminate cash for increased efficiency (see our comments in the Investment Issue Section 1(A) on the IPS).

- Russell found that "No combination of major asset allocation changes, new asset classes, or fine-tuning current policy will improve outlook significantly." However, they project that 20-year returns will meet the 8% actuarial rate, despite their shorter term projection of 7.40%. As with the earlier asset allocation and asset liability studies that we reviewed (see discussion that follows), however, Russell calculated neither the probability of meeting the expected return nor the likelihood of achieving a negative return over shorter or longer time horizons. In addition, they did not model the recommended asset allocation in the scenarios showing the impact on funded ratios and they did not produce an efficient frontier.

- The 2005 Asset Liability Study, and therefore the 2006 Asset Allocation, includes the assets and liabilities of the combined defined benefit, defined contribution and healthcare funds. Currently these assets are managed according to the same overall asset allocation and investment structure policies, although the Health Care Fund potentially has a very different time horizon than the pension fund. To address this, we understand that staff presented to the Board a study that evaluated the potential benefits of having a less volatile asset allocation for the Health Care Fund. Staff concluded that "the continuing climb in health care expenses limits the benefit from investing in a less volatile asset mix for the Health Care Fund… [and] the security provided by a less volatile asset mix is only temporary." Given that fact and the other information analyzed, STRS has decided to maintain the same asset allocation for the Health Care Fund as for the DB plan assets. We believe that it was a good practice to undergo this exercise and that STRS should reconsider this finding periodically as the health care industry continues to change.

| **Recommendation A21** |
| --- |
| *The next asset allocation study, or asset liability study, should provide STRS with additional risk statistics by which to assess the Board's tolerance, particularly to the downside, of not achieving an expected return. It should also show probability statistics that establish the likelihood of achieving an expected return over different time periods and include the recommended target asset allocation in the scenarios that are tested.* |

### e. 1992 Asset Liability Study

## OBSERVATIONS REGARDING THE STRS 1992 ASSET LIABILITY STUDY:

- The 1992 Asset Liability Study was conducted by Hewitt Associates in conjunction with a study group that consisted of STRS investment staff and consultants, and was approved by the Actuarial Review Committee. It is not clear if the System's actuary worked directly with Hewitt. One purpose of the study was to address a demographic "bubble" that would increase benefit demands on the System. The 1992 Asset Liability Study was performed with two key funding goals in mind: achieve a funded ratio of 80% and reduce the unfunded liability amortization period to 30 years or less.

- The 1992 Asset Liability Study identified a need for increased returns and recommended a higher level of risk for the System, through a higher allocation to U.S. equities and the addition of small cap stocks, real estate and international equities. STRS implemented these recommendations, and through the 1990's the level of risk and the strategic deployment of assets benefited the System. It appears that the STRS investment program is still guided by these criteria.

### f. 2000 Asset Allocation Study

IFS reviewed the 2000 Asset Allocation Study conducted by Hewitt Associates (the "2000 Asset Allocation Study").

## OBSERVATIONS REGARDING THE STRS' 2000 ASSET ALLOCATION STUDY;

- We found that the 2000 Asset Allocation Study employed commonly used techniques for establishing the asset allocation: capital markets assumptions and mean variance optimization. As with the 1992 Asset Liability Study, it is our understanding that investment staff, actuaries and consultants all participated on a committee to discuss the capital market assumptions. However, identifying the most efficient portfolio is not an end unto itself, but a tool for testing the reasonableness of the current asset allocation.

- In our opinion, the 2000 Asset Allocation Study did not provide enough information and observations to support the recommended asset allocation. Although the 2000 Asset Allocation Study used MVO to determine the acceptable asset allocation for the System, it did not provide any comparative information to support the recommended asset allocation, and did not provide any risk parameters. For example:

- *Comparative portfolios*: The 2000 Asset Allocation Study recommended an asset allocation, with minor modifications from the pre-existing asset allocation. It plotted the current portfolio in comparison to an efficient frontier, but it did not show the recommended, revised portfolio, nor did it offer comparative statistics for the current, recommended or other similar portfolios.

- *Risk*: This Study did not provide any risk statistics – typically standard deviation – for any portfolios, including the current or recommended portfolio. Subtle changes in asset allocation can have a large impact on the change in the risk characteristic of a portfolio. Unless the Board is indifferent to risk, it is an essential element for establishing a realistic long term asset allocation.

- Another way of looking at risk is how the duration of liabilities increases because the System has not earned the required rate of return. Measured this way, the System would have a better sense of the dollar value of underperforming, its tolerance for underperformance and to plan where and how it would find resources. The 2000 Asset Allocation Study stated that liabilities had duration of 11 years, and that the investment risk of a portfolio with 70% in equities was justified because the probability of earning 8% was greater than 67%, thus drawing the conclusion that this was sufficient to meet liabilities over time.

- *Probability analysis*: Additionally, for each portfolio, it is customary to present probability statistics for achieving the mean expected return over shorter (e.g., one year) and longer periods of time (e.g., five and/or ten years) for each portfolio. Presenting outcomes this way provides STRS with the opportunity to assess its tolerance for the expected return and risk behavior of an asset allocation over different time periods

### g. Capital Market Assumptions

## FUNDAMENTAL PRINCIPLES REGARDING CAPITAL MARKET ASSUMPTIONS:

- *Asset classes may be defined very broadly in formulating assumptions for risk, return and correlation, or more narrowly with the segregation of major asset classes into sub-asset classes. When asset classes are defined more broadly, allocations to asset subsets are considered "policy" decisions, rather than being quantitatively modeled. When asset classes are defined narrowly for purposes of modeling, it can be difficult to develop reliable risk, return and correlation statistics for some classes due to various factors, including:*
    - *Lack of historical data,*
    - *Lack or insufficiency of an index or benchmark,*
    - *Lack of public market valuations, e.g., some real estate data is appraisal based and is therefore subject to smoothing, which may artificially decrease its correlation with other asset classes, if judged in isolation.*

- *Boards should consider the asset allocation process an art, not a science. We believe there is a range of acceptable inputs, rather than a single, precise set of "correct" inputs for each asset class. Modeling techniques can use ranges as well as specific points to generate expected future results.*

- *The following inputs need to be developed to perform the MVO analysis*:
    - *Average expected return for each asset class*
    - *Expected asset class risk (e.g., standard deviation)*
    - *Correlation between asset class returns*

*The combination of these three elements produces optimized portfolios. Expected returns should be developed using both historical analysis and forward-looking observations, given various historical and current market valuation measures. The inputs into the* model *should generally be forward looking, rather than purely historical averages and should reflect expectations for the time horizon being considered.*

## OBSERVATIONS REGARDING STRS CAPITAL MARKET ASSUMPTIONS:

- Overall, we found the capital market assumptions reasonable. However, more explanation should have been provided in the asset allocation study.

- In Table A21, we compare return assumptions used in the STRS 2004 Annual Investment Plan, with IFS' internally developed assumptions as well as some used by other organizations. The STRS Investment Staff develops asset class return assumptions annually; Russell, the Board's investment consultant reviews them after they are finalized. The Annual Investment Plan is intended to provide a short term outlook, 12-24 months, whereas an Asset Allocation or Asset Liability Study is used for long term planning. The Investment Staff will modify near term expected rates of return based on near term return assumptions for asset classes. Longer term expectations, set by an asset allocation study remain the goals of the investment program, which the staff tests annually to assess whether the investment program continues to be structured to meet those goals.

- Using either overly pessimistic or optimistic return assumptions for some of the asset classes can put the portfolio at risk. The System could either take on too much risk in an attempt to generate a high enough expected return or, conversely, not achieve the needed return and thus, risk eventual underfunding, the need for unexpectedly high government contributions, and/or decreased benefits.

**Table A21: Comparison of Return Assumptions**

| Asset Class | STRS 2004 Annual Plan Bd. Policy | IFS 2004 | Other Firm 2004[28] | Ennis Knupp 2004 Survey[29] | JP Morgan Fleming 2005 |
|---|---|---|---|---|---|
| Domestic Equity | 8.4% | 8.5% | 8.3% | 8.0% | 7.25% |
| International Equities | 8.4% | 8.5% | 8.3% | 8.3% | 7.75% |
| Emerging Markets | -- | - | - | 9.5% | 8.25% |
| Private Equity | 13.6% | 11.7% | 9.5% | 11.9% | 8.50% |
| Hedge Funds | -- | 8.0% | - | - | 5.25-6.50% |
| HF – portable alpha | -- | | | | |
| HF – absolute return | -- | | | | |
| Real Estate Equity | 7.8% | 7.0% | 7.4% | 7.4% | 7.00% |
| REITs | -- | | | | |
| Domestic Fixed Income | 6.0% | 4.5% | 4.5% | 5.0% | 5.00% |

[28] National consulting firm, which we can not disclose.
[29] Ennis Knupp Capital Markets Modeling Survey Results 2004 – median of 18 investment managers and four investment consultants surveyed.

| Table A21: Comparison of Return Assumptions | | | | | |
|---|---|---|---|---|---|
| **Asset Class** | **STRS 2004 Annual Plan Bd. Policy** | **IFS 2004** | **Other Firm 2004**[28] | **Ennis Knupp 2004 Survey**[29] | **JP Morgan Fleming 2005** |
| TIPS | | 4.5% | - | - | - |
| High Yield Bonds | | - | | | |
| Cash (STIF) | | 3.4% | 3.2% | - | 3.50% |

- The 2000 Asset Allocation Study provided capital markets assumptions, standard deviation of returns for each asset class and the correlation of asset classes, at the policy level, as described above, not refined to sub-asset class levels. IFS found that that more explanation by Russell as to how these inputs were developed and how they are used to develop an efficient frontier and a recommendation for an asset allocation would be helpful.

- Whether to model capital markets assumptions to the sub asset class level is a subject of some debate. We note that the 2000 Asset Allocation Study used capital markets assumptions that were fairly similar to those used in the 1992 Asset Liability Study. However, the 1992 Asset Liability Study modeled capital markets assumptions to the sub asset class level, while the 2000 Asset Allocation Study did not. Moreover, the 2000 Asset Allocation Study stated that the return/risk advantage of certain sub asset classes is significant to STRS, if it is to achieve its expected return. This statement overlooks mentioning the impact on expected risk for a portfolio that needs to rely on sub asset classes to achieve an expected return.

- IFS is of the opinion that it is difficult to develop capital markets assumptions for sub-asset classes, however if the 2000 Asset Allocation Study referenced an opinion about capital markets returns for sub asset classes, it would have been helpful to provide STRS with the data supporting those opinions.

- Consistency from study to study is important for the integrity of the asset allocation process and the consistency of the investment process.

| Recommendation A22 |
|---|
| *If the consultant is confident with its sub asset capital markets projections and they are deemed essential to the expected return of the investment program, the Board may want to come to an agreement with the consultant that this information will be developed and presented in all future studies.* |

### h. Asset Classes Modeled in the Asset Allocation Study

**FUNDAMENTAL PRINCIPLES OF ASSET CLASS MODELING:**

- *Major institutional investors, including public pension funds, tend to diversify their investments across many asset classes, in an effort to maximize expected return at the lowest feasible levels of risk, and in light of their respective investment policies.*

- *The appropriate asset allocation for any given fund depends on numerous factors, including, e.g., its investment policy, liability structure, cash flow needs, investment horizon, risk controls, organizational structure (including staffing and resources appropriate for managing certain types of assets and risks) and other matters. Even though the appropriate asset classes and asset allocation for a given investor depend on its individual circumstances, comparisons to peers may provide useful reference points.*

- *Many non-traditional asset classes have proven to increase returns and lower the volatility of an investment program at the total fund level. It is advisable to consider all available asset classes to determine which ones fit the risk parameters of the total fund and may enhance returns and diversification. By not investing in all available (and advisable) asset classes, the Board risks not being appropriately diversified. We recognize that it can take time to invest fully in non-traditional asset classes and they require significant specialized staff and resources.*

**OBSERVATIONS ASSET CLASSES MODELED IN THE ASSET ALLOCATION STUDY**

- STRS has a broadly diversified investment program, taking advantage of the return and risk characteristics of traditional and less traditional asset classes.

- STRS commits 3% of its asset allocation to alternative equity investment strategies. These investments are almost entirely private equity investments, diversified across nearly 100 funds and over 50 different managers. STRS also has approximately 1%

invested in timber. Only recently has the System invested in its first hedge fund investment. Hedge funds and hedge fund of funds have different return and risk characteristics than private equity, and depending on the investment, different liquidity constraints. There is an enormous variety of hedge fund strategies, managers and risk profiles. Understanding their role in the Total Fund, and selecting the right ones requires great amounts of planning and resources, or the willingness to outsource the investment management. Hedge funds are a potentially important part of a well diversified investment program and are worth taking the time to consider adding to the asset mix.

**Recommendation A23**

*Given the potential for alternative assets to provide better returns with less risk that traditional assets, it may be meaningful for the System's consultant to model the Fund's asset allocation with increased amounts of private equity and hedge funds to determine if there is an optimal percentage of these assets.*

- We show two tables below (Table A22 and Table A23), Table A22 compares STRS to various third party surveys and Table A23 compares it to the peers surveyed specifically for this report. As can be seen in the first table, STRS has a slightly greater allocation to total equity, to international equity specifically, and a larger real estate equity allocation. These differences are offset by smaller allocations to alternative/private equity and fixed income.

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| **TABLE A22: Third Party Asset Allocation Surveys** | | | | | | |
|---|---|---|---|---|---|---|
| **Asset Class** | **STRS 2005 Asset Allocation Target** | **STRS Long-term Asset Allocation Target** | **Public Funds Survey[30]** | **CEM Survey[31]** | **RV Kuhns 6/30/05 Survey[32]** | **P&I Top 200 Public Plans[33]** |
| **US Stocks** | 45% | 42% | 45.1% | 41% | 43.7% | 46.0% |
| **Non US Stocks** | 15% | 25% | 16.1% | 17% | 16.0% | 15.3% |
| **Emerging Market Stocks** | 5% | - | - | 1% | 1.3% | - |
| **Global Equity** | - | - | - | - | 1.1% | |
| ***Total Publicly-Traded Stocks*** | *65.0%* | *67%* | *61.2%* | *59%* | 62.1% | 61.3% |
| **Core Fixed Income** | 23% | 20% | 27.2% | 27% | 24.4% | 27.1% |
| **International Fixed Income** | - | - | - | - | 1.6% | 1.1% |
| **Equity Real Estate** | 9% | 10% | 5.6% | 6% | 4.6% | 4.2% |
| **Alternatives/Private Equity** | 2% | 3% | 4.3% | 6% | 3.9% | 4.0% |
| **Hedge Funds** | - | - | 0.7% | - | - | 1.4% |
| **Short-Term/Cash** | 1% | - | 1.1% | - | 1.6% | 0.9% |
| **Other** | - | - | - | - | 1.8% | - |

- When compared to its custom peer group, STRS again has a slightly higher allocation to total publicly traded equity, but its allocation to international equity is not unusual when compared to some of the peers (e.g., Ohio PERS, PSERS and SWIB). STRS allocation to fixed income again appears somewhat low, but one peer has less (Michigan) and PSERS only has slightly more. STRS does have a higher real estate allocation than all of the peers except one (Michigan). STRS' allocation to private equity is in line with the peer group average, as only a couple peers have significantly higher allocations (PSERS and Michigan).

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[30] [30] 2005 Greenwich Associates Survey – results include responses from 94 state pension funds in 2004.
[31] Data is from Defined Benefit Investment Cost Effectiveness Analysis for the five years ending December 31, 2004 by Cost Effectiveness Measurement for Ohio STRS.
[32] Survey of 93 large public funds in which STRS participates.
[33] P&I Data is from 12/31/2003

| Table A23: Surveyed Peer Asset Allocation as of 6/30/2005 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Asset Class** | **Ohio STRS Actual** | **Maryland Retirement** | **Ohio PERS** | **Texas TRS** | **Georgia TRS** | **PA PSERS** | **State of Michigan** | **SWIB** | **Custom Peer Group Average** |
| **Defined Benefit Assets ($ millions)** | $56,182 | $33,000 | $64,967 | $91,285 | $45,118 | $51,765 | $49,521 | $63,996 | $57,093.14 |
| **U.S. Stocks** | 44.0% | 48.8% | 46.2% | 52.7% | 52.32% | 42.0% | 48.2% | 41.4% | 47.37% |
| **Non-U.S. Stocks** | 21.0% | 15.9% | 20.0% | 14.5% | 8.49% | 20.6% | 11.4% | 21.1% | 16.00% |
| ***Total Publicly-Traded Stocks*** | *65.0%* | *64.7%* | *66.2%* | *67.2%* | *60.81* | *62.6%* | *59.6%* | *62.5%* | *63.37%* |
| **U.S. Fixed Income** | 18.0% | 29.6% | 24.0% | 27.7% | 38.27% | 15.9% | 16.9% | 20.5% | 24.7% |
| **Int'l Fixed Income** | 1.0% | 0.0% | 1.1% | 0.0% | 0.0% | 5.6% | 0.0% | 7.8% | 2.07% |
| ***Total Fixed Income*** | *19.0%* | *29.6%* | *25.1%* | *27.7%* | *38.27%* | *21.1%* | *16.9%* | *28.3%* | 26.77% |
| **Real Estate Equity** | 7.0% | 2.4% | 4.6% | .30% | 0.0% | 5.2% | 7.9% | 3.0% | *3.34%* |
| **REITS** | 1.0% | 2.7% | 1.3% | 0.0% | 0.0% | 1.9% | 0.0% | 0.0% | 0.84% |
| **Real Estate Mortgages** | -- | -- | -- | | -- | -- | 0.0% | 0.0% | 0.00% |
| **Alternatives/ Private Equity** | 3.0% | 0.5% | 0.7% | 1.70% | 0.0% | 9.6% | 11.6% | 2.3% | 3.77% |
| **Hedge Funds** | 0.0% | 0.0% | 0.0% | 1.4% | 0.0% | 0.0% | 0.0% | 0.0% | 0.20% |
| **Short-Term/Cash** | 4.0% | 0.0% | 1.1% | 1.8% | .92% | -0.8% | 4.0% | 2.2% | 1.32% |
| **Commodities/ Inflation Protection** | 0.0% | 0.0% | 0.9% | 0.0% | 0.0% | [5% TIPS] | 0.0% | 0.0% | |
| **Other (STRS Timber)** | 1.0% | 0.0% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 1.7% | 0.26% |
| **Total** | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

### i. Portfolio Risk

## FUNDAMENTAL PRINCIPLES REGARDING PORTFOLIO RISK:

- *An asset allocation study, and even better, an asset liability study should produce a portfolio whose expected return and risk characteristics are both acceptable. A study also needs to demonstrate how the recommended allocation and expected rate of return satisfies other funding requirements, such as satisfying the actuarially assumed rate of* *return, its impact on the funded status (e.g., whether it will meet funding requirements), or how it may influence contribution levels.*

## OBSERVATIONS REGARDING PORTFOLIO RISK:

- In our opinion, the 2000 Asset Allocation Study did not sufficiently explain the expected risk of the recommended asset allocation. Neither it nor any subsequent planning documents (e.g., Annual Investment Plan) demonstrates how the STRS' asset allocation satisfies any of the funding requirements. This is not to say that the asset allocation is inappropriate, but that the STRS has an obligation to demonstrate why the asset allocation is appropriate.

- The 2000 Asset Allocation Study established 8% as the appropriate expected rate of return, when the actuarial rate at that time was 7.75%. (The actuarial rate of return was raised to 8% in the 2003 Actuarial Report.) It is unclear why an asset allocation study would establish a higher expected rate of return without justifying it relative to the actuarial rate. The possible increased expected risk associated with a higher rate of return might expose the Fund to unnecessary and unwanted risks and there appeared to be an unstated need to earn a higher rate of return than the expected return.

- The 2000 Asset Allocation Study does not measure returns and probabilities for a consistent set of time periods, nor with a consistent level of equities, sometimes 65% and sometimes 70%. It is difficult to assess each scenario when there is not an "apples to apples" application of information.

- The 2000 Asset Allocation Study does not consistently measure the probability of achieving or underperforming 8% over uniform time periods. IFS believes that all examples should have shown the probabilities for expected returns over short (one year) and long periods, perhaps 20 years, the time horizon mentioned in the System's IPS.

- The 2000 Asset Allocation Study does not link the probability of earning an expected return with the ability of the System to meet other funding requirements and does not link asset allocation with the risk budgeting exercise performed annually by the Investment Staff.

- The 2000 Asset Allocation Study demonstrated that with a 70% allocation to equities, the System has a 51% probability of earning 8% in any single year, but does not state whether that is sufficient to continue to meet long term funding requirements.

- The 2000 Asset Allocation Study demonstrated that with a 70% allocation to equities, the System has a 69% probability of earning 8% over an 11 year time horizon, the duration of liabilities. The Study does not examine whether this probability satisfies liabilities over 11 year rolling periods, whether there may still be a shortfall or whether any other funding requirement is satisfied by this probability.

- The 2000 Asset Allocation Study states that the STRS asset allocation takes more risk than the average public fund, but the Study does not offer any reason why that is necessary or desirable. We do not know what drives the recommended level of risk: if the actuarial required rate of return at 8% is too aggressive in order to satisfy the expected funded ratio of 80% and the amortization period of 30 years; or if cash flows (expected contribution levels + investment returns – future expected benefit levels) are expected to be worse off than similar teachers' retirement systems. Moreover, the Study does not set forth its objectives, which would include these actuarial, financial and investment goals.

| Recommendation A24 |
|---|
| *The 2005 Asset Liability Study helps to improve many of the deficiencies of the earlier study. IFS continues to recommend that STRS engage in an asset allocation study at least every three years. IFS continues to recommend that an asset allocation study provide volatility analysis, e.g., showing how a 1% change in expected rates of return in both directions would impact the System's key targets and funding requirements: liabilities, assets, unfunded liability, and funded ratio.* |

### j. IFS MVO Analysis

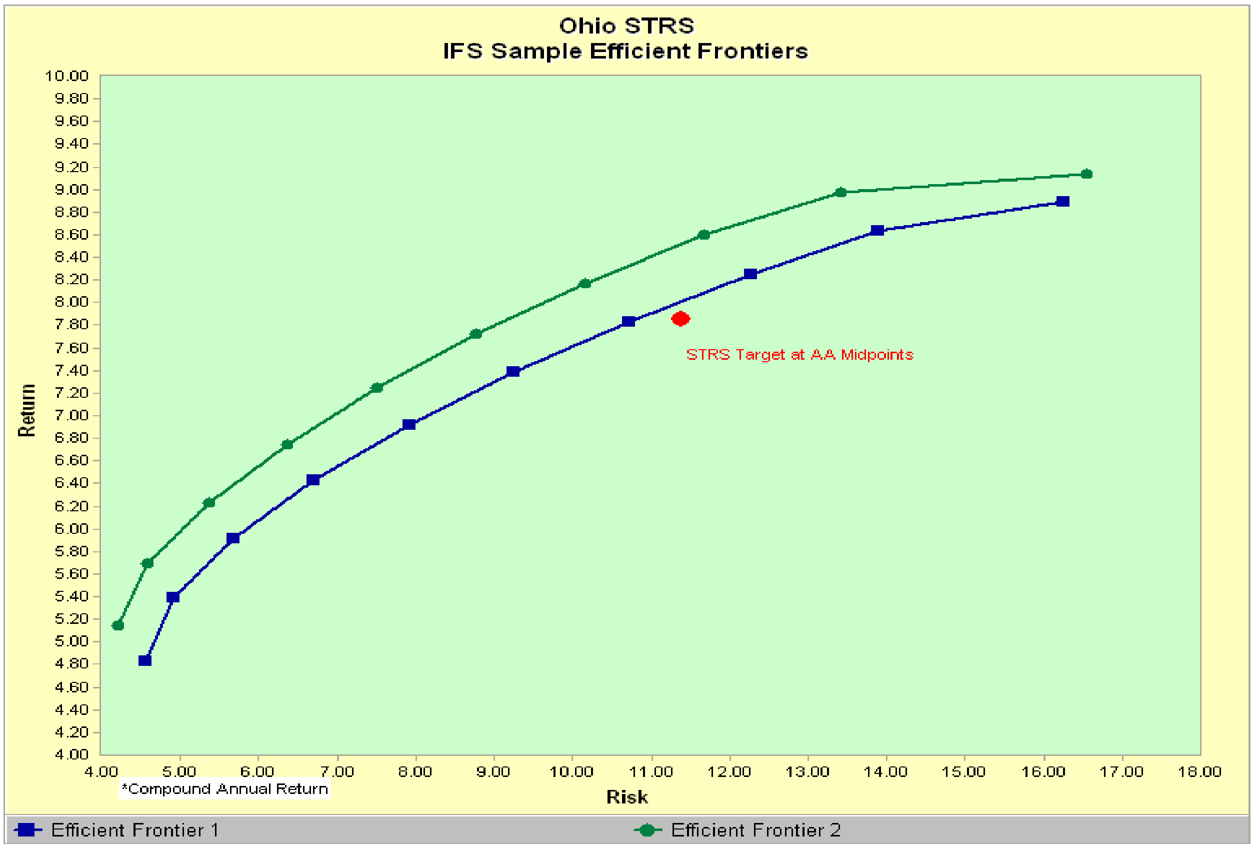
- IFS conducted a sample mean variance optimization using our assumptions for 2004 and we discuss the results below. We imposed a few constraints on our analysis (limiting the maximum amount allowed in a few asset classes), which we show below along with our risk and return assumptions in Table A24 below:

| Table XX: IFS MVO Inputs | | | | | | |
|---|---|---|---|---|---|---|
| IFS Asset Allocation Assumptions for 2004 | | | Efficient Frontier 1 | | Efficient Frontier 2 | |
| Asset Class | Expected Return | Expected Risk | Asset Min. % | Asset Max. % | Asset Min. % | Asset Max. % |
| **U.S. Stocks** | 8.5% | 17.0% | 0% | 100% | 0% | 100% |
| **Int'l Stocks** | 8.5% | 17.0% | 0% | 25% | 0% | 25% |
| **Fixed Income** | 4.5% | 5.0% | 0% | 100% | 0% | 100% |
| **TIPS** | 4.5% | 5.0% | 0% | 0% | 0% | 10% |
| **Real Estate** | 7.0% | 10.0% | 0% | 10% | 0% | 10% |
| **Private Equity** | 11.7% | 30.0% | 0% | 5% | 0% | 10% |
| **Hedge Funds** | 8.0% | 9.0% | 0% | 10% | 0% | 10% |
| **Cash** | 3.4% | 1.5% | 0% | 5% | 0% | 5% |

- For illustrative purposes, we used MVO to calculate two efficient frontiers. Efficient Frontier 1 includes allocation to all the asset classes currently employed by STRS and the analysis was constrained to allow only modest increases to a few asset classes, such as private equity, international equity and real estate. For Efficient Frontier 2 we allowed a greater allocation to private equity and included TIPS and hedge funds as possible additional asset classes, up to a maximum of 10% each. The chart below, which shows the two efficient frontiers, illustrates the benefits of the increased diversification provided by investing in additional asset classes – Efficient Frontier 2 allows for a greater expected return for a given level of risk than the portfolios on Efficient Frontier 1.

## OBSERVATIONS REGARDING IFS' MVO ANALYSIS:

Given current constraints, the target portfolio is fairly efficient, but could be enhanced with increased diversification.




- Table A25 below shows the return, risk (standard deviation) and the return/risk ratio for ten sample portfolios that lie on the two sample efficient frontiers. For example, even though the STRS Target lies relatively close to Efficient Frontier 1 in the chart above, Table A25a shows that Portfolio 7 has a similar expected return with a slightly lower level of risk.

**Table A25a: Efficient Frontier 1**

| Asset Class | Ohio STRS Target % | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Return** | 7.85 | 4.83 | 5.38 | 5.92 | 6.43 | 6.92 | 7.39 | 7.83 | 8.24 | 8.63 | 8.89 |
| **Risk** | 11.38 | 4.56 | 4.91 | 5.69 | 6.69 | 7.91 | 9.25 | 10.72 | 12.27 | 13.89 | 16.25 |
| **Return/Risk** | 0.69 | 1.06 | 1.10 | 1.04 | 0.96 | 0.87 | 0.80 | 0.73 | 0.67 | 0.62 | 0.55 |

- The differences are more significant in Table A25b where a portfolio lying between Portfolios 6 and 7 would have a similar expected return and a significantly better Return/Risk ratio.

**Table A25b: Efficient Frontier 2**

| Asset Class | Ohio STRS Target % | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Return** | 7.85 | 5.14 | 5.70 | 6.23 | 6.75 | 7.24 | 7.72 | 8.17 | 8.60 | 8.98 | 9.13 |
| **Risk** | 11.38 | 4.20 | 4.57 | 5.36 | 6.37 | 7.51 | 8.77 | 10.17 | 11.67 | 13.41 | 16.56 |
| **Return/Risk** | 0.69 | 1.22 | 1.25 | 1.16 | 1.06 | 0.96 | 0.88 | 0.80 | 0.74 | 0.67 | 0.55 |

- We understand that it would be difficult for the System to increase its private equity allocation to 5 or 10% in a short amount of time, but we do believe that additional allocations to more "alternative" asset classes will add value over the long-term.

**Recommendation A25**

*As a result of the 2005 Asset Liability Study, STRS increased its allocation to alternative investments from 2% to 3%. Future studies should continue to assess whether it adds value to the total Fund to increase the allocation further.*

- As discussed earlier in this section, examination of the probability of Total Fund returns achieving (or not achieving) certain rates of expected return over short and longer-term periods is a meaningful way to look at the overall "risk" of the System's current asset allocation is. Table A26 below examines the probabilities of achieving STRS' target asset allocation:

| Table A26: STRS Target AA Probability Analysis | | |
|---|---|---|
| **Consecutive Time Periods** | **Probability of Return > 0.0%** | **Probability of Return > 8.00%** |
| **1 Year** | 76.1% | 48.4% |
| **10 Years** | 97.8% | 49.7% |

- As Table A26 shows, IFS' analysis indicates that a portfolio using the current midpoints of the asset allocation analysis as the target, STRS would have a 49.7% chance of meeting the actuarial assumed rate of 8% over a ten-year time frame. With this current target asset allocation, both the probability of beating the actuarial rate and avoiding a negative return improve over the ten-year time frame.

### k. Rebalancing Ranges and the Rebalancing Process

## FUNDAMENTAL PRINCIPLES OF REBALANCING:

- *Rebalancing is the process of re-adjusting the proportion of a portfolio invested in each of the major asset classes to within the permissible range around long-term targets. Over time, disciplined rebalancing can enhance performance and manage overall risk. A rebalancing program should be implemented and followed on a disciplined basis.*

- *Rebalancing ranges around long-term targets should be designed to ensure that asset allocation "drift" is controlled in a cost-effective way.*

- *The IPS should describe the process and timing for rebalancing. The fund may choose to rebalance only when an asset class exceeds its range or it could choose to have a more systemized approach and rebalance every quarter, semi-annually or annually, for example. Rebalancing more frequently can reduce tracking error to the fund's policy benchmark, but it will also create additional transaction costs.*

- *The IPS should also prescribe whether or not the asset class should be rebalanced to target, half-way to target, merely to within the range or whether the CIO has discretion.*

- *Rebalancing to the target, rather than half-way to the target, will also reduce tracking error but again the fund will likely incur slightly higher transaction costs.*

- *Recent studies on rebalancing have shown that the most important factor is having a rebalancing policy. Secondary to that decision is the policy itself. A more risk averse board that wants to have minimal tracking error and is willing to incur slightly higher transaction costs might choose to rebalance at every month end. Alternatively, the Board* *might decide that it prefers to let an outperforming asset class run up to the outer bounds of its range and rebalance only when outside the range and then perhaps half-way to target.*

- *The lack of an adequate documented rebalancing policy leads to an improperly managed asset allocation and unrewarded risk. It could cause rebalancing to occur too frequently (incurring unnecessary transition costs, especially in a very volatile market) or not frequently enough, which could lead to significant policy benchmark risk. Overly frequent rebalancing may also occur if a policy range is too narrow or a target is set too close to the outer limit of a range. Therefore, a Board needs to consider its risk tolerance as well as the practical realities of implementing the rebalancing policy.*

- *Many retirement systems use cash flows to assist in their rebalancing to help minimize transaction costs.*

## OBSERVATIONS REGARDING REBALANCING:

- STRS' rebalancing policy allows flexibility around the asset allocation midpoints. As discussed in Investment Issues Section 1(A), the STRS investment staff, with the approval of the Board, makes small tactical decisions within the annual asset allocation that is approved each year as part of the Annual Investment Plan. For example, the midpoint for domestic equities is 42% and the Investment Staff may decide at the beginning of the year that given its forecasts, it will underweight equities within the allowable range and thus rebalance to a level below midpoint.

- IFS is concerned that this practice could result in the System not taking enough risk or taking too much risk in any given year, particularly if annual asset class forecasts prove to be wrong. In addition, we understand that staff will rebalance intra-month. It may not be cost effective to rebalance that frequently as letting winners run and losers correct over such short time spans may actually contribute positively to performance.

| **Recommendation A26** |
| --- |
| *The STRS rebalancing policy is clear and followed closely, however STRS may want to reconsider having a policy that allows the investment staff to rebalance as frequently as intra-monthly.* |

## I. Board Member Awareness of Process and Risks Involved

### FUNDAMENTAL PRINCIPLES REGARDING AWARENESS OF PROCESS AND RISKS:

- *A board of trustees may hire experts to advise them and delegate authority for investing fund assets. However, delegation is not abdication. The Board is ultimately responsible for the assets under its control and may be liable for failure to follow a prudent process to understand how and with whom fund assets are being invested. It is responsible not only for the establishment of policy but also for the monitoring the effectiveness and efficiency of such policies.*

- *It is essential that the Board members understand the process used to develop the asset allocation recommendations and that the process is reasonable and fundamentally sound.*

- *The Board members should also be made aware of the risks involved with various asset classes and asset allocations and be comfortable with the capital market assumptions used.*

### ANALYSIS:

In order to develop our observations regarding this subject matter, we discussed the asset allocation process with Board members and staff and reviewed relevant documents. The asset allocation report does show the expected overall risk of the portfolio and the projected risk of various asset classes, although it could be improved as recommended earlier in this section.

### OBSERVATIONS REGARDING AWARENESS OF PROCESS AND RISKS:

- IFS found that investment staff are keenly aware of the process used to develop and maintain asset allocation and understand the risks involved; however the documents don't convey this fully. The staff has acknowledged that some planning aspects of the program could be improved.

- Through the interview process, we learned that Board members rely heavily on the advice of the consultant and although they maintain authority of the System's asset allocation, they delegate many of the daily investment decisions to staff. Many of the STRS Board members are fairly new to the Board, so it is important for them to receive education on investment issues, especially regarding the asset allocation process and the types of risks involved.

## 7. Brokerage Practices

### a. Measuring Transactions Costs

**FUNDAMENTAL PRINCIPLES REGARDING MEASURING TRANSACTIONS COSTS:**

- *Transaction costs are the costs incurred when buying or selling assets. There are explicit transaction costs – such as commissions – as well as implicit transaction costs, such as the bid-ask spread, and timing risk costs. Implicit costs are much more difficult to measure. These concepts are discussed below.*

- *Institutional investors spend considerable effort in tracking and mitigating their transaction costs.*

- *Brokerage – defined broadly as the process, paying a fee or commission, for transacting purchases and sales of securities – is a material factor in a fund's investment rate of return.*

- *The most visible and easily measurable part of trading cost is the broker's commission, but this tends to be the smallest part of total trading costs.*

- *More significant is the price paid or received for the security relative to the "market" (ideally, a low price on a purchase, a high price on a sale). (As discussed below, the effectiveness of brokerage to obtain this relative price is called "quality of execution"). Part – but only part – of this execution cost is the bid-asked spread in the security.*

- *Timing of the transaction within the ebb and flow of intra-day and day to day prices may affect the economics of the transaction to a greater extent. These factors beyond commissions are difficult to measure because they depend on a hazy baseline and because the effect is included in the transaction price rather than being separately stated.*

- *Control over the price obtained for a security's purchase or sale (so-called "quality of execution") rests largely with the investment manager initiating the trade, whether an in-house portfolio manager or an external investment management firm, and partly with the broker effectuating the trade. Aspects of this control include (a) selecting as qualified* *brokers capable brokerage firms that employ capable "sell-side" traders, (b) placing each trade with the broker most likely to be able to make the trade at the best possible combination of pricing factors, and (c) staffing with capable "buy-side" traders to monitor and work the trade with the brokers.*

- *The process of effecting trades that on average achieve favorable price results under the relevant circumstances is called "best execution." This subsumes the interplay of commission, market impact, timing, ability to execute, additional services provided, etc. within the context of the urgency of the trade and the activity of the market. Thus, best execution, is more of a subjective goal than a measurable quantity and is more often recognizable in its absence than its presence.*

- *Various firms offer systems to measure cost and quality of execution. They vary in using different models to establish the baseline against which the actual transaction price is measured. These vary from simple average prices for the day (e.g., average of open, high, low, close) to more complex averages (e.g., volume weighted average price) to highly complex algorithms that track price movements minute by minute and even for several days after the trade. Whether the complex methods yield more relevant results remains an open debate. In all cases, though, the system provides meaningful results only as averages over many transactions; there are too many variables in the market to measure quality of execution definitively on individual trades except in extraordinary circumstances.*

## OBSERVATIONS REGARDING STRS' MEASUREMENT OF TRANSACTIONS COSTS:

- STRS *currently* measures and evaluates transactions costs through two different third party services and is developing its own additional measuring system.

- Historically, STRS has utilized a transaction costs service provided by Birinyi Associates, but then shifted to a service Fidelity offers and, most recently, to a service called ITG Transaction Cost Analysis. The stated reason for the shift is, in essence, that the ITG service is more tailored to the types of trading STRS performs, including, e.g., substantial amounts of basket, program and execution only trades.

- Using a third party service is an increasingly common practice among substantial public pension funds and, we believe, can be a useful tool in identifying and controlling transactions costs.

- As of the date of our field work in 2004, the vast majority of STRS' domestic equity assets were internally managed. At that point in time, STRS measured transactions costs regarding only those assets managed internally and not the transactions costs of its external equity managers. As of early 2006, STRS advised us that it did not utilize a transaction cost analysis firm to evaluate the transaction costs of any of its external, publicly-traded equity managers.

- At the outset of hiring external managers for international equity, STRS used a transaction cost analysis firm to evaluate the transaction costs of such managers. Once that evaluation demonstrated that the international managers achieved good quality execution, STRS discontinued evaluating such costs.

- STRS continues to evaluate the trading practices of its external managers in a more general fashion, including through the overall monitoring and evaluation of those managers by the System's investment consultant, Frank Russell, and by staff's review of those managers (specifically, through the Director of Investment Operations).

- Measuring the transactions costs of external managers can be a useful tool for effectively managing those firms and STRS should implement that practice, just as it does regarding its internal portfolio managers.

- Other large public pension funds comparable to STRS – including those with significant amounts of internal asset management, e.g., the Ohio Public Employees Retirement System – measure and evaluate the transactions costs of their external managers as well as their internal managers. Apart from STRS, 100% of the peer group that responded to our survey reports that it quantitatively measures and evaluates transactions costs and nearly half utilize a third party firm for that purpose. We believe measuring such costs is especially sensible for STRS because – as discussed below – it does not employ any commission recapture services and relies on its external managers to utilize the System's commissions effectively.

- Not measuring the transactions costs of its external managers exposes STRS to the unnecessary risk of not sufficiently containing such costs. The price of regularly measuring and evaluating transaction costs should be modest relative to the value of assuring best execution.

**Recommendation A27**

*We recommend that STRS arrange, at least periodically, to measure the transactions costs of its external, active domestic and international equity investment managers and use those measurements to assist in monitoring and controlling the managers' use of STRS commissions.*

### b. Evaluating Transactions Costs

## OBSERVATIONS REGARDING EVALUATION OF TRANSACTIONS COSTS

- Based on his own familiarity with the activities of the System's traders, the Portfolio Manager for Quantitative & Structured Products & Equity Trading regularly evaluates the quality and effectiveness of the System's own traders.

- Both the System's investment consultant and Director Investment Operations evaluate generally (but without rigorous quantitative analysis discussed above) the trading practices of the external managers.

- The manager search process also includes – as one factor among many – the nature and effectiveness of each candidate's securities trading practices.

- While it still utilized a third party transaction cost analysis service, STRS' practices regarding evaluating transactions costs – using such third party reports and input from the investment consultant – generally conformed to common industry practice and thus appeared reasonable.

- The one proviso to this finding is that STRS does not and should also, measure and evaluate the transactions costs of its external managers. (See Recommendation immediately above.)

### c. Controlling Transaction Costs

- We believe that assessing the extent to which STRS effectively controls transaction costs is best done in the context of several distinct topics, including the adequacy of its:

  - Overall documented brokerage policies and procedures;
  - Policies regarding selection and use of minority and women-owned brokers;
  - Policies regarding selection and use of in-state broker-dealers;
  - Policies regarding soft dollar converters (defined below); and
  - Policies regarding commission recapture.

- We provide our conclusions regarding the adequacy of each of the distinct topics related to controlling transaction costs in our observations that follow.

### 1) Documentation of Brokerage Policies and Procedures

**OBSERVATIONS REGARDING DOCUMENTATION OF BROKERAGE POLICIES AND PROCEDURES IN THE CONTEXT OF CONTROLLING TRANSACTION COSTS:**

- Brokers who execute securities transactions on behalf of the Board are subject to an evaluation, selection and use process conducted by the investment staff and reviewed by the Board on a semiannual basis. This semiannual process is commonly known as the "Broker Evaluation" and is governed by a formal document with that name. Following passage of S.B. 133, effective September 15, 2004, the STRS Board reaffirmed and ratified the existing criteria and procedures from the Broker Evaluation.

- Brokers selected by the investment staff in the Broker Evaluation constitute the list of Approved Brokers.

- The Broker Evaluation document reflects numerous commendable policies and practices, including:

  - Distinguishing among different types of trades and different aspects of value in trading services, as well as evaluating brokerage firms in light of those distinctions. For example, STRS evaluates brokers in terms of the quality and value of their:

    - ✓ research (provided in connection with certain types of transactions);

    - ✓ "execution-only" capabilities (i.e., trades that do not involve providing STRS research or other soft dollar services in exchange for the commissions paid). This is especially relevant to various quantitative, passive and enhanced indexing strategies;

    - ✓ execution capabilities regarding difficult trades that require the broker to "work" the trade over several days or require commitment of broker capital;

  - ✓ soft dollar converter capabilities. A broker acts as a "converter" by relaying part of the commission from STRS to a third party that provides other goods or services to STRS and which STRS would otherwise pay directly, through "hard dollars." E.g., if a pension fund receives research from a third party firm, it may either direct a converter to pay the firm in soft dollars or the fund may directly pay the firm in "hard" dollars; and

  - ✓ derivatives trading.

- o Voting by relevant investment staff to rank and select the various broker-dealers they desire for the various types of trades;

- o Following detailed policies and procedures (explained more fully below) regarding converter trades;

- o Articulating standards of independence between the staff at broker-dealers STRS uses for research and the investment banking departments of such firms; and

- o Following various processes and standards for selecting and ranking minority and women-owned brokerage firms.

- Staff has recently also incorporated adjustments to the Broker Evaluation which – according to its November 17, 2005, memorandum to the Board – are designed to improve the quality of securities execution. These changes include:

  - o Increasing the number of firms on the approved list to give greater range of choice;

  - o Eliminating the maximum limits on the number of "Ohio and Emerging" brokerage firms on the qualified list;

  - Eliminating the specific allocation of brokerage dollars to Ohio and Emerging brokerage firms;

  - Allowing traders flexibility to use firms that are not on the regular approved list if such firms appear to offer best execution, provided the trader obtains special permission for such firm; and

  - Eliminating equipment and professional services as eligible for soft dollar trades.

- We find STRS' brokerage policies, in the form of its Broker Evaluation, to be generally detailed and comprehensive. But, these policies would benefit from the following enhancements:

  - The policy should specify the criteria investment staff should consider when voting for and ranking brokers in light of the different types of trading capabilities (research, execution-only, execution quality, converter trades, derivatives trading).

  - As currently drafted, the Broker Evaluation policy does not articulate particular criteria for assessing a brokerage firm's trading capabilities, e.g., capabilities regarding particular categories of stocks (large cap v. small, New York Stock Exchange vs. NASDAQ), particular types of trades, ranking according to any transaction cost analysis service, particular types of trading technology and analysis they provide, etc. As a result the selection and ranking process is not particularly transparent or structured.

- Other major public pension funds – including, e.g., Texas Teacher Retirement System, Illinois Teacher Retirement System and Ohio PERS – select brokers based on additional articulated criteria (including, for example, criteria concerning ability to provide best execution, as noted above and many of the criteria itemized below in Section 2).

**Recommendation A28**

*Enhance the policy by articulating the factors staff should consider when voting on and ranking brokers.*

### 2) Selection And Use Of Minority And Women-Owned Brokers

## OBSERVATIONS REGARDING POLICIES ON SELECTION AND USE OF MINORITY AND WOMEN-OWNED BROKERS, IN THE CONTEXT OF CONTROLLING TRANSACTION COSTS:

- The STRS brokerage policy includes a document called "Ohio and Emerging Brokerage Firm Procedures" (the Procedures) which the Retirement Board Investment Committee approved first in November 1999 and reaffirmed in February 2005. The Procedures were further modified in November 2005 to include additional specific criteria for firms to qualify for the Approved Brokers list. The Procedures provide general guidance regarding selection of Ohio and "emerging" brokerage firms. Additionally, as part of the process to include Ohio and emerging firms, candidates are required to complete a questionnaire that reflects additional criteria and they are scored on their responses. The roster of brokers included in STRS' program includes a number of emerging and women-owned firms. Thus, like most (approximately 71%) of the custom peer group that responded to our survey, STRS has adopted a written policy on use of in-state and minority-owned broker dealers.

- The combined set of Procedures and questionnaires is well-designed to seek a breadth of information relevant to selecting brokerage firms, including Ohio and emerging firms. We believe, however, that the STRS brokerage Procedures and questionnaires should be enhanced by including more detail and criteria regarding selection and ranking of minority and women-owned brokers, including objective criteria concerning ability to provide quality execution. This is especially true now, in light of the requirements of SB 133, which encourages use of Ohio and emerging brokers.

- The STRS Board adopted the Ohio Investment Manager and Broker Policy and Program in December 2004. The Policy and Program acknowledges its goal to increase the use of Ohio-qualified brokers and indicates that it intends to keep the current level of brokerage commission dollars allocated to brokers on the Ohio and Emerging Broker Firm Sublist (now part of the consolidated list of Approved Brokers).[34] This goal, in the face of acknowledged declining brokerage commission dollars allocated to all brokers, in effect increases the percentage of brokerage allocated to Ohio and Emerging brokers.

- In other states where the public retirement systems encourage (and may be statutorily required to encourage) use of in-state, local, and/or women and minority brokers, e.g., the Teacher Retirement Systems of Texas and Illinois, usage is typically conditioned on meeting detailed, objective criteria regarding each candidate's ability to provide "best execution." Based on our review of the STRS documents provided, we found many, but not a sufficiently complete list of these, criteria. Without a complete list of such criteria, STRS runs the risk of selecting firms that are not able to provide best execution, even if they meet other criteria, apart from the Fund's economic interest. In light of best practices we have observed, a well-articulated policy should specify criteria designed to assure brokerage activities serve the Fund's economic interest. Such a policy should include the following criteria, among possible others:

    - whether and why to utilize firms that are only introducing brokers[35] and not executing brokers;

[34] It is unclear whether the Ohio and Emerging Brokerage Firm sublist has been absorbed into the consolidated list, or whether it continues to exist as an identifiable sublist, as appears from the Ohio Investment Manager and Broker Policy and Program appearing on the STRS website at http://www.strsoh.org/pdfs/OH_manager_broker_policy.pdf (viewed April 30, 2006).

[35] An introducing broker ("IB") is a firm that "introduces" the client investor to – or helps generate trading business for – the separate broker dealer that actually performs the trade (i.e., executes and clears it).

- whether and why to permit step-out trades;[36]
- capital strength;
- institutional trading experience;
- track record of quality trade execution;
- research capabilities;
- access to underwritings/new issues; and
- back office capabilities, including trade accounting, post-trade analysis and ability to handle straight through processing of trades.

• The STRS Procedures and questionnaire expressly address many – but not all – of these criteria. For example, the Procedures and questionnaire require candidates to submit audited financial statements (relevant to assessing the criterion of "capital strength" listed above) and to explain their access to underwritings (but only regarding fixed income securities) and their research capabilities (for both equities and fixed income). The questionnaires also might be interpreted as asking for information on some of the other criteria listed above, but not all, e.g., they do not appear to probe all key aspects of back office capabilities or to seek data demonstrating the track record of each candidate in providing quality trade execution. Even where the brokerage questionnaire does address a particular criterion, the Procedures may not reflect any Board policy on the matter. For

[36] A step-out is an arrangement whereby a portion of the commission on a trade completed by an execution or full service broker, is allocated to another broker, even though the latter did not participate in executing or clearing the trade. Hypothetically, for instance, some pension funds may permit step-outs in order to benefit an approved in-state or minority-owned broker that serves as an introducing broker. STRS' staff advises us that STRS arranges for step-outs with Ohio-qualified or minority firms that are introducing brokers only where that firm provides STRS valuable research. In that sense, the "IB" is not merely or purely "introducing"; it also is providing further value to the System. However, this requirement for research from IBs is not formally documented as a matter of policy and is an example of the sort of criterion that the policy should reflect.

example, while the equity questionnaire asks whether the candidate clears its trades through another firm (which effectively asks whether the candidate is merely an introducing broker ("IB")), the Board has not, to our knowledge, adopted any policy regarding use – or exclusion – of IBs and step outs.

| **Recommendation A29** |
| --- |
| *The STRS policy and procedures governing the selection of emerging and women-owned brokers should articulate additional objective criteria and policies regarding such selections and each candidate's ability to provide best execution.* |

### 3) Selection And Use Of In-State Broker-Dealers

## OBSERVATIONS REGARDING SELECTION AND USE OF IN-STATE BROKER-DEALERS POLICIES IN THE CONTEXT OF CONTROLLING TRANSACTION COSTS:

- Senate Bill 133 now requires each of the state's five public retirement systems to adopt policies with the goal of increasing use of Ohio-qualified agents to execute domestic equity and fixed income trades on their behalf, when such agent offers quality, services and safety comparable to agents otherwise available. In this, Ohio law is similar to several other states, where statutes likewise encourage use of in-state brokers, e.g., Illinois and South Carolina. In our experience, such usage is – as with use of minority-owned firms – typically subject to objective standards of best execution.

- Along with other statewide pension funds in Ohio, STRS has prepared a coordinated process for developing and maintaining a list of Ohio-qualified brokers. This is detailed in a June 1, 2005, memorandum from Ohio PERS to the ORSC. However, the process does not set forth criteria for assessing whether the firms deemed "Ohio-qualified" are likely to provide best execution.

| **Recommendation A30** |
|---|
| *For reasons parallel to those cited above regarding selection and ranking of minority-owned firms, we believe that the STRS brokerage policy should articulate specific criteria to govern selection and ranking of in-state brokers. These criteria should be designed so using Ohio-based broker dealers is allowed only insofar as such firms provide STRS best execution, as objectively measured.* |

- We have reviewed a proposed reporting format for reporting by the Systems to the ORSC regarding their use of both minority-owned and in-state brokers. (The form was attached to a September 13, 2004 memo from all five Executive Directors to their respective Chief Investment Officers.) The form is designed generally to capture what seems to be the relevant, statutorily-required information. The one caveat is that the form does not request information regarding trading done with minority-owned firms that are not Ohio qualified brokers. As a matter of policy, we do not know whether this is information the ORSC wants to capture and consider.

### 4) Use Of Soft Dollar Converters

## FUNDAMENTAL PRINCIPLES REGARDING SOFT DOLLAR CONVERTERS:

- *A securities trade performed through a "converter" involves the System paying a commission to that converter and the converter, in turn, relaying a portion of that to a third party that has provided services to the System; absent that mechanism, the System is obligated to directly pay the third party in conventional "hard dollars."*

- *Converter trades are a form of soft dollar trading; the soft dollars are remitted to the third party, on behalf of the System, rather than rebated to the System (so-called "commission recapture").*

## OBSERVATIONS REGARDING USE OF SOFT DOLLAR CONVERTERS:

- While various public pension funds engage in converter trades for a variety of reasons, STRS appears to use such trades considerably more heavily than its peers.

- According to a 2004 study of STRS by Cost Effectiveness Measurement ("CEM"), approximately 8% of trades by comparable public funds in 2003 were converter trades. By contrast, based on our interviews of STRS staff, we understand as a matter of policy, STRS has historically allowed as much as 30% of its commission dollars for converter trades and that in 2003, over 20% of STRS' trades were through converters. STRS used such trades to pay for significant costs that it would otherwise have paid through direct "hard dollars."

- Since 2003, however, and as we prepared this report, STRS reported trimming the volume of converter trades from $3.5 million in fiscal year ("FY") 2004, to $3 million in FY '05 and $2.5 million in FY '06. STRS previously projected that in FY '07, the value of converter trades "should be near zero" and more recently, informed us that it will complete phasing out the use of soft dollars by July 1, 2006.

### 5) Unbundled Trades Vs. Converter Trades

## OBSERVATIONS REGARDING UNBUNDLED TRADES VS. CONVERTER TRADES:

- Whether use of converter trades is a cost effective use of STRS' commission dollars is debatable.

  - On the one hand, to attract full service brokers who provide quality execution on demanding trades, the System is forced to pay four to five cents per share in commission and the brokers in those situations will include, for no extra charge, the converter services. In other words, using such brokers, even if STRS declined the converter services, it arguably would still pay the same four to five cents per share.

  - On the other hand, some observers forcefully argue that a large institutional investor like STRS is in a position to demand a more "unbundled" approach, where trading services and costs are more tailored to each situation and thus, ultimately, more economic. According to this line of thinking, STRS may pay third parties more economically directly in hard dollars and trim their brokerage costs. Admittedly, such hard dollar payments are more visible on the budget than the soft dollars involved in converter trades, but greater transparency might be preferable from a public policy perspective.

- Which side of the debate is more persuasive may partly turn on the "conversion ratio" that STRS negotiates with each relevant broker. In converter trades, the amount the converter remits to the third party is calculated in light of an agreed-upon conversion ratio. For example, if for every $1.40 in commissions, the converter remits $1 to the third party, the ratio is 1.4 to 1 (or, for simplicity's sake, "1.4"); if only $1.30 in commissions is necessary for remitting $1, the ratio is 1.3.

- We understand STRS typically pays at a ratio of 1.4. Although that is quite competitive, we have seen ratios as low as 1.3 elsewhere, e.g., Texas TRS.

- In light of all the foregoing considerations, we endorse STRS' decision to reconsider its policies and practices regarding converter trades, specifically, by increasing its unbundled trades and decreasing its converter trades.

- STRS has adopted several express, sound policies and procedures regarding use of converters. These are included in its Broker Evaluation Forms. These include:

    - budgeting for converter trades, i.e., itemizing by broker the amount of trading scheduled for the coming six months and for which services or products that STRS utilizes in its investment program;

    - enumerating the types of services or products that STRS may acquire through such converter trades; and

- o requiring conciliation of converter trades with STRS' own records. Based on our interviews, we understand this reconciliation and related processes includes comparing the commissions paid to each broker to the budget, assuring that STRS did indeed receive the expected services or products and staff's approving payments to vendors before the respective broker is authorized to make that payment.

### 6) Commission Recapture

## FUNDAMENTAL PRINCIPLES REGARDING COMMISSION RECAPTURE:

- *Commission recapture refers to the process of an investor paying a certain amount of commissions for a trade and through a "recapture agent" receiving a rebate of part of the soft dollar component of the commissions. Commission recapture presumes that some part of the commissions expended are "fat" and thus, should be recaptured by the investor.*

- *Use of commission recapture by pension funds across the U.S. is widespread. According to a study issued in 2005 by Greenwich Associates, among public pension funds valued in excess of $5 billion, 48% use some form of directed brokerage. A 2002 survey by Lynch Jones & Ryan found that 68% of respondents used directed brokerage or commission recapture. Among the peer group that responded to our survey, 50% reported use of commission recapture.*

## OBSERVATIONS REGARDING COMMISSION RECAPTURE POLICIES IN THE CONTEXT OF CONTROLLING TRANSACTION COSTS:

- STRS' staff persuasively argues that rather than encouraging its external managers to use some amount of commission recapture they seek to directly manage commission costs by closely monitor the overall trading practices of its managers and tightly limit their use of soft dollars.

- Except for the fact that it does not quantitatively measure the transactions costs of its external managers (as noted earlier), STRS appears watchful of its external managers and encourages low-cost trading where appropriate, e.g., through electronic communication networks and limited use of soft dollars for research the managers themselves should prepare.

- We find STRS' approach sensible, provided that it goes the further step of utilizing transactions cost measurement services to evaluate its external managers (as recommended above). Without such measurement services, STRS may not effectively control the managers' use of soft dollars.

## 8. Due Diligence Procedures/Selection of Investment Service Providers

### FUNDAMENTAL PRINCIPLES REGARDING MANAGER SELECTION PROCESS:

- *Hiring managers entails two fundamental steps: 1) defining the market segment in which the manager is to work consistent with the overall plan for the whole portfolio, and 2) selecting managers with a better than average probability of outperforming a passive strategy after costs. If a fund's policies and procedures cover these steps, and if the policies and procedures are followed diligently and competently, the likelihood of achieving investment goals is maximized.*

- *Achieving return objectives is dependent on two decision processes: setting asset allocation and creating individual portfolios, both internally constructed and through selection of investment managers. While it has been demonstrated that the variability of returns – that is the degree one fund's returns differ from another's – is primarily driven by asset allocation, absolute performance within an asset allocation is driven by manager selection.*

- *Not having clear, relevant procedures for selecting investment professionals, or having procedures and not properly following and documenting them creates a number of risks to the fund and its core goal of generating returns sufficient to meet benefit obligations. Given the existence of an asset allocation targeted to meet investment objectives, failing to select managers through an organized process greatly increases the probability that the investment results will not be consistent with the expected results generated by the asset allocation process. Even within the asset allocation paradigm, failing to select managers whose organization, structure, approach, process and controls are understandable, manageable, and historically successful decreases the likelihood of achieving investment goals. While following rational procedures cannot assure future good performance, failing to do so renders the likelihood of good performance small.*

- *Following adequate and effective procedures and documenting the process protects the fund and its fiduciaries. The traditional caveat that past performance does not guarantee future results is inherently true. Fiduciaries are judged, therefore, not on the results of the managers they select, but on the prudence of the process. Having a policy, following it diligently, and documenting the process in detail are the required steps in procedural prudence and is consistent with best practice.*

- *Another benefit of having and following a documented process is that it guards against actual or implied undue influence. Pension funds like STRS generate large investment management fees even where rates are negotiated to low levels. Temptation exists to influence the process by means other than pure investment criteria. Having a formal, open, well-documented process reduces the possibility that either managers or fund representatives can succumb to such temptations.*

- *The process of manager selection should assure that the final selections are consistent with the overall investment program needs and likely to lead to attractive investment results.*

- *Failing to have and follow appropriate procedures imposes financial and fiduciary risk on the fund and the Board.*

## OBSERVATIONS REGARDING MANAGER SELECTION PROCESS:

- The majority of STRS' assets are managed internally. (See our discussion on investment structure in Investment Issues Section 4(A).) Nonetheless, the external manager selection process is still very important.

- STRS has specific criteria and procedures that govern its external manager selection:

  - STRS adopted an external manager selection process in May 2000, which was revised as part of the Ohio Investment Manager and Broker Policy that was adopted by the Board of Directors on December 9, 2004.

  - The process is documented in a one page memo. The memo lists eleven steps in the process and identifies the persons by name responsible for manager selection in each asset class. It is stated to be a list of "*steps … intended to be followed,*" although it is titled as a "process" and referred to as "procedures."

- While the steps specified in May 2000 external manager selection process constitute major activities in a process to identify and hire an external investment manager, including providing that candidates are initially evaluated via a written Request for Proposal ("RFP"), a standard and effective method for conducting initial due diligence on manager candidates meeting basic criteria, the document does not clearly incorporate all the necessary components to make this policy consistent with best practices. Specifically the document should establish the objectives, authority, and controls in the manager selection process. Examples of components that should be added include:

  ✓ the process for determining whether there is a need for a particular type of manager prior to starting the search – the current manager selection document implies that the search be considered within the strategic asset allocation plan, but does not address the actions required prior to the initial documented steps, in which the need for a manager investing in a particular segment within the overall portfolio is to be identified;

  ✓ the position within the organization that is responsible for making the final decision as to which manager out of an approved hire list is chosen (this is implicit but it should be explicit) – the current manager selection policy document establishes that the responsibility for selection rests with staff supported by the consultant, with the hire decisions made by executive staff. Staff is identified by name rather than by title and function, implicitly requiring the memo to be amended whenever turnover occurs;

  ✓ the subject matter of the RFP and the standards applied to assess responses;

  ✓ whether an RFP must be used as opposed to relying on the investment consultant's manager data base;

  - ✓ how, or whether the existence of the RFP and the search need to be published; or

  - ✓ how and against what standards the RFP responses will be analyzed.

- o Finalists numbering about twice the number of managers expected to be selected are interviewed in order to arrive at recommended hires.

  - ✓ There is no established standard in the policy as to the interview's content and standards for making a decision.

  - ✓ The policy does not indicate who attends the interview in addition to the responsible staff person(s) (e.g., CIO, Consultant), who has a vote or other influence on the decision, or what standards govern the selection.

- o The policy provides that the set of firms interviewed is reduced to a hire list, presumably by investment staff into a "hire" list.

  - ✓ Whether this includes firms that are all recommended for hire or only a final set of candidates is not clear.

- o The hire recommendations are approved by the Executive Director and Director of Investments. The list is not required to set forth what materials were made available or on what basis the decision was made.

- The absence of Board involvement in the external manager selection process is consistent with the STRS Statement of Fund Governance related to investment. The Board, through the Executive Director, has delegated authority for retaining, managing, and terminating external managers to the investment staff. However, the manager selection policy does not reference the Governance Statement or the fact that authority has been delegated.

- Complete delegation of the retention, management, and termination of investment managers to staff is atypical for most public pension fund boards. However, there does appear to be a trend now among public pension funds toward giving investment staff more authority for the selection of investment managers. Although even the Boards that have adopted a more high level approach, frequently reserve decision making authority regarding the initiation of the search process and/or require ratification or reporting of hiring determinations.

| **Recommendations A31 – A32** |
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| *Expand the manager selection policy memo to a full policy and procedure document covering all aspects involved in the manager selection and hiring process, including the specific objectives, authority, and controls. Roles and responsibilities in the process should be designated by position rather than by name.* |
| *Amend the manager selection policy to reference the language in the Statement of Fund Governance delegating investment decision making for the selection, management and termination investment managers.* |

## 9. Statutory Provisions and Administrative Rules

### FUNDAMENTAL PRINCIPLES REGARDING STATUTORY PROVISIONS:

- *Unlike private retirement systems that are governed principally by the federal Employee Retirement Income Security Act of 1974, as amended (ERISA), the investment and operation of statewide public pension funds are governed by their respective state laws.*

- *Many of these state laws have not kept pace with and do not reflect modern investment practices. As a result, although the pension fund fiduciaries are required to oversee and prudently invest the fund's assets, they may be unable to (a) optimize returns at an appropriate level of risk and (b) effectively and efficiently operate their investment programs because of outdated constitutional and/or statutory requirements.*

- *In recognition of the changing environment faced by public retirement systems, the National Conference of Commissioners on Uniform Laws (NCCUL) has developed two uniform laws. The Uniform Prudent Investor Act (UPIA) was approved and* *recommended to all states August 5, 1994*[37]*, and the Uniform Management of Public Employees Retirement Systems Act (UMPERSA) was approved and recommended to all states August 1, 1997. (UPIA and UMPERSA are collectively referred to as the "Acts.") The Acts effectively incorporate the major principles of portfolio management developed over the past 50 years of financial research and recognize the need for trustee autonomy in the management and control of trust assets. Thus, the concepts set forth in the Acts are often used as models by pension funds and investment boards to modernize their governance and investment standards.*

- *A number of model practices related to governance are identified in UMPERSA and UPIA.*[38] *These standards are regarded as "best practices" in the administration of a public pension entity. They include (but are not limited to):*

    - *Use of whole portfolio theory as a criterion for investment decision-making;*

    - *No categorical restrictions on investments;*

    - *Standard of care based on a "prudent expert" rule, duty of loyalty and duty to act for exclusive purpose of providing benefits and paying reasonable administrative costs;*

    - *Consideration of asset diversification and risk/return correlation when making investment decisions; and*

    - *Authority to –*

        - ✓ *Delegate functions when executing fiduciary duties, and*

        - ✓ *Make budget, personnel and procurement decisions (including salary levels for personnel and obtaining professional services and resources) solely in the interest of pension fund participants and beneficiaries, rather than in response to a more wide-ranging set of interests.*

    - *Statutes should codify standards and principles which promote prudent investment management in the interest of the participants and beneficiaries.*

[37] UPIA has been adopted by approximately 40 states.
[38] See, National Association of State Retirement Administrators, *Outline of Governance Practices.*" www.nasra.org

### a. Whether Ohio Laws Constrain the STRS Investment Program

**OBSERVATIONS REGARDING WHETHER OHIO LAWS CONSTRAIN THE STRS INVESTMENT PROGRAM**:

- Ohio Revised Code Chapter 3307 sets forth standards and procedures that are generally consistent with modern principles of fiduciary decision-making.

- The state law governing STRS is set forth primarily in Ohio Revised Code Chapter 3307. O.R.C Chapter 3307 articulates standards and procedures consistent with many of the principles and "best practices" identified in ERISA, UMPERSA, UPIA and other sources.[39] For example, Chapter 3307:

    - Requires that the trustees act "with the care skill and prudence . . . that a prudent person *acting in a like capacity and familiar with such matters* would use in the conduct of a like enterprise with like aims."[40] The statute's use of this phrase renders the standard materially more rigorous than the common law "prudent person" standard.[41]

    - Directs the Board to carry out its duties "solely in the interest of the participants and beneficiaries; for the exclusive benefit of providing benefits to participants and their beneficiaries and defraying reasonable expenses of administration;"[42]

    - Requires that the Board "diversify. . . the system's investments so as to minimize large losses, unless under the circumstances it is clearly prudent not to do so;"[43] and

[39] See, S. Halpern and A. Irving, "Identifying and Adopting Best Practices for Institutional Investors," in *Core-Satellite Portfolio Management* (Singleton 2004) at 298-303.
[40] O.R.C. Section. 3307.15(A) (emphasis supplied).
[41] Case law interpreting this standard has described it as the most exacting fiduciary standard developed under American law.
[42] Ibid.
[43] Ibid.

  - o Prohibits transactions between the System and "parties in interest that are not comparable to arms-length transactions between unrelated parties."[44]

- Another positive feature of O.R.C. Chapter 3307, consistent with the trend at other highly developed public pension funds, is the avoidance of a "legal list" approach whereby the statute would impose percentage limits and, in some cases, outright bans on particular categories of investments, without reference to their fitness under the fiduciary standards. Permitting the Board to make investment decisions based upon their prudent consideration of the merits of a particular proposal is consistent with both ERISA and UMPERSA. Indeed, the latter explicitly authorizes public pension fund trustees to "invest in any kind of property or type of investment consistent with" fiduciary standards.[45] By permitting the Board to invest subject to the standard of prudence, the statutory scheme gives the Board the flexibility to evaluate and implement new investment opportunities and techniques on their merits, without having to wait for the legislative process to catch up to developments in the marketplace.

- O.R.C Chapter 3307 contains other features, which, while they impose obligations on the Board and staff, promote the exercise of prudent investment judgment and transparency of process. For example:

  - o The statute requires formal, public adoption by the Board of investment "policies, objectives or criteria . . . that include asset allocation targets and ranges, risk factors, asset class benchmarks, time horizons, total return objectives, and performance evaluation guidelines."

[44] O.R.C. Sec. 3307.181
[45] UMPERSA Sec. 8(a)(4).

- o O.R.C Chapter 3307 also directs the Board to comply with the standards of the Association for Investment Management and Research (AIMR) when it reports on investment performance.[46]

## OBSERVATIONS RELATED TO FEATURES OF THE OHIO LAW THAT CONSTRAIN THE STRS' INVESTMENT PROGRAM:

- The law[47] does not provide the STRS board of trustees' a role in selecting and monitoring the custodian of the fund's assets and thus constrain STRS' ability to ensure it is operating in the most effective and cost efficient manner. (S*ee also discussion in Investment Issues Section 11(A) addressing Ohio custody and providing a flow chart of the entities involved in the custody process.*)

- The current statutory custody model impairs the efficiency and effectiveness of the investment program is the requirement that the Treasurer of State, as the designated custodian of the funds of STRS,[48] selects the sub-custodian for the Board, rather than the Board, and actively performs the custodial functions associated with the safekeeping of STRS' assets and the recording of STRS' holdings and transactions.[49] As a result of the current statutory custody model, STRS is not authorized to be a party to the custodial contract, and the Board cannot negotiate neither the fees nor the specialized, highly systems driven scope of services STRS requires from a custody bank.

- The Ohio custody model was suitable when it was originally created. However, the changing nature of the securities markets and evolution of the basic processes of custody (particularly the custodial requirements essential for multi-billion dollar funds with sophisticated investments) has rendered the current statutory custody model obsolete.

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[46] O.R.C. Sec. 3307.15(B)
[47] O.R.C. Sections 113.051, 135.03, and 3307.12.
[48] O.R.C. Sec. 3307.12
[49] O.R.C. Sec. 3307.15 (C)

Where the model once provided a necessary safeguard, it now is a blueprint for cost inefficiency and added risk.

- o At the time Ohio's statutes affecting custody of pension assets were developed, custody of securities was largely a process of holding negotiable paper securities in safekeeping and of maintaining paper and ink records of holdings and transactions. This reality is confirmed by the language of § 135.18(I) ORC which provides that in order for a bank to qualify as a depository, the superintendent of financial institutions must ascertain whether the bank "has safe and adequate vaults and efficient supervision thereof for the storage and safekeeping within this state of securities."

- o Today and for the past several years nearly all domestic securities, as well as commodity contracts, futures contracts, and other financial instruments have been maintained in electronic format only. Ownership and transfer are effected on the books of master custodians in accounts in the name of local custody banks or other financial institutions holding direct participation in the master custodian arrangement. Primary of these are Depository Trust Company for listed equity securities and the Federal Reserve Bank of New York for bonds, both administratively located in New York City, but with computer back up facilities in other locations.

- Table A27, entitled Comparison of Custody "Then and "Now" contrasts for the reader the characteristics of custody when the model was created and custody today.

| Table A 27: Comparison of Custody "Then" and "Now" | |
|---|---|
| **Custody when model was created** | **Custody today** |
| Custody was the holding and protection of physical securities. | Securities are held in electronic form in central depositories. |
| Investments were largely limited to bonds and stocks. | Investments involve many types of instruments. |

| Table A 27: Comparison of Custody "Then" and "Now" | |
|---|---|
| **Custody when model was created** | **Custody today** |
| Recordkeeping was manual, relatively inexpensive, and slow with a high probability of human error identified through tedious verification processes. | Recordkeeping is computer based, highly automated, complex, costly, and able to be verified through duplicate processes and automated comparison systems. |
| Hundreds of banks provided reasonably equal custody services based on low costs of entry and maintenance. | A small handful of banks that have survived a mass industry consolidation have elected to maintain the enormous financial cost of maintaining complete, efficient custody systems. |
| Custody and recordkeeping were uncomplicated systems without interconnected ancillary services. | Computerized integration of common data has led to the development of many value adding and risk reducing ancillary services feeding directly off basic consolidated portfolio data. |

- Under the current custody model, STRS has no rights regarding custodial decisions, including the decision of whether or not to change custody banks, input into the selection criteria, the type of services that must be provided, or the management of the custodian once selected – despite having continuing daily operational activities with the custody bank and bearing a fiduciary responsibility over the operational and investment results the Fund achieves. Any involvement of STRS regarding the custody banks is at the discretion of the Treasurer of State as the legal custodian of the funds. Thus, the STRS Board has no recourse to ensure that it is receiving the highest quality custodial services.

- Possibly the most significant constraint of the current statutory custody model is the requirement that the "authorized agent" selected by the Treasurer of State must be an Ohio institution.[50] This requirement renders "one-stop" direct state-of-the-art services from top-tier global custody banks simply unavailable to the Fund. (*See additional discussion of the custody model used by the Ohio State Treasurer in Section XI – Custodian.)*

[50] O.R.C. Sec. 135.18.

| Recommendations A33 – A34 |
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| *See recommendations in Section 11 to amend the current law to remove the in-state bank requirement and to authorize the retirement systems to select their custody banks.* |
| *If the law cannot be changed as we recommend, the Board should formally request a memorandum of understanding with the State Treasurer which would provide that for the input of the retirement systems into the search, selection, and ongoing monitoring of the custody bank, including by not limited to (a) all negotiations and discussions with the custody bank, (b) participation in the preparation of requests for proposals for custodial services, (c) analysis of the responses to such RFPs, (d) the process for selecting the custodian and monitoring the services provided, and (e) the development of guidelines for the periodic evaluation of the custodian's services.* |

- Another constraining effect of Ohio law resulting from the current statutory custodial model governing STRS' assets is the unnecessarily detailed overlap in reporting and recordkeeping regarding transactions.

  - The Treasurer of State's office follows certain procedures that duplicate processes that the STRS itself undertakes with the custodial bank and the investment managers with respect to real estate and alternative investments.

  - The Treasurer monitors the custodial bank's performance against the Custody Operating Procedures developed by the Treasurer's office.

  - Given the nature of bank custody services today, absent a statutory requirement, the Ohio Treasurer of State could add value by setting standards for recordkeeping and internal audit by the custodial bank and by undertaking periodic review of records and recordkeeping procedures, rather than by actually performing recordkeeping and reconciliation functions itself.

  - Ultimately, regardless of the letter of the law, there is no harm and arguably significant value if the Treasurer of State works cooperatively with the systems responsible for investment results is selecting, evaluating and retaining custody banks.

| **Recommendation A35** |
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| *While the existing statutory framework is in effect, the Board should request that the Treasurer's staff meet with the Fund's staff to establish additional procedures to eliminate duplication of effort in reconciling and auditing the custody bank's work.* |

## ADDITIONAL OBSERVATIONS REGARDING CHAPTER 3307:

- Ohio law also contains language which can be read to encourage the Board to make what are commonly called "economically targeted investments," which the U.S. Department of Labor has defined as "investments selected for the economic benefits they confer on others apart from their investment return to the employee benefit plan."[51]

- Chapter 3307 doesn't mandate "economically targeted investments." Instead, the statute states, "[I]t shall be the intent of the [B]oard to give consideration to investments that enhance the general welfare of the state and its citizens where the investments offer quality, return and safety comparable to other investments currently available to the [B]oard." The statute goes on to require also consideration of "investments otherwise qualifying under this section that involve minority owned and controlled firms and firms owned and controlled by women..."[52]

- Of the six non-Ohio peer funds who responded to IFS' survey, three, or 50%, reported that their governing statutes directed or encouraged the investment of fund assets in companies doing business in-state.

[51] ERISA Interpretive Bulletin 94-1, "Interpretive Bulletin relating to the fiduciary standard under ERISA in considering economically targeted investments," 59 Fed. Reg. 32606 (June 23, 1994), codified at 29 C.F.R. Sec. 2509.94-1.
[52] O.R.C. Sec. 3307.15B. These requirements are separate and distinct from the "Buy Ohio" provisions of S.B. 133 relating to the use of Ohio-based investment managers and brokers. Those provisions are discussed below.

- While in some settings the facially benign language of Chapter 3307 could cause fiduciaries to skew their investment judgments so as to favor improperly in-state investments, or investments in woman- or minority-owned businesses, it does not appear that the System's Board and staff have done so. That said, STRS in conjunction with the other Ohio retirement systems are making an effort to honor the requirements of Chapter 3307, including the provisions added or changed by SB 133.

- The STRS Statement of Investment Objectives & Policy contains provisions which acknowledge the Board's duty to consider Ohio investments and articulate appropriate criteria for assuring that the requirements of prudent investment apply to the process of evaluating such investments.[53] Those provisions also contemplate that the staff will "maintain and implement an Ohio Investment Plan." The Ohio Investment Plan is set forth as Section VI of the STRS Ohio Investment Staff Policies and Procedures dated January 1, 2006. The Plan refers to an Ohio Task Force within the Investment Department, appointed by the Deputy Executive Director, Investments. The Ohio Task Force is to meet quarterly "to exchange information about potential Ohio investments and to improve our investment generating ability within the state." It outlines a series of steps to be taken to seek financial information on Ohio companies and potential investment opportunities, and those steps appear well-designed to identify investment opportunities in multiple asset classes, including equity, fixed income, real estate, private equity and venture capital. Quarterly reports of Ohio-based investments are circulated among staff.

- The STRS formal Annual Investment Plan does not contain within it a statement of particular targets for Ohio-based investments on either a fund-wide basis or within particular asset classes. Rather, the Annual Investment Plan states, "In implementing the Plan, the staff will ensure that all potential Ohio investments in each asset class receive a thorough analysis according to policy." This formulation, combined with the processes in the Ohio Investment Plan, strikes an appropriate balance. Ohio-state investments will be identified, but investment decisions will be made on the basis of a "thorough analysis"

[53] STRS Statement of Investment Objectives & Policy, Secs. 13.1 and 13.2.

with no implication that Ohio-based investment opportunities will be evaluated on criteria different from those applied to other investment opportunities.

- Neither the Statement of Investment Objectives & Policy, the Statement of Investment Staff Policies and Procedures nor the Annual Investment Plan contains provisions reflecting Chapter 3307's requirement that the STRS Board consider investments in minority- and women-owned businesses. It does not appear that either the Board or the staff keeps a record of consideration of investments in minority-owned or women-owned businesses (as distinct from Ohio-based businesses, and as distinct). We add that we have not seen nor have we been provided any listing of investments of STRS assets which identifies investments in women- or minority-owned and controlled businesses, so we cannot determine the impact of such investments on the overall investment profile of the STRS assets.

- The STRS Comprehensive Annual Financial Report contains a chart indicating, by category of investment (cash, fixed income, common stock, alternative investment and real estate), the aggregate dollar value of STRS' investments in businesses headquartered in Ohio. No such listing appears for women- or minority-owned businesses. We note that while it does not appear that either the Board or the staff keeps a distinct record of its consideration of such investments, the law imposes no such record-keeping requirement.

**Recommendation A36**

*The Board should review and amend its Statement of Investment Objectives & Policy and/or the Investment Staff Policies and Procedures to reflect the legislative provisions related to investments in businesses owned and controlled by women or minorities. If it has not already done so, the Board should direct the staff to establish and implement the plan regarding investments in businesses owned and controlled by women or minorities which the amendment to the Statement of Investment Objectives & Policy may require. The Board should also develop and implement a system for monitoring and evaluating the implementation of these statutory requirements, taking special care to assure that the monitoring and evaluation processes themselves do not encourage imprudent investment decision-making.*

### b. Impact of S.B. 133

## OBSERVATIONS REGARDING THE IMPACT OF S.B. 133:

- Implementation of S.B. 133 will improve many aspects of fund governance but may have unintended consequences that must be anticipated and managed.

- In apparent response to public concerns about the governance of some of the state's public retirement systems, the Ohio Legislature passed Substitute Senate Bill 133, which became effective September 15, 2004.[54] The new law affects numerous aspects of STRS' governance, as well as the governance of the other four statewide retirement systems. As IFS conducted its study, STRS and the other retirement systems were in the process of implementing the new law and identifying areas of ambiguity and other issues which might require corrections to the legislation to the extent satisfactory interpretations were not forthcoming or available.

- Many provisions of S.B. 133 will have a salutary effect.

  - The law mandates that the System's Board work with the other retirement system boards to develop an orientation program for new members of the boards, and continuing education programs for all members of the boards.[55] New board members must attend the orientation session, and members who have served for at least a year must attend at least two continuing education programs per year.[56] High quality trustee education promotes adherence to the high standards of fiduciary responsibility the law imposes. The first such program (an orientation for all of Ohio's state-wide

[54] S.B. 133 was passed on May 26, 2004 and signed by the Governor on June 16, 2004. Most of its provisions became effective September 15, 2004, others had delayed effective dates.
[55] O.R.C. Sec. 171.50
[56] O.R.C. Sec. 3307.051

retirement systems[57]) was conducted on December 6-7, 2004 and appeared to be informative on key subjects, with distinguished experts making the presentations. The substance of the Trustee education program is discussed further at Management Issues Section 1(B) below.

- S.B. 133 requires that the two mandatory annual Trustee education programs be conducted in Ohio. We understand that the intent behind the requirement was to control the costs associated with trustee education, a valid goal, particularly in light of the abuses which have been associated with Trustee travel expenses. We note, however, that it is our experience that high-quality trustee education programs are also available on an industry-wide basis but that such programs often take place out of state. These industry-wide programs provide Trustees and staff an opportunity to exchange ideas with their counterparts from other jurisdictions, and can be a source of new insights and approaches to the challenges faced by STRS. Trustees and staff should not be foreclosed from receiving the benefits of such programs simply because they take place out of state and, as is sometimes the case, at attractive resort facilities. Abuse of such education opportunities by members of the Board can be controlled by enforcement of the "Board member education and travel policy" set forth at Section 3307-2-03 of the Board's Rules. That policy, as amended as of May 5, 2005, articulates a reasonable standard for balancing the need for well-informed trustees with the duty to avoid wasteful expenditures of STRS assets. After repeating the requirement that Board members act prudently, the rule states:

  *Board members have an obligation to select such methods of learning as will best enable them to acquire the information and skills needed. In the process of making that selection, board members also have the responsibility to ensure that the expenses incurred are both reasonable and necessary, and that attendance at meetings does not compromise the integrity of the retirement system or unreasonably further a personal financial interest of individuals.*

[57] In addition to OP&F, the other participating Ohio funds included the Ohio Public Employees Deferred Compensation Plan, the Ohio Public Employees Retirement System, the School Employees Retirement System, the State Teachers Retirement System, and the State Highway Patrol Retirement System

- The travel policy requires advance approval by the Board of all out-of-state travel by Board members. Board members seeking approval for travel offer a formal motion which identifies the dates and place of the proposed travel and the purpose and anticipated benefit to STRS of the trip. When the travel is for purposes of education, the motion describes the subject matter of the program. In addition, the policy requires that Board members prepare a written evaluation, on paper or online, of the education program, and report on the program at a future Board meeting. We were advised that the Board's Executive Assistant assists Board members in timely providing their reports on educational programs they attend.

- The existing controls on travel expenses concerning education described above, combined with the general travel policies discussed at Investment Issues Section 10(A) below, appear adequate to assure that STRS assets are not wasted on frivolous travel that benefits only Board members, but not the System. The fact that a conference may be held at an appealing location does not convert a worthwhile program into a waste of STRS assets. That said, we note that the policy still permits Board members to take up to three out-of-state trips per year for educational purposes. While this is a cap and not a guarantee, and is subject to the policy's annual limit of $6,000 in travel expenses per Board member, it has not been revised to reflect the S.B. 133 requirement that Board members attend two in-state education programs each year.

**Recommendation A37**

*The Board should consider amending the portions of its Policy entitled, "Board Member Travel and Expenses" which authorizes up to three trips out-of-state each year for education programs in view of the mandatory in-state education requirement.*

## ADDITIONAL OBSERVATIONS REGARDING S.B. 133:

- Another salutary provision of S.B. 133 requires that the Board form a committee to select and employ an internal auditor, and to report annually to ORSC on its activities.[58]

- Other provisions of S.B. 133 could potentially have the unintended effect of impairing the Board and the System's staff in doing their jobs. Since the law was only enacted last year, it is too soon to conclude with any certainty that this will happen.

- Immediately below we offer observations so as to draw STRS' attention to areas where the S.B. 133 could constrain or otherwise adversely affect the ability of the Board and staff to carry out their duties.

### 1) The Ohio-Qualified Agent and Manager Rules

S.B. 133 requires that the Board establish a policy to increase the use of "Ohio-qualified" agents to execute securities transactions and "Ohio-qualified" investment managers.[59] Of the six non-Ohio peer funds who responded to IFS' survey, two, or 33%, reported that their state statues directed or encouraged hiring investment services providers with offices in their states.

## OBSERVATIONS REGARDING THE OHIO-QUALIFIED AGENT AND MANAGER RULES:

- The statute is ambiguous in defining what renders an agent or manager "Ohio-qualified," thereby rendering it difficult for the Board and staff to administer the rules. For example, it is unclear from a reading of Section 3307.154(a)(2)(a) and (c) whether it is sufficient for an investment manager to have a principal place of business in Ohio or whether it must also employ 20 Ohio residents. The law does not explain whether affiliates of the investment manager may be considered in determining whether the manager is Ohio-

[58] O.R.C. Sec. 3307.044.
[59] O.R.C. Secs. 3307.152, 154.

qualified. The five state-wide retirement systems, including STRS, have interpreted the law to include parents, subsidiaries and affiliates in determining if a firm is "Ohio-qualified," and to find that to qualify based on employing 20 Ohio residents the firm's principal place of business must also be in Ohio.[60]

- While the text of the law qualifies the duty to increase utilization of "Ohio-qualified" firms only when their "quality, services and safety are comparable to other [firms]," many are concerned that pressure to direct the Board's business to in-state firms can lead to political favoritism as well as a loss of advantages that out-of-state firms in the financial services industry can offer. In this regard, we note that S.B. 133's provisions regarding Ohio-qualified managers and agents did not change the fiduciary obligations of the Board. That S.B. 133 did not modify the requirement that the Board adhere to fiduciary standards theoretically provides protection against the possibility that STRS' interest in obtaining high-quality, cost-effective service will be subordinated to a desire to direct STRS' investment management and brokerage business to Ohio-based funds.

- The five state-wide retirement systems covered by the Ohio-qualified agent and manager requirements, including STRS, have developed a procedure for agents and investment managers to certify whether they are "Ohio-qualified." (The procedure also allows them to certify if they qualify as a "minority business enterprise," in order to comply with S.B. 133's requirement that each of the Systems annually report to the ORSC the percentage of equity and fixed-income trades executed by agents that are minority business enterprises.[61]) Certification forms for investment managers are to be filed with the Ohio School Employees Retirement System. Certification forms for agents are to be filed with

[60] STRS codified this interpretation at Section 3307-1-06 of its Rules. See, also, "Ohio Retirement Systems Ohio-Qualified Manager Certification," at http://www.strsoh.org/pdfs/OhioQualifiedManager.pdf (viewed April 11, 2006) and "Ohio Retirement Systems Ohio-Qualified Agent Certification," at http://www.strsoh.org/pdfs/OhioQualifiedAgent.pdf (viewed April 11, 2006).

[61] For the Fund, the requirement to report trades executed by minority business enterprises appears at O.R.C. Sec. 3307.152(E). S.B. 133 does not require that the Fund report the extent to which its assets are managed by minority business enterprises.

the Ohio Public Employees Retirement System. A notice of the certification procedure has been posted on the STRS website.

- The Ohio-qualified agent and manager provisions of S.B. 133 create a risk that STRS' decisions regarding the selection of agents and investment managers may not result in the engagement of the best qualified, available firms. The Legislature has emphasized one criterion for evaluating candidates to provide these critical services, the state where the candidate does business, which is irrelevant to the services at issue. That emphasis creates at least subliminal pressure to create a selection process that will produce an array of selected firms that includes Ohio-based firms, even if that process is skewed away from the most relevant criteria for analyzing the candidates. While the Board has reasonably interpreted these provisions of S.B. 133 to mitigate the risk that the Fund may not receive the highest quality of brokerage services, certain aspects of the Board's response to S.B. 133 indicate that the new law has distorted the decision-making process.

- In response to S.B. 133, the Board adopted on December 9, 2004, its Ohio Investment Manager and Broker Policy and Program, which was updated in November, 2005. The Policy is posted on the STRS website. With respect to brokers, the Policy reaffirms that the criteria for selecting brokers set forth in Section 3307[62] applies to Ohio-qualified brokers seeking inclusion on the STRS "Main List" of brokers eligible to transact trades for STRS.

- The Policy also references the STRS "Ohio and Emerging Manager Sublist" of brokers, which was established before the enactment of S.B. 133. The STRS Board's Investment Committee had adopted in 1999 "Ohio and Emerging Brokerage Firm Procedures," which are still in effect. Those Procedures do not elaborate substantive criteria for inclusion on the list other than the statement that, "*Firms must meet STRS' execution requirements, with preference being given to firms with institutional accounts*." (*see also discussion in Investment Issues Section 7(A) regarding Brokerage Practices)*

[62] O.R.C. Sec. 3307.152(C).

- The Policy points out that given STRS' extensive use of internal management only limited opportunities exist for use of external managers.

| Recommendation A38 |
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| *The Board should review the Ohio and Emerging Brokerage Firm Procedures to assure that they are consistent with the Ohio Investment Manager and Broker Policy and Program, and that they (i) harmonize with the certification and list procedures adopted by the several retirement systems pursuant to S.B. 133, (ii) do not impair the quality of services provided to STRS.* |

We also refer the reader to the Observations and Recommendations regarding selection of brokerage firms which appears in Section 7(A) and selection of investment managers appearing in Section 8(A).

## ADDITIONAL OBSERVATIONS REGARDING S.B. 133:

- STRS' Semi-Annual Broker Evaluation provides substantial and detailed information concerning STRS' use of Ohio-based and minority- and women-owned brokerage firms to execute transactions for STRS.

- The Ohio Investment Manager and Broker Policy and Program also address STRS' process for implementing S.B. 133's provisions regarding the use of Ohio-qualified investment management firms. The Policy appropriately indicates the limited opportunities of such firms in view of STRS' extensive use of internal management.

- The Policy employs an "all things equal standard" – it states that the use of Ohio-qualified firms will increase if Ohio-qualified managers offer services comparable to other candidates in terms of "quality, cost, services, safety and investment products," and will be "subject to the same investment manager search process conducted by [STRS] investment staff as are other investment managers."

- However the Policy also provides, in an apparent effort to improve Ohio-based managers' chances of being selected for external management assignments, that the list of final candidates to be interviewed will always include at least one Ohio-qualified manager who offers the relevant investment product and responded to the request for proposals. This mandatory inclusion of an Ohio-based manager among finalists without regard to any other relevant criteria (other than a willingness to provide the investment product sought) was apparently adopted in response to the pressure to "buy Ohio" emanating from the development of S.B. 133 and its ultimate enactment. While nothing in the text of S.B. 133 or Section 3307 requires this procedure, we recognize that it is a convenient and easy to communicate way for the Board to satisfy those for whom the "Ohio-qualification" issue is of paramount importance. Nonetheless, it is not consistent with best practices since the System's Board and staff must devote time and resources to treating a candidate firm as a finalist when it does not have the objective qualifications for that status. While staff advises that they do not view the current practice as an undue imposition, it would be better for the Board to focus its efforts on taking affirmative steps to assure that the Ohio investment management community is aware of STRS' needs for external management as they arise, and to assist those managers by educating them about the procedures and criteria STRS uses to select managers. Such efforts might, at least in the short run, require more time and resources than simply adding one Ohio-qualified candidate as a finalist in every manager and broker search. Nonetheless, IFS is of the view that treating Ohio-based firms as finalists when they are clearly less qualified than other candidates creates a risk that the selection process will be distorted in a way that can be harmful to the System as a whole.

**Recommendation A39**

*The Board should revise the Ohio Investment Manager and Broker Policy and Program to delete the requirement that at least one Ohio-qualified investment management firm be included among the finalists in every search for an external asset manager. The Board should identify and implement steps to assure that Ohio-qualified managers are aware of opportunities to submit proposals to manage STRS assets and the processes and criteria STRS uses to select external managers.*

### 2) The Role of the Attorney General

## OBSERVATIONS REGARDING THE ROLE OF THE ATTORNEY GENERAL:

- The attorney general's multiple roles create a risk to board members' exercise of their independent judgment.

- While the Ohio Attorney General (AG) has always had general law enforcement powers, S.B. 133 now explicitly authorizes the AG to sue any Board member for both money damages and injunctive relief in the event of a breach of fiduciary duty.[63]

- While the AG is no longer a member of the Board and does not designate any Board members, some are concerned that since the AG provides legal advice to the Board, the Board members are in the position of being subject to suit by their legal advisor if they decline to follow his or her advice. Many decisions within the realm of fiduciary responsibility implicate both questions of law and questions of fact and judgment as to which reasonable people can differ.

- Granting the Board's own legal counsel the explicit authority to sue his or her "clients" could inhibit Board members from exercising independent judgment and cause them to defer inappropriately to the AG as legal advisor. While this problem may be mitigated by the presence of in-house counsel at STRS appointed by the STRS Executive Director, we are not aware of any guidelines setting forth the parameters of the respective duties of the AG's Office versus in-house counsel, or a process for handling potential conflicts (including the need to retain outside counsel) between the AG and the Board.

- We note that contracting for outside counsel is subject to the purview of the AG's Office.

[63] O.R.C. Sec. 109.98

- Conflicts could arise by virtue of the AG's duties as advisor to other branches of government with duties and interests related to the pension fund that are different from (and possibly diametrically opposed to) the Board's.

| Recommendations A40 – A41 |
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| *We recommend that the statute be amended to authorize STRS to retain independent out-side legal counsel without the prior approval of the State Attorney General.* |
| *In the alternative, if the statue is not amended, or until the statue is amended, we recommend, working with the AG and the Fund's in-house counsel, the Board delineate the respective roles and responsibilities of the AG and STRS' in-house counsel, and develop a memorandum of understanding which establishes a procedure for the Board to obtain independent out-side counsel if and when a conflict arises with the AG.* |

- **Lobbyist Registration**

## OBSERVATIONS REGARDING LOBBYIST REGISTRATION:

- S.B. 133 added a requirement that "retirement system lobbyists" file a registration statement and other documentation with the Joint Legislative Ethics Commission.[64] The term "retirement system lobbyist" includes anyone engaged to attempt to influence retirement system investment decisions, so the law would appear to require marketing representatives of investment firms who present investment proposals to the Board and staff to register as lobbyists.

- While disclosure of information regarding the people and firms who attempt to influence STRS' business can have the beneficial effect of deterring inappropriate influence-peddling, some are concerned that these lobbying requirements could deter firms from offering to do business with STRS. The concern was expressed most strongly with

[64] O.R.C. Sec. 101.90

respect to alternate investments such as hedge funds and private equity, where managers may have attractive products and more potential investors than capacity. In such circumstances, it is said, the managers might choose not to attempt to obtain participation in their products from STRS, just as some managers have chosen not to accept investment from public funds requiring greater disclosure than the fund manager desires to provide.

- It is unclear at this time whether these concerns are well-founded. STRS in particular and Ohio's retirement plans generally, are substantial and well-regarded institutional investors. Hedge fund and venture capital managers would have to be highly motivated to "boycott" the Ohio funds, and the lobbying registration requirement does not appear to be so onerous as to create that motivation.

- The Lobbyist Registration Statement promulgated by the Joint Legislative Ethics Committee requires disclosure by lobbyists of the "retirement system decisions" as to which the lobbyist was engaged during the most recent four-month reporting period, and the identity of the entity who employed the lobbyist for that matter. Updated registrations are due one month after the close of each four-month period, creating significant lag time between the period in which lobbying activity may occur and the time by which it must reported.

| Recommendation A42 |
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| *STRS' staff should monitor and report to the Board changes in the flow of responses to requests for proposals to provide investment management services to STRS. In addition, requests for proposals for investment management services should require all respondents to acknowledge that they are familiar with the lobbyist registration requirements and certify that they will comply with them to the extent applicable. The staff should also periodically review respondents' registration filings under the new law which reference STRS decisions in order to determine what, if any, information should be disclosed by STRS with respect to reported lobbying activity, using random sampling as appropriate to assure that the time and effort spent on this effort is commensurate with the value to STRS of the information derived from the review.* |

- **Licensing Retirement System Investment Officers**

## OBSERVATIONS REGARDING LICENSING RETIREMENT SYSTEM INVESTMENT OFFICERS:

- S.B. 133 requires that every "state retirement system investment officer" be licensed by the Ohio Division of Securities.[65] The term is defined to include each system's chief investment officer, assistant investment officer and "person in charge of a class of assets."[66]

- Concerns were expressed that this new license requirement would impose onerous bureaucratic requirements on key staff, and impair recruitment of investment professionals. A review of the Division of Securities' regulations and its new Form SRSIO, used to apply for a license, indicates that the licensing requirements resemble a reasonable set of qualifications for appointment to a position in the securities industry. The form itself resembles an employment application. The credentials required of new employees[67] consist of either (i) having passed an NASD Series 63, 65 or 66 examination or one CFA Institute examination, or (ii) having a Chartered Financial Analyst designation or equivalent credential.

- These requirements do not appear unreasonable in light of the duties of the positions covered by the license requirement, except for positions on the STRS investment staff related to real estate investments. Individuals with expertise and experience in real estate investment are less likely to have the securities-oriented credentials referenced on Form SRSIO.

- The Form also requires submission of a fingerprint card. We note that the NASD requires that licensed representatives be fingerprinted, and that fingerprinting is common in the

[65] O.R.C. Sec. 1707.162
[66] O.R.C. Sec. 1707.01(JJ)
[67] A "state retirement system officer" already employed as such on September 14, 2004 is required only to have either a bachelor's degree and five years experience or a masters or doctorate degree.

investment management industry. Accordingly, and particularly in view of the extent of internal management at the System, the new licensing requirement does not appear likely to impair the System's ability to recruit qualified people to fill positions subject to the requirement except, perhaps, with respect to positions involved in real estate investment.

- STRS, and the other retirement systems covered by the statute, will need clarification of several points in order to identify with precision the individuals who will be considered "state retirement system officers." For example, S.B. 133 does not define what constitutes a "class of assets" or the level of responsibility required to render an individual a "person in charge" of a "class of assets." The five state-wide systems worked with the Department of Commerce to develop the categories of staff that would be covered by the licensing requirement, and STRS has identified the positions on its staff for which licenses will be required.[68] Once those points are clarified, STRS should modify the Position Descriptions for investment staff personnel subject to the licensing requirement to assure that they include appropriate credentialing so they may be licensed.

| Recommendation A43 |
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| *Upon obtaining clarification of the positions within STRS that are covered by the definition of "state retirement system officers," the Position Descriptions for those positions should be modified to state explicitly that candidates for those positions must be qualified for licensing by the Division of Securities.* |

### c. STRS Status of Compliance with SB. 133

| Table A28: Status of Compliance with the Requirements of SB. 133 | | |
|---|---|---|
| **Relevant Requirements of SB 133** | **Comment** | **STRS** |
| Adoption, implementation, and enforcement, by each system's chief investment officer, of written policies and procedures reasonably | STRS has had a conflict of interest/personal investment policy in place for many years. | ✓ |

[68] The following STRS staff positions will require licenses: Chief Investment Officer, Assistant Chief Investment Officer, Asset Class Director, Portfolio Manager, Real Estate Regional Director, Head Traders, staff with portfolio management responsibility and members of the Investment Department Strategy Committee.

| Table A28: Status of Compliance with the Requirements of SB. 133 | | |
|---|---|---|
| **Relevant Requirements of SB 133** | **Comment** | **STRS** |
| designed to prevent employees from misusing material, nonpublic information in violation of the Commodity Exchange Act (Chapter 1707 of the Revised Code), the Securities Act of 1933, and the Securities Exchange Act of 1934. | Additionally, investment staff are required to comply with CFA Code of Professional Responsibility. | |
| Establishment and maintenance by the CIO of a policy to monitor and evaluate the effectiveness of securities transactions executed on behalf of the retirement system, including adopting a policy that outlines the criteria used to select agents that execute securities transactions and reviewing, at least annually, the performance of such agents. | STRS conducted a semi-annual broker evaluation process prior to the passage of S.B. 133. This process is still in place. | ✓ |
| Establishment of a requirement, effective 90 days after the effective date of S.B. 133, that any person acting as a state retirement system investment officer must be licensed by the Division of Securities in the Department of Commerce. | All investment officers were licensed by Dec. 2004. This requirement is currently incorporated in the Investment staff policy and procedure manual. | ✓ |
| Establishment of a requirement, that a state retirement system investment officer may not act as a dealer, salesperson, investment advisor, or investment advisor representative. | Requirement is specified in Ohio Revised Code. STRS is in full compliance with state laws. | ✓ |
| Establishment of a requirement that a state retirement system investment officer may not (1) employ any device, scheme, or artifice to defraud any state retirement system, (2) engage in any act, practice, or course of business that operates or would operate as a fraud or deceit on any state retirement system, (3) engage in any act, practice, or course of business that is fraudulent, deceptive, or manipulative. | Requirement is specified in Ohio Revised Code. STRS is in full compliance with state laws. | ✓ |
| Establishment of a requirement, that the person who functions as the chief investment officer may not knowingly fail to comply with any policy adopted regarding the duty of reasonable supervision or the duty to execute favorable transactions. | Requirement is specified in Ohio Revised Code. STRS is in full compliance with state laws. | ✓ |

| Table A28: Status of Compliance with the Requirements of SB. 133 | | |
|---|---|---|
| **Relevant Requirements of SB 133** | **Comment** | **STRS** |
| Adoption and implementation of a written policy establishing criteria and procedures used to select agents to execute securities transactions on behalf of the retirement system. At a minimum, the policy shall address each of the following:<br>• commissions charged by the agent, both in the aggregate and on a per share basis;<br>• the execution speed and trade settlement capabilities of the agent;<br>• the responsiveness, reliability and integrity of the agent;<br>• the nature and value of research provided by the agent; and<br>• any special capabilities of the agent. | On December 9, 2004, STRS adopted the "Ohio Investment Manager and Broker Policy and Program."<br><br>The five state Ohio retirement systems developed common procedures to satisfy and report their efforts to use Ohio qualified-agents and Ohio qualified investment managers. | ✓ |
| Establishment of a policy:<br>• (a) with the goal of increasing utilization of Ohio-qualified agents for the execution of domestic equity and fixed income trades; and review the performance of agents, and<br>• (b) with the goal of increasing utilization of Ohio qualified investment managers.<br>Submission of an annual report to the ORSC containing certain specific information identified in the statute as well as other information requested by ORSC. | See comment immediately above.<br><br>The information is being reported to the ORSC. The annual report for 2005 was submitted September 14, 2005 by OP&F and STRS. | ✓ |
| Joint development of a retirement board member education program, including an orientation component and a continuing training component. | The first educational session was held on December 6-7, 2004. | ✓ |
| Imposition of a requirement on newly elected and appointed state retirement board members to attend the orientation component of the education. | The first orientation program was held on December 8, 2004. Board policy was revised in March 2005 to include this requirement. | ✓ |
| Imposition of a requirement that current trustees (with at least one year of experience) attend not less than twice a year one or more programs of the continuing training component. | Board policy was revised in March 2005 to include this requirement. | ✓ |

| Table A28: Status of Compliance with the Requirements of SB. 133 | | |
|---|---|---|
| **Relevant Requirements of SB 133** | **Comment** | **STRS** |
| In consultation with the Ohio Ethics Commission, develop an ethics policy governing board members and employees in the performance of their official duties, including a procedure to ensure that each board member and employee is informed of the procedure for filing a complaint with the Ohio Ethics Commission or the appropriate prosecuting attorney. | Ethics Policy adopted by the Board on April 15, 2005. | ✓ |
| Annual financial disclosure statements are filed with the Ohio Ethics Commission by: (1) each retirement board, (2) each employee of the retirement system who is a licensed state retirement system investment officer. | This requirement is contained in the Ethics Policy adopted by the Board on April 15, 2005. The policy requires the financial disclosure statements to be filed by April 15 each year. If a Board member or employee is appointed or employed after February 15, then the disclosure must be filed within 90 days of the appointment or employment. | ✓ |
| Appointment of a committee to oversee the selection of an internal auditor and employ as an internal auditor the person or persons the committee selects. | The Board made these appointments on August 20, 2004. | ✓ |
| Preparation and submission of an annual report of the Audit Committees actions during the preceding year to the ORSC. | The first report was submitted to ORSC on March 27, 2006 for 2005. | ✓ |
| In consultation with the Ohio Ethics Commission, adopt/amend rules regarding travel and payment of travel expenses for board members and staff. | STRS amended its travel rules in May 2005. Staff policies were revised in November 2003. | ✓ |
| Adoption of rules establishing a policy regarding employee bonuses. | STRS adopted rule 3307-1-05 – Policy on Investment Department Performance Based Incentives. | ✓ |
| Provide ethics training to board members and employees. | In December 2004, the Board and senior staff attended a presentation by the OEC as part of the joint trustee training.<br><br>Staff also attended ethics training presented by OEC on February 4, 2005. | ✓ |

| **Table A28: Status of Compliance with the Requirements of SB. 133** | | |
|---|---|---|
| **Relevant Requirements of SB 133** | **Comment** | **STRS** |
| Design a plan describing how the board will improve upon the dissemination of public information pertaining to the board. | STRS has a communication officer. A written communications plan has been developed and was provided to ORSC on May 3, 2005. | ✓ |
| Establishment of a uniform format for any report that the boards are required to submit to the ORSC. | Report formats were established jointly by the systems and implemented in 2005. | ✓ |
| Change in Board Composition[69] | New Board members have been appointed at each system | ✓ |
| Implementation of procedures to comply with the requirement that each system lobbyist and the lobbyist's employer register with the Joint Legislative Ethics Commission and regular disclosure statements ( to the Commission) in of the amount of the lobbyist expended in retirement system lobbying. | The Lobbyist Registration Statement was promulgated by the Joint Legislative Ethics Committee requiring disclosure by lobbyists of the "retirement system decisions" as to which the lobbyist was engaged during the most recent four-month reporting period, and the identity of the entity who employed the lobbyist for that matter. Procedures were implemented in August 2004. The requirements are currently listed on the STRS Ohio website under vendor information/opportunities. | ✓ |

## 10. Conflicts of Interest

The text of Chapter 3307 contains provisions addressing conflicts of interest which predate S.B. 133. The law bars STRS from doing business with any person who is or, during the

[69] STRS Board: A Treasurer of State's investment designee (new member), who is to be appointed by the State Treasurer and must meet certain statutorily specified qualifications; the Superintendent of Public Instruction or an investment - expert designee (new alternative to the Superintendent) appointed by the Superintendent who must *meet* certain statutorily specified qualifications; five "contributing" members (formerly "teacher" members); two retired teacher members (an addition of one retired teacher member); and two investment expert members (new members) who must meet certain statutorily specified qualifications, one to be appointed by the Governor and one to be appointed jointly *by the* Speaker of the House and the President of the Senate. (The Attorney General and State Auditor were removed.)

most recent three years was, an employee, officer or Board member, or with any firm controlled by such a person.[70] In addition, no Board member or employee may have any interest in the gains or profits of any investment made by the Board.[71] The statute's prohibited transaction provision[72] identifies a broad category of transactions not to be undertaken by the System with any "party in interest." The enumeration of such transactions is modeled on ERISA's prohibited transaction provisions.[73]

## OBSERVATIONS REGARDING CONFLICTS OF INTEREST:

- Unlike ERISA, Chapter 3307 does not define the term "parties in interest."

- In addition, and also unlike ERISA, the statute contains a broad exception allowing transactions with parties in interest if they otherwise satisfy the standards of prudence and if the terms of the transaction "are comparable to the terms and conditions which might reasonably be expected in a similar transaction between [unrelated] parties. . . ."[74]

- We are not aware of any procedure at STRS for identifying transactions that fall within the prohibited transaction provisions or for comparing the terms of a particular transaction with general commercial standards to determine compliance with the exception.

| Recommendations A44 – A45 |
| --- |
| *STRS should adopt a prohibited transaction policy to define the term "parties in interest." The policy should be modeled on the definition of "parties in interest" contained in ERISA.* |

[70] O.RC. Sec. 3307.151
[71] O.R.C. Sec. 3307.18
[72] O.R.C. Sec. 3307.181
[73] ERISA Sec. 406(a)
[74] O.R.C. Sec. 3307.181(B). ERISA permits transactions with parties in interest only if they fall within narrowly defined statutory exceptions or if the U.S. Department of Labor grants explicit approval. ERISA Sec. 408.

**Recommendations A44 – A45**

*STRS should also develop a process for analyzing transactions with "parties in interest" to assure that their terms and conditions satisfy the legal standard of comparability to the terms of similar transactions between unrelated parties.*

- S.B. 133 requires that the Board develop and submit to the Ohio Ethics Commission an ethics policy, adopt such revisions to the policy that the OEC may require. S.B. 133 also requires that ethics training must be provided to the Board and staff, and that the financial disclosures filed with the OEC by Board members and "state retirement investment officers" will be public documents. In addition, the law imposes on members of the boards of all the retirement systems and all of the systems' "state retirement system investment officers" a total ban on soliciting or accepting payment of travel expenses, including lodging, meals, food and beverages. Other public officials and employees covered by the State's ethics laws are permitted to accept such payments if incurred in connection with participation on a panel, in a seminar or speaking engagement or attendance at a meeting of a national organization the state agency belongs to. This exception does not apply to the retirement systems.

- Prior to the enactment of S.B. 133, STRS had a Policy Statement for Board members and a Code of Ethics for staff. STRS also had procedures in place that provided for regular reporting by investment and senior staff of their securities holdings, and requirement for advance permission to engage in personal securities transactions.

- The Board's travel policy applicable to Board members requires advance approval by the Board for travel out-of-state. While the rule permits the Chair to approve such travel on an emergency basis, it is difficult to conceive of a circumstance in which such emergency approval would be required, and we would expect such emergency approval to be rare. Only "actual and necessary" travel expenses may be reimbursed, and the rules impose dollar caps on lodging and meals. Transportation costs are limited to the "lowest price coach class available," with tickets to be purchased "as early as possible." No reimbursement is available for, *inter alia*, alcoholic beverages, entertainment, laundry and dry cleaning "or similar goods and services not directly related to the duties of a board member." Receipts are required for all eligible expenses exceeding $15, an appropriate threshold.

- These rules appear to be reasonable.

## 11. Custodian

### a. Introduction

**FUNDAMENTAL PRINCIPLES REGARDING CUSTODY:**

- *A fundamental function of the banking system for many years has been the custody of securities. Often this is combined with a trust responsibility, which is a legal and fiduciary relationship. Regardless of whether trusteeship is involved, custody is an operational and financial function.*

- *The barest essentials of custody are to hold securities either physically or in legal name in an electronic depository, to effectuate receipt and delivery of securities following purchase and sale transactions, to collect income, and to provide accurate inventory and accounting. Most banks can do this to some degree. A number of regional banks have fairly sophisticated personal trust systems that can perform the basic functions reasonably well. However most of them have only limited capabilities that are primarily designed to handle a low volume of uncomplicated securities positions.*

- *Large, complex institutional investors need to custody their portfolios in banks providing global master trust and custody services. Investment activities cannot be accomplished within legally required time limits without maintaining an institutional trustee or custodian. The distinction is legal, not operational.*

- *The custodian's basic responsibility is to effect receipt and delivery of securities traded by the investment managers, to collect income on those securities, and to maintain accounting records of all holdings and activities.*

- *Master trust and custody banks provide a wide range of operational and recordkeeping services, and can manage multiple investment entities (for example separate pension plans) through a combined set of investment accounts without violating the legal separation between the entities. Such master trust and custody banks become global* *when they have the direct and/or indirect capability of providing custody services in many countries linked electronically and consolidated into a single reporting system.*

- *Pension master trust and custody is a service business line provided by a limited number of banks, which requires highly complex and developed systems, and thus significant continual investments in hardware, software, communications systems and personnel. As the need to automate the process has increased, dozens of major regional banks have stopped offering pension master trust and custody services and have limited themselves to the low volume, limited reporting needs of local personal and corporate trust.*

- *Modern global markets consisting of many types of securities, electronic depositories, straight-through and near straight-through processing (essentially same day), the need for real-time, trade date portfolio information, and a wide range of sophisticated analytics demand custody banks to have very complex, sophisticated systems to support the custody operation. Master trust and custody banks that have the capabilities to provide the comprehensive range of functions and services necessitated by large sophisticated institutional investors are referred to in the industry as the "top tier" custodians. Only about six or seven U.S. banks are alluded to as the "top tier" global custodians*[75] *because they have made the strategic decision and investment of capital to develop and maintain a competitive position in the pension master trust and custody market and to attract the volume necessary to support it. There may be an equal number of foreign banks in this category. (See Exhibit D, Comparison of Current Custodians Capabilities vs. Top-tier Custody Bank Capabilities.)*

- *Custody is largely a network of highly automated, tightly controlled communications and reporting systems. The custody relationship involves not only electronic links, but interpersonal relationships among the fund, the investment managers, the brokers, the governmental and private agencies who hold securities must be working flawlessly to avoid trade fails and other loss of value. Changing custodians requires a transition that is an enormously complex task. Even moving from one top tier custody bank to another, where both have highly sophisticated recordkeeping systems, is a challenge.. Additionally, the visible and hidden costs of transitioning from one custodian to another are easily in the hundreds of thousands of dollars. For these reasons, most institutional investors change custodians very infrequently unless there is a material reason that compels change.*

[75] May 2005 survey of Global Investor magazine provided the top ten unweighted rankings of client satisfaction (U.S. banks providing services to institutional investors only). The survey ranking acknowledged Mellon (#4), Northern Trust (#5), Citigroup (#7), Bank of New York (#8), JPMorganChase (#9), and State Street (#10). All six also are on the top ten list weighted by size of account, although in a different order. The other four banks are non-U.S. or provide services to investment funds and managers.

## BACKGROUND DISCUSSION REGARDING THE STRS' CUSTODIAN RELATIONSHIP[76]

Chapter 113 of the Ohio Revised Code provides that the Ohio Treasurer of State is the statutory custodian for all state agency funds. Section 113.051 of Chapter 113 ORC establishes the Ohio Treasurer of State's custodial duties and provides that the Ohio Treasurer of State may enter into sub-custody agreements to delegate the custody functions to qualified financial institutions acting as sub-custodians consistent with the requirements of section 135.18 of the Ohio Revised Code. Given that even the basic accounting and security clearance functions in today's automated society can be done efficiently only through financial institutions, this delegation is essential. All domestic and international custody functions are delegated by the Ohio Treasurer of State to one or more financial institutions for each respective Ohio pension fund.

Section 3307.12 of Chapter 3307 of the Ohio Revised Code designates the Ohio Treasurer of State as the custodian of the funds of the State Teachers' Retirement System.

Section 113.05(B)(2) provides that funds may be kept in "secured and insured depositories in or out of [Ohio] as designated by the treasurer of state."

### b. Evaluation of STRS' Relationship with Their Custodian

#### 1) Summary of General Observations Regarding STRS' Custody Bank Relationship

[76] IFS was not retained nor is it authorized to practice law in the state of Ohio. For this reason, we necessarily rely of the interpretations of statutory provisions and ensuing authority that have been provided to us during the review and comment process. Our discussion and observations may point out areas of inconsistency and question whether certain statutory provisions are contrary the ability STRS to administer the retirement system in the most effective and efficient manner. However, the discussion and observations found in this section are not intended as contrary interpretations of the Ohio treasurer of State's authority or implementation of applicable law.

## OBSERVATIONS REGARDING CUSTODY BANK RELATIONSHIP:

- Consistent with applicable statutory authority, the Ohio Treasurer of State has exercised this power and has designated various banks to perform the services involved in custody of pension securities. During our review we found no instance where the Treasurer acted inconsistent with the authority granted in the current Ohio statutory custody model.

- The Ohio Treasurer of State's Office informed IFS that Section 135.18 of the Ohio Revised Code requires the Ohio Treasurer of State, as custodian, to select institutions that maintain an Ohio presence.[77] Ohio is not a major financial center and currently no "top-tier" custodial banks are headquarter there. There are several very capable regional commercial banks headquartered in Ohio that are well qualified to handle depository transactions and may have some capabilities in certain other typical custodial functions such as securities lending. However, while capable to perform many functions, they have limited capability to maintain the quality of securities clearance, recordkeeping, valuation, and controls for domestic custody of complex securities and no capability to perform global custody services that are required for direct investment in foreign securities.

- In order to enable the retirement systems (in this case STRS) to obtain global and more sophisticated custody services, other institutions must be retained. IFS has been advised that Ohio law permits the Ohio Treasurer of State, as custodian, to further delegate global and more sophisticated custody functions to sub-custodian banks, [78] and that those banks do not have to be an Ohio depository banks. Thus, non-Ohio depository banks are utilized for non-U.S. custody and domestic custody, clearance, income collection and reporting functions are typically handled by institutions that maintain an Ohio presence. STRS

[77] It was also acknowledged that the language of § 135.03 ORC which provides that "any national bank located in this state and any bank as defined by section 1101.01 of the Revised Code, subject to inspection by the superintendent of financial institutions, is eligible to become a public depository, subject to sections 135.01 to 135.21 of the Revised Code" appears contradictory.

[78] We were informed by the Ohio Treasurer of State's Office that the sub-custodian bank may also hold domestic securities and that each need is examined on a case-by-case basis.

manages the majority of its assets internally (approximately 77%). STRS has its own sophisticated internal portfolio accounting and trade order management systems. Therefore it does not have to rely primarily on the capabilities of the Ohio bank selected by the Ohio Treasurer of State. The majority of STRS' externally managed assets are non-US. For these assets, STRS is able to use a top-tier custody bank, Bank of New York (selected by the Ohio Treasurer of State).

- Since Ohio law vests custodial authority in the Ohio Treasurer of State, all decisions regarding (a) which depository bank should be the primary bank custodian for any fund required by law to be kept in the custody of the Ohio Treasurer of State (e.g., STRS), (b) when and how frequently STRS custody banks should change, (c) the appropriate pricing structure STRS pays for custody services, and (d) what provisions should be in the bank custodian contract are within the sole purview of the Ohio Treasurer of State.

- It is our understanding that STRS has been afforded the opportunity to provide input regarding the selection and management of its custody banks. However, any such participation is discretionary and not STRS' right since STRS is not statutorily assigned custodial duties for its own assets. Therefore, if STRS were to advise the Ohio Treasurer of State of serious deficiencies in an existing custody relationship, STRS has no control over whether or not action will be taken or whether a chosen successor will be capable of providing services that address the problem.[79]

- IFS was advised that the current law does not permit sharing or delegation of the Ohio Treasurer of State's custodial authority to the retirement systems. For that reason, STRS is bound by all decisions of the Ohio Treasurer of State regarding the custody bank. Thus, pursuant to Ohio law, STRS has no control over the custody bank it must use in fulfilling its legal requirement to (a) invest fund assets prudently and (b) defray

[79] Whether or not the Treasurer has been responsive is not the issue. The issue is the fact that the Treasurer do not have to address any concerns or problems raised by the retirement funds

reasonable expenses.[80] At the same time, Ohio law makes clear that the Ohio Treasurer of State does not have investment responsibility for the fund assets.[81]

- We understand Ohio Treasurer of State's custodial role and responsibility is dictated by Ohio law and that the selection of the custodial bank (including the requirement to use a bank with an Ohio presence) is a consequence of compliance with such law. However, we believe it results in a custody services structure that is more costly and less responsive to the legitimate needs of STRS (and the other pension systems) to manage their investment operations and achieve the most efficient net return. While in a legal sense the Ohio Treasurer of State is the primary user of custody services, absent the need for physical protection of negotiable instruments, the primary operational user of custody services are the retirement systems (in this case STRS).

- Securities lending is not viewed as custody. Accordingly STRS has the authority to select an institution to execute securities lending. Further, the institution is not required by law to be an Ohio depository bank. STRS utilizes Bank of New York for securities lending – the same bank the Ohio Treasurer of State selected for STRS' global custody .

### 2) The Consequences of the Current Ohio Statutory Custody Model

## OBSERVATIONS REGARDING THE CONSEQUENCES OF THE CUSTODY MODEL:

- Requiring STRS to use a bank that does not have the necessary systems and required level of services creates exposure to additional risk. However, because STRS has its own internal very sophisticated portfolio and trade order management systems, it is not as reliant on the Ohio based bank selected pursuant to the current statutory custody model to

[80] See, §742.11(A) ORSC.
[81] §113.051 ORC -- "the duties of the treasurer of state do not include making investment decisions of an owner…is not responsible for the investment decisions of an owner. … " nor is the treasurer responsible for "monitoring compliance with an owner's internal investment policies." "Owner" means the governing board or officeholder responsible for any funds required by law to be kept in the custody of the treasurer of state, i.e., STRS.

provide STRS' domestic custodial services. Further, STRS' global custody bank, selected by the Ohio Treasurer of State, is a top-tier bank. Consequently, STRS' is in a better position to alleviate the types of risks set forth below.

- Increased risk of receive and deliver fail, especially with more complex types of securities.

- Delay and possible error in income collection, especially with more complex securities.

- Delay and possible inability to collect the maximum possible recovery on foreign withheld taxes (including on ADRs which may be held in domestic portfolios).

- Greater pricing discrepancies related to reconciliation of investment manager' values, (possibly combined with less sophisticated capabilities) increase administration time and delays in closing of books.

- Inability to manage and support securities litigation activities optimally.

- The current custody model is more workable for STRS than some of the other Ohio retirement systems. However, the fact that STRS is still required to utilize a local bank in addition to its global custody bank (which it also uses for securities lending) still results in a custody structure that is not as efficient or economical as it potentially could be.

  - During the interview process, we were informed that Fifth Third has worked with STRS diligently over several years to improve their operations and reduce the problem and error rate in domestic custody. Nevertheless, without an unjustifiably capital investment in high level of systems and people, Fifth Third does not have the facility to operate like a top tier banks. This has come at considerable cost to STRS, primarily in its staff being distracted from handling other, more cost beneficial activities.

- The current custody structure, particularly the Ohio Treasurer of State's day to day involvement and oversight of STRS' investment transactions, is overly complex. Complexity increases the risk of error and delay and possible error in income collection, especially with more complex securities.

  - Under the current statutory custody model, reporting and reconciliation between custody bank and managers, between custody bank and the global sub-custodian, and since STRS uses internally managed portfolios, between custody bank and the Fund must occur daily. Thus every transaction every day needs to flow through the investment manger, Fifth-Third, STRS, and the Ohio Treasurer of State. Every non-U.S. transaction has to also go through Bank of New York.

To assist the reader in understanding the complexity of the information flows among the Treasurer, STRS, and the various banks utilized for custody and securities lending, we have provided a flow chart, at Exhibit E, entitled *Ohio State Teacher Retirement System Pension Fund Custody Structure Flows of Data on Transactions, Holdings and Values*.

## CONCLUSIONS REGARDING THE CURRENT CUSTODY MODEL:

- The current statutory custody model, particularly the in-state requirement, impairs STRS' ability to invest assets of the fund effectively and efficiently.

- Although the STRS pays a fee for the custody bank services it receives under the current Ohio custody statutory model, it has no authority over the selection, management, or termination of the bank that provides its custody services.

*Set forth in Exhibit F are additional examples of how the current custody model has impaired STRS' ability to invest the assets.*

- Ohio is not the only state or municipality using the treasurer as "custodian of assets" model. There are a number of states and municipalities where the treasurer of state, as custodian selects the custody bank. Examples include Connecticut, Pennsylvania, New York City, and New Jersey, North Carolina, Michigan, and South Carolina. However, Ohio is the only state, to the best of our knowledge, that still utilizes a custody model that calls for the custody bank to have an in-state presence. This was previously a requirement in New Jersey and in Indiana. However, within the last several years, both states have eliminated this requirement.[82] Pennsylvania and New York City use custody banks with a local presence. However, they are not required to use a local bank and in their case both banks are "top-tier" custody bank. In a majority of states, the retirement systems (or the investment council) have the ability to select their custody bank.

- Even in a number of states where the state treasurer is designated as the custodian of all funds (e.g., Iowa, Missouri, New Mexico, Washington State) the treasurer does not select the bank to provide custody services to the retirement systems and/or the investment council (as applicable). For example, although pursuant to law[83] the Office of the Washington State Treasurer represents Washington state in all contractual relationships with financial institutions for custodial services, the Treasurer delegates that authority (e.g., to the Washington State Investment Board) to conduct the procurement for the services of a custodian bank.[84] As in Ohio, securities lending is not viewed as custody,

[82] Indiana changed its law as recently as 2003. P.L. 72-2003 eliminated the requirement that the board utilize an Indiana bank. Instead, the board is now authorized pursuant to IC 5-10.3-5-5 to use a bank domiciled in the US and approved by the Indiana Department of Financial Institutions under IC-28-1-2-39.
[83] Revised Code of Washington (RCW) 43.08.015.
[84] See RFP#06-05, RFP for Global Custodian and Securities Lending Services, issued November 1, 2006. Based on the selection and recommendation of the Washington state investment board, the Washington State Treasurer will execute the global custodian contract resulting from the procurement. The Executive Director of the investment board will execute the contract for securities lending with the same firm.

so the Washington State Treasurer does not have authority over the selection of the securities lending agent.

- The changing nature of the securities markets and the basic process of custody have rendered the current Ohio statutory custody model obsolete. Modern custody of securities no longer requires physical holding of securities in order to safeguard them; custody is now electronic communication and reporting. Recordkeeping and reconciliation of custody data is no longer a function of inventorying physical securities. (See, Table entitled *Comparison of Custody "Then" and "Now"*, in Investment Issues Section 9(A).)

- It has been suggested that the current custody model was created to add additional safeguards and oversight to better protect the pension funds' assets. Safeguard and oversight can be required components of a custody model that is more consistent with best practices. Procedures exist that make available computerized comparisons of security holdings, values, and cash flows; providing a safeguard on the accuracy of custody records at least equal to, and in many ways better than, reconciliation of each transaction and each value did in former times at a significantly lower cost in time and personnel.

- It is less than optimal for the authority to select and terminate the custody bank to be vested with a single elected official, without at least some degree of binding involvement from the retirement system's board of trustees that must use the services of the custody bank. Particularly since the board of trustees is bound to a rigorous fiduciary standard of care and duty of loyalty to its members.

- Ohio law should be amended to establish an alternative statutory custodial model that is more consistent with best practices – a legal and operational structure that empowers the STRS board of trustees to decide whether to change custody banks, who to select, and the authority to manage the provider of its custodial services.

| Recommendations A46 – A49 |
|---|
| *We recommend that the applicable Ohio statutes be amended to remove the requirement that financial institutions retained to provide custodial services must have a presence in Ohio.* |
| *We recommend that the applicable Ohio statutes be amended to grant authority to select, contract with, manage, and terminate the financial institution(s) that will provide master custody services to the retirement systems which are subject to the oversight jurisdiction of the ORSC.* |
| *As an alternative to granting the retirement systems the power to independently select the custody bank, we recommend that the statue be amended to (a) allow the pension fund to select the custodial bank from a list of candidates developed by the Treasurer of State, pursuant to specific written criteria established by the respective pension fund defining the services required, and (b) require the consent of the retirement system as a prerequisite to effecting a change of their respective custody bank.* |
| *To maintain accountability and oversight, we recommend amending the applicable statutory language regarding the Ohio Treasurer of State custody bank reporting requirements to provide for periodic review, spot check, and audits rather than complete transaction data transfer.* |

## 12. Internal Controls and Risk Management

### a. Introduction

#### FUNDAMENTAL PRINCIPLES REGARDING INTERNAL CONTROLS AND RISK MANAGEMENT:

- *The primary role of the system of internal controls is to provide management with reasonable, but not absolute, assurance that investments and investment transactions and related income including realized and unrealized gains and losses are adequately safeguarded and accounted for properly.*

- *Risk identification, analysis and assessment are essential components of the control structure of an organization. A properly functioning enterprise risk management[85] process can help Board and staff achieve the pension fund's established performance and profitability targets and prevent loss of resources. Enterprise risk management helps ensure effective reporting and compliance with laws and regulations, and helps avoid damage to the Board's reputation and associated consequences. In the absence of an*

[85] COSO. *Enterprise Risk Management – Integrated Framework*. Enterprise risk management is a process, effected by an entity's board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives.

*enterprise risk management process, risks and opportunities that confront a pension fund may not be properly addressed. Insofar as assets are internally managed, enterprise risk management takes on greater significance.*

- *Investment risk is best controlled through investment policy statements and investment manager guidelines.*

## BACKGROUND

Outside pressures on the organization in 2004 placed STRS in the political and media spotlight. The pressure resulted in significant changes in the governing laws and the System's operating state, including changes in day-to-day management and operations. These changes are effecting the control environment. It is not unreasonable to expect that the STRS control environment would reflect changes that correspond to the new state. The changes have primarily been to management's philosophy and operating style, with less significant changes apparent or needed in the other areas of the control environment, i.e., STRS overall integrity and ethical values; its overall commitment to competence; its organizational structure; the assignment of authority and responsibility; and its human resource policies and practices. No organization is perfect but STRS has generally done very well in each of these attributes.

### 1) Internal Controls for Compliance with Adopted Standards, Policies and Procedures

## OBSERVATIONS REGARDING INTERNAL CONTROLS FOR COMPLIANCE:

- One visible difference in STRS' evolving philosophy toward internal control is the effort by the Executive Director to include the Internal Auditor in senior management.

- Internal Audit now reports directly to the Board and administratively to the Executive Director. We find this to be a very positive step. Overall, the evolution of internal audit at STRS has been positive, but more is needed. (See discussion below.)

- Another development is an increased awareness of the budget and whether and where STRS can or cannot justify its spending, triggering staff cuts, compensation cuts and other reductions in spending. While STRS' former philosophy was to be the "crown jewel" across many areas, which resulted in significant spending levels on resources, being the best at any cost is no longer its main pursuit.

- The System seems very conscious of the need for appropriate control activities, as exemplified by the existence of written policies and procedures, and has implemented these activities in the key areas we reviewed, e.g., investment management, trading, back office, and IT support functions.

- Staff in all areas we interviewed reported some direct involvement by management, adequate supervision, top level reviews and approvals, physical controls, and performance measurement. In general, duties seem to be appropriately divided and segregated among staff and departments to enhance internal control.

- Information appears to be available, plentiful, and accessible at the appropriate levels within the organization and of sufficient quality to support management decisions. We heard no reports of information needed by managers to make day-to-day decisions being late or inaccurate.

- Management of the IT Department seems very aware of proper controls, including access security, data integrity, and high level data center controls over operations, system software, and application development.

- We found adequate staff training opportunities and training received was relevant to the staffs' job responsibilities.

### 2) Controls over Payments

## FUNDAMENTAL PRINCIPLES REGARDING CONTROLS OVER PAYMENTS:

- *Managing the approval of invoices for payment is a fundamental risk control process. It is also one that is relatively easy to effect, in that fees are normally paid in hard dollars based on contractually explicit terms.*

- *Control over the validation and approval of payments is a vital aspect of financial security.*
- *For an investment fund with external management, the largest set of third party payments is to investment managers and custodians.*[86]
- *Manager fees are almost universally based on a rate applied to assets under management and typically the contract specifies which asset value is to be used (e.g., quarter end value from the custodian's audited statement). There may also be a performance based component.*
- *Custodian fees are typically a combination of asset based, transaction, and fixed fees for various parts of the relationship. Invoices are typically created by the vendor for review and payment by the client.*
- *The typical process of reviewing such invoices is to confirm asset values, contractual rates, and if applicable transaction volumes and rates of return, and then to verify the accuracy of the calculation. In addition, such a process needs to include a control for inclusion of new managers and removal of terminated ones.*

## OBSERVATIONS REGARDING CONTROLS OVER PAYMENTS:

- STRS' process for payments to investment managers is closely controlled.
- STRS exercises good preventive and detective internal control over payments. Fees for banking, domestic equity management, fixed-income management, and international equity management are all paid *after* a STRS reconciliation and approval process that includes verification of market values if fees are based on assets.[87] (Note: If there is a withdrawal from or contribution to the manager's account the fee is pro-rated accordingly.) The persons performing the reconciliations recalculate the fee calculation and compare fees to file copies of the current fee schedules which they maintain. (Please refer to Sec. 4(A) of our Report for a discussion on the reasonableness of fees.) This control ensures that invoices are accurate and calculated in accordance with contractual schedules of fees.

[86] *STRS' externally managed assets account for only about 23% of its total assets.)*
[87] As an added check each manager must reconcile market values with the custodian.

- Generally speaking, payments are made only after reconciliation and approval. While payments are deducted in some instances directly by the payee, for example by the custodian, payment after review and reconciliation prevents payment errors before payment is made.

- As an added control, the procedures for review and reconciliation of invoices and payments are provided to staff in writing in the departmental standard operating procedure manuals. This control ensures that procedures are clearly communicated to staff. Clear, written communication of procedures is an important management control exercised by STRS that further ensures that the procedures are followed in the event of absence of staff and staff turnover.

*The following paragraphs explain the differences in the reconciliation, approval and payment process for various fees paid by STRS. Similar to the fundamental principles, this section is provided to assist the non-expert reader.*

***PROCESS FOR CUSTODY FEES:*** *Fifth Third Bank deducts its fee for domestic and international custody directly from the cash management account after STRS reconciliation and approval. STRS subcustodian, Bank of New York, is paid by Fifth Third Bank. The review and procedures are provided in the cash management standard operating procedures.*

***POLICY FOR PAYMENT OF EXTERNAL MANAGEMENT FEES:*** *The external domestic equity managers are paid directly from the managers' accounts at Fifth Third, after STRS' reconciliation and approval process. The external domestic fixed income managers and external international equity managers are paid directly from the manager's account at Bank of New York, the sub-custodian, after a reconciliation and approval process by STRS and Fifth Third.*

***PROCESS FOR PAYMENT OF EXTERNAL EQUITY MANAGEMENT FEES:*** *The process for approving manager fees for externally managed domestic and international equity accounts requires several steps and levels of review and involvement of staff, the investment managers and the custodians:*

- *Quarterly, the managers submit their invoice to STRS. The invoice is reviewed and calculations are verified by the administrative assistant in Investments.*
- *The fee rates are checked against the current contract fee schedule.*
- *The portfolio market values are verified against the custodial/STRS market values.*
- *Accruals for items such as dividends payable, which are a component of total investment market value of a portfolio are allowed as a component of market value, provided that manager has support for these accruals in the manager monthly reporting package.*
- *The Investment Operations Manager completes a manager share reconciliation verifying positions.*
- *Upon verification and footing of the invoice, the invoice is sent to the Portfolio Manager - External Accounts for approval. A second review of the calculation and verification of reasonableness is completed.*
- *The administrative assistant in Investments prepares and mails a memo of authorization to Fifth Third instructing payment from the manager's account. The memo document is signed by the STRS Executive Director.*
- *Fifth Third receives the authorized memo and payment is wired/deducted from the manager's investment account. For International and Fixed income, Fifth Third approves the payment, and authorizes the Bank of New York, sub-custodian, to wire/deduct the fees from the manager's investment account that resides at Bank of New York.*

***PROCESS FOR PAYMENT OF EXTERNAL FIXED INCOME MANAGEMENT FEES:*** *The process for approving manager fees for externally managed fixed income accounts also requires several steps and levels of review and involvement of staff, the investment managers and the custodians:*

- *Quarter-end market values from manager statements are verified against the quarter-end market values from the custodian.*
- *Using the fee schedule on file from Schedule B of the Investment Management Agreement, the manager fee rate is verified and the fee is recalculated.*
- *A letter from the Executive Director is prepared to authorize the custodian to pay the fee. The signed letter is sent to the custodian with a copy to the OHIO TREASURER OF STATE, and a fax copy to the Fifth Third.*[88]
- *Fifth Third then pays the management fee from the appropriate account.*

***PROCESS FOR PAYMENT OF PRIVATE MARKET MANAGER FEES**: Alternative investment fees are paid directly from the managers' accounts. The fees are determined by the partnership agreements, which are approved and signed by STRS. The fees are reviewed by the external CPA firm that audits the alternative investment partnerships. External real estate management fees are paid directly from the managers' accounts. The fees are also determined by the partnership agreement, which are approved and signed by STRS. The fees are reviewed by the external CPA firm that audits the real estate partnerships.*

***LOCAL PROPERTY MANAGEMENT FEES:** These fees are paid from the property bank account. The property management fees are determined by the property management agreement and are reviewed monthly by the asset managers. Additionally, periodic external audits are completed on the properties and the fees are audited.*

**Other STRS providers of services**, *used in the investment management process such as Bloomberg, Baseline, Institutional Shareholder Services and Investor Responsibility Research Center (for proxy voting), are paid in soft dollars according to STRS' Fixed Fee Services policy and procedures.*

[88] STRS does have a small allocation (1% and 2 managers) in the internal fixed income/emerging market. In their case, Fifth Third could transmit the information to Bank of New York.

## ADDITIONAL OBSERVATIONS REGARDING PAYMENTS:

- Payments in the ordinary course of business for securities settlement go through a rigorous control process that involves numerous parties including the investment decision makers, the traders, the bank custodian, the Ohio Treasurer of State, and the accounting department. Thus it appears that internal controls over payments that have been implemented by STRS management are effective in ensuring accuracy and compliance with fee schedules.

- The System relies on numerous internal controls at its external managers, e.g., real estate and alternative investments. It is the System's policy that fees paid to external managers are audited by the independent auditors of the respective investments.

### 3) The Internal Auditing Activity

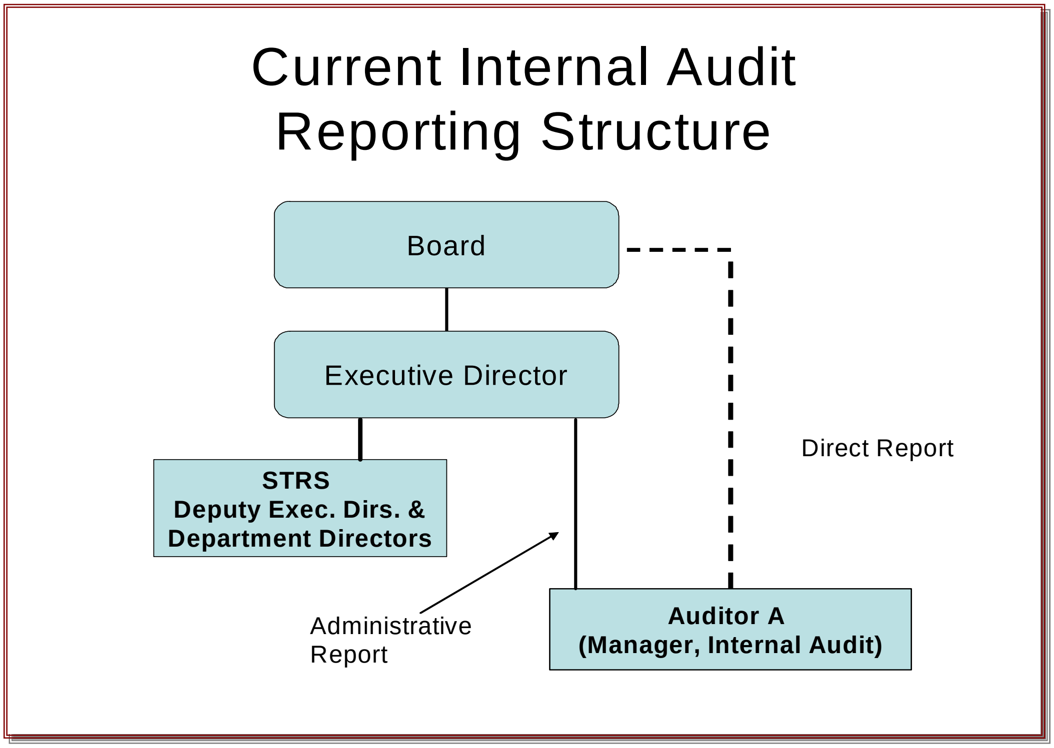
The internal audit function at STRS consists of two professional internal auditors who report to the Board and administratively to the Executive Director. The direct report to the Board is a best practice.[89] One of the auditors serves as the manager of the function. The auditors prepare an annual audit plan that is approved by the Board and Executive Director. The two auditors typically work independently of each other with one focusing on benefit operations and the other on investment operations.

## OBSERVATIONS REGARDING STRS INTERNAL AUDITING ACTIVITY:

- The STRS Internal Auditor is not at the appropriate level within the organization.

[89] We believe that direct reporting to the Board is the highest level and sufficient to address issues at most organizations. We do not contemplate the need for internal audit to report beyond the highest level of management within an organization. However, such reporting could become necessary in rare circumstances where criminal activity within the organization was not dealt with appropriately or if statute required external reporting. We also note here that the Auditor of the State, pursuant to 117.10 ORC has the authority to perform or contract for the performance of an audit, including a special audit, of STRS. In the event of such an audit, the Auditor of State is required to report the results to the ORSC in a timely manner.

- Even though Internal Audit now reports directly to the Board (although the STRS org chart shows the report as a dotted line), and administratively to the Executive Director (although the STRS org chart shows this as a solid line), the Internal Audit Manager position, which is the chief audit executive for STRS, is below the level of the System's departmental heads (Deputy Executive Directors and Directors) that he audits. The diagram below[90] illustrates this point.




[90] The diagram was created by IFS to depict the internal audit reporting structure. It is not a STRS Ohio organizational chart.

- Unfortunately, while senior management acknowledges that the Internal Auditor deserves all their cooperation and respect, the current placement of the auditor function within the organization does little to foster that attitude. Likewise, although the Executive Director has recently included the Internal Audit Manager in meetings of the senior management team, the current organizational placement puts internal audit in a subservient position whether or not it is acknowledged by senior management.

- The chief audit executive should be at a level, in title and organizationally, that is on par with the department heads he audits. This is typical in the public pension world and is consistent with standard best practice. The recent inclusion of the Internal Auditor as part of the management team is a positive step in elevating the position. In addition, the move makes a positive statement about the importance of internal controls and the internal audit function to the rest of the organization.

**Recommendation A50**

*The Board should takes steps to elevate the chief audit executive position on par with the department heads being audited both in title and organizationally. The Board and the Executive Director should make a conscious effort to reinforce the concepts of internal control and internal auditing and their importance to the organization beginning with the senior management team. The organization should depict the Internal Auditor reporting by a solid line to the Board and a dotted line to the Executive Director.*

### 4) Size of Internal Audit Staff

Periodically the Association of Public Pension Fund Auditors (APPFA) reviews the internal audit resources of public pension funds. APFFA's 2005 survey covered the internal audit staffing at over 40 public retirement systems. The APPFA 2005 survey results found that the average size of the internal auditing professional staff is approximately 2.3% of total staff size.[91]

## OBSERVATIONS REGARDING THE SIZE OF THE INTERNAL AUDIT STAFF:

- Using the 2.3% average from the APFFA survey results, STRS' internal audit function is significantly understaffed. STRS has a total of 594 FTEs[92] Using the 2.3% survey average as a thumb-nail formula, the appropriate *average* audit staff size for STRS would be about 14. Thus its current level of two is dramatically below the mean, as a percent of staff.

- Although STRS administration has had a policy of spending across the board for state-of-the-art resources, the Internal Audit function does not reflect the characteristics, in size, capabilities and placement within the organization, of a state-of-the-art audit activity. IFS believes that this is symptomatic of a past management culture to tightly control review of internal operations. Another example is STRS Information Technology (IT) division. Although STRS IT is "state-of-the-art" and has a staff of 170+ it does not have a skilled IT audit function.[93] Using the same average, STRS should have at least four dedicated IT auditors as part of the IT complement.

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[91] Association of Public Pension Fund Auditors, Inc. Survey of Public Pension Funds reported the following audit staff size for the ten pension funds listed: CalPERS -- 36 auditors; LACERA –7; COPERA – 5; LASERS – 8; TRS of LA – 8; NYSERS – 16; NYSTRS – 9; OH PERS – 6; TX TRS – 8; and VRS 5.

[92] FTE - Full time employees. Total number of employees as of the writing of this Report was 616, as shown elsewhere in the Report.

[93] We note that since our review one of STRS auditors has obtained the Certified Information Systems Auditor (CISA) designation.

## 5) The Number and Frequency of Internal Audits

### OBSERVATIONS REGARDING THE NUMBER OF INTERNAL AUDITS:

**The annual financial audit is not a replacement for a properly functioning Internal Audit department.**

Internal and external auditors have mutual interests regarding the effectiveness of internal financial controls. There are, however, major differences with regard to their relationships to the organization, and to their scope of work and objectives.

The internal auditors' are part of the organization. Their primary clients are management and the board. External auditors are not part of the organization, but are engaged by it.

The internal auditor's scope of work is comprehensive. It serves the organization by helping it accomplish its objectives, and improving operations, risk management, internal controls, and governance processes. Concerned with all aspects of the organization — both financial and non-financial — the internal auditors focus on future events as a result of their continuous review and evaluation of controls and processes. They also are concerned with the prevention of fraud in any form.

The primary mission of the external auditors is to provide an independent opinion on the organization's financial statements, annually. Their approach is historical in nature, as they assess whether the statements conform with generally accepted accounting principles, whether they fairly present the financial position of the organization, whether the results of operations for a given period of time are accurately represented, and whether the financial statements have been materially affected.

While the audit staff endeavors to function according to professional standards, the task is monumental when one considers it is dramatically understaffed. For this reason, it is virtually impossible for the team of two to properly audit the System.

The auditors have split their responsibilities so that generally one covers investments and the other benefits. Thus, for all of its multi-billion and multi-faceted internal and external *investment* programs and activities there is essentially only one auditor. The same illustration holds for all of STRS' multi-employer benefit programs with thousands of members. These same two individuals must also cover the IT area.[94]

Ideally, the head of Internal Audit should be planning audits annually to be done by a staff of approximately 13, while in reality he can barely hope to dent the audits that need to be done.

Given its current staffing level for internal audit, unless it intends to completely outsource the function, STRS is incapable of developing an internal audit strategy that provides a means of attaining an appropriate level of audit coverage necessary to accomplish generally accepted management objectives for an internal audit department. We note that this observation

[94] In 2001 STRS outsourced a review of its internal controls in the IT area.

is not a criticism of the current internal audit staff, but rather an admonition to STRS senior management and Board for keeping the internal audit department at such a low level relative to the size, complexity and mission of the organization.[95]

| **Recommendations A51 – A54** |
|---|
| *STRS should increase the audit staff responsible for investments, benefits, and information technology, commensurate with its size, needs, complexity, and industry practice. An average size would be fourteen (14) auditors based on 2.3% of total staff size at the time of this review.* |
| *STRS should develop an audit plan that is appropriate for its size and complexity, i.e., one that reflects an appropriate internal audit staffing level.* |
| *Once the appropriate size and plan are achieved the internal audit department should undergo a Quality Assessment in accordance with professional standards.* |
| *STRS should supplement its Internal Audit capabilities with outsourcing audits in accordance with an approved audit plan until staff size and capabilities come up to speed.* |

### 6) Internal Controls Over Portfolio Risk

Investment risk in an organization using a combination of internal and external managers is most effectively controlled through the development and enforcement of investment policy statements and individual investment manager guidelines consistent with the investment objectives, asset allocation parameters and risk tolerance of the portfolio.

## OBSERVATIONS REGARDING INTERNAL CONTROLS OVER PORTFOLIO RISK:

- STRS has a sophisticated portfolio risk management process that incorporates numerous management tools at the asset class level.

- STRS also recognizes the importance of asset allocation in managing the overall portfolio for return. STRS stated risk management philosophy recognizes that "the absolute risk

95 We understand that the STRS Board approved adding one internal auditor at its March 2006 meeting.

attributed to investing in the various asset classes comes from the asset allocation decision, and not from the decisions made within the asset classes."[96]

- Beyond asset allocation, a topic discussed in Investment Issues Section 6(A) of this report, the tools used by STRS portfolio managers designed to control portfolio risk include the STRS Statement(s) of Investment Objectives and Policy, the STRS Annual Plan, and respective investment guidelines; including risk limits, benchmark or tracking risk targets (risk budgeting) and measurements, compliance checking using third party tools (Barra & Wilshire Atlas), management reports, style and sector analysis, performance attribution analysis, and reporting of portfolio characteristics on sections of the STRS intranet.[97]

### 7) STRS General Organizational Risk Management

## OBSERVATIONS REGARDING ORGANIZATIONAL RISK MANAGEMENT:

- As discussed immediately below in sub-section 8, the System has informal risk identification, analysis and mitigation processes that are performed at the department level.

- There is no formal mechanism for consolidation of the process and reporting on risk up to top management. Such a system of risk management should identify residual risk, i.e., risk that is not adequately controlled.

| **Recommendations A55 – A57** |
|---|
| *Each department head should establish operational, financial and compliance objectives. Risks to achieving established objectives should then be identified.* |

[96] STRS Risk Management. Provided to IFS in response to our document request. We agree with this statement insofar as it addresses the pure theoretical investment risk to a portfolio. The statement and the term "absolute risk" are not intended to address the various other types of risk that may be associated with an investment decision within an asset class.
[97] Risk estimates are reported on the Quantitative Group's intranet website.

| Recommendations A55 – A57 |
|---|
| *The System's overall mission, goals, and objectives should be integrated into the risk assessment.* |
| *A formal tool for department heads to periodically provide risk reports to senior management should be developed.* |

### 8) STRS' View of Risk Management

## FUNDAMENTAL PRINCIPLES OF RISK MANAGEMENT:

- *The current paradigm on risk management is to take an enterprise view of risk.*[98] *This view, as described by the Committee of Sponsoring Organizations ("COSO")*[99]*, is based on several premises:*
    - *Every entity exists to provide value for its stakeholders.*
    - *All entities face uncertainty and the challenge for management is to determine how much uncertainty to accept as it strives to grow stakeholder value.*
    - *Uncertainty presents both risk and opportunity, with the potential to erode or enhance value.*
    - *Enterprise Risk Management ("ERM") enables management to deal effectively with uncertainty and associated risk and opportunity, enhancing the capacity to build value.*
        - ✓ *Enterprise Risk Management (ERM) encompasses the original internal control framework components developed thirteen years ago*[100] *and incorporates them into the new ERM - Integrated Framework*[101]*. The new ERM Framework adds objective setting, event identification, and risk response to arrive at the new integrated framework:*

[98].Enterprise Risk Management – Integrated Framework. 2004. The integrated framework focuses primarily on controls within an organization and thus, does not pay particular attention to the roles of external regulatory or oversight bodies such as the ORSC.
[99] Committee of Sponsoring Organizations of the Treadway Commission. It is generally acknowledged that the principles of the Committee and the COSO Framework extend beyond for profit organizations to other organizations.
[100] Internal Control – Integrated Framework. COSO/Treadway. 1992.
[101] Op cit.

| **Old Paradigm:** Components of the 1992 COSO Internal Control Framework | **Components Added by the ERM Framework** | **New Paradigm:** 2004 - Enterprise Risk Management – Integrated Framework |
|---|---|---|
| **Control Environment** | → | **Internal Environment** |
| | **Objective Setting** | **Objective Setting** |
| | **Event Identification** | **Event Identification** |
| **Risk Assessment** | | **Risk Assessment** |
| | **Risk Response** | **Risk Response** |
| **Control Activities** | | **Control Activities** |
| **Information and Communication** | | **Information and Communication** |
| **Monitoring** | | **Monitoring** |

*The COSO ERM – Integrated Framework contemplates an implementation program that begins at the top of the organization with a champion, the CEO and Board, to assume ownership.*

## OBSERVATIONS REGARDING STRS VIEW OF RISK MANAGEMENT:

- In general the System takes a holistic view of portfolio risk management that is driven by its asset allocation and its Annual Investment Plan (See discussions in Sections 2(A) and 6(A) on Portfolio Risk and Asset Allocation, respectively).

- Although the System takes a holistic view of portfolio risk management, its view of overall organizational risk management is compartmentalized.

  - Each department head is held responsible for informal risk identification and mitigation within his/her own area without a mechanism for the conglomeration of risk management that culminates at the Executive Director and Board.

**Recommendation A58**

*Implementation of any new paradigm is not without cost. Therefore, we recommend that STRS consider the relative benefits and costs of implementing the ERM Integrated Framework prior to doing so.*

## The Role of Internal Audit in Enterprise Risk Management[102]

*Implemented by management, ERM is evaluated by the internal auditors for effectiveness and efficiency.*

- *Internal auditors, in both their assurance and consulting roles, contribute to the management of risk in a variety of ways. They play a key role in evaluating the effectiveness of – and recommending improvements to – ERM. IIA Standards specify that the scope of internal auditing should encompass risk management and control systems.*

- *The internal auditor's varied roles in and emphasis on ERM are dependent on the maturity of the ERM process in the organization. The safeguard that should be put in place before the internal auditors carry out their ERM-related roles is to ensure that the entire organization fully understands management's responsibility for risk management.*

- *The internal auditors' core ERM role is to provide objective assurance to the board and senior management on the effectiveness of the ERM activities in helping ensure key business risks are managed appropriately and the system of internal control is operating effectively.*

- *Internal auditing s key ERM-related roles and assurance activities include:*

  - *Providing assurance on the design and effectiveness of risk management processes.*
  - *Providing assurance that risks are correctly evaluated.*
  - *Evaluating risk management processes.*
  - *Evaluating the reporting on the status of key risks and controls.*
  - *Reviewing the management of key risks, including the effectiveness of the controls and other responses to them.*

- *Additional legitimate internal audit roles and consulting activities may help to protect the internal auditor's independence and objectivity when accompanied by adequate safeguards. They include:*

[102] Excerpts from Executive Summary of ERM Integrated Framework, issued by COSO - Sept 2004; Position paper by IIA -- The Role of Internal Audit in Enterprise-wide Risk Management - Sept 2004; IIA UK: "Position Statement on Risk-Based Internal Auditing".

- *Championing the establishment of ERM within the organization.*
- *Developing risk management strategy for board approval.*
- *Facilitating the identification and evaluation of risks.*
- *Coaching management on responding to risks.*
- *Coordinating ERM activities.*
- *Consolidating the reporting on risks.*
- *Maintaining and developing the ERM framework.*

- *The roles the internal auditors should NOT undertake are:*

  - *Setting the risk appetite.*
  - *Imposing risk management processes.*
  - *Providing assurance to the board and management*
  - *Making decisions on risk responses. This is management s responsibility.*
  - *Implementing risk responses on management s behalf.*
  - *Accountability for risk management.*

## 13. Investment Accounting

### FUNDAMENTAL PRINCIPLES REGARDING INVESTMENT ACCOUNTING:

- *The primary purpose of an investment accounting process is to serve as a fundamental internal control over a system's investment activities in order to provide management with reasonable assurance that assets are properly safeguarded and that all transactions are recorded and reported timely and accurately in accordance with management's policy directives.*

- *A basic characteristic of the accounting process is that it should be independent of the people who have custody and control of the assets. A typical investment accounting system provides such controls primarily by maintaining a place in which all transactions are properly recorded, ideally, at or near the time of the activity and 'ownership' of the accounting system is independent of the investment decision makers.*

### OBSERVATIONS REGARDING INVESTMENT ACCOUNTING:

- STRS uses a purchased investment accounting system named Maximis as its primary investment accounting database. 75% of peer funds reported using a purchased or leased investment accounting system. While 62.5% of peer funds reported using the custodian as the holder of official accounting records, STRS size and use of internally managed portfolios adds justification to in-house maintenance of the accounting records.

- STRS' trading platforms for domestic equities and fixed income interface with and update Maximis automatically. All actual activity in domestic equities and fixed income assets is then subsequently compared against it, either automatically or manually, and thus controlled.

- The investment accounting system provides trade date financial reporting, managerial analysis capabilities and support for the System's general ledger.

- STRS must insure that the Maximis technology continues to be appropriate for its needs.
  - Maximis is supported by Unisys, a company with substantial strength. Maximis' primary users are companies in the insurance industry.
  - STRS is reportedly the only public pension fund that uses Maximis. We understand that STRS works actively with Unisys and participates in its annual users' conference to ensure that Maximis continues to support its needs.
    - ✓ This is not necessarily a negative since, owing largely to STRS extraordinary capabilities in IT, staff have been able to make the most of Maximis through internal modifications to meet its specific accounting needs.
    - ✓ STRS is known in the public pension fund industry as being progressive in is use of cutting edge technology.
  - While the primary users of Maximis – insurance companies – are institutional investors who have many similarities to public funds, the needs of the insurance companies may take precedence over STRS' needs when Unisys decides what to include in version updates.

- Maximis is adequate to achieve the control objectives for the STRS internally managed domestic equity, international equity, and fixed income transactions incurred by the System. Other transactions such as externally managed international equity, alternatives, securities lending, and real estate are initially recorded in and controlled by other accounting systems and then posted in summary form to the Maximis system.

## ADDITIONAL OBSERVATIONS REGARDING INVESTMENT ACCOUNTING DEPARTMENT:

- The Investment Accounting department consists of four people whose primary responsibilities are a) cash processing, including settlement balancing and bank reconciliation, b) posting of summary activity for externally managed international investments, c) month-end reporting, and d) investment performance review.

- The following is an explanation of each of the Investment Accounting department's primary functions:

  **Cash processing.** This function is driven by the STRS cash 'forecast.' The cash forecast is developed from expected cash flows based primarily on transactions and investment holdings. Cash inflows expected in the ordinary course of business include dividends and interest, sale proceeds, securities lending income, and distributions/withdrawals of capital. Cash outflows include payments to settle security purchases, payments of expenses, and contributions of capital. Actual cash flows are matched to the forecasted cash flows and differences are identified and resolved.

  **Posting of summary activity.** This function is performed for international investments monthly from accounting records maintained by the Bank of New York, the System's global custodian. It is not unusual for public funds to rely on their global custodian to maintain accounting records for international portfolios. Posting of summary information for alternative and real estate investments is performed monthly within the respective investment departments. It is not unusual for public funds to perform accounting functions for these asset classes outside of the primary investment accounting system.

**Month end reporting.** This function is performed in support of managerial processes includes standard and ad hoc reports. The standard reports include holdings and valuation, transactions, income and expense, and bank and investment account reconciliations.

**Investment performance review**. The investment accounting department serves as an independent review of the monthly investment performance results calculated by the Systems internal performance measurement system.

- It appears to us that these processes are all consistent with the basic functionalities of an effective and efficient investment accounting system working within the constraints imposed by the nature of a large, diverse, global investment accounting program. In addition, although certain accounting functions lie outside the 'accounting department' and within investment operations, there appears to be sufficient control mechanisms, such as reconciliation, separation, supervision, review, and approval, to enable an adequately controlled accounting environment.

- We found STRS' investment accounting system and processes to be adequate and consistent with its functional needs.

## B. Management Issues

### 1. Board Governance, Policies and Oversight

#### a. Effectiveness and appropriateness of the policies, procedures, rules, and statutory provisions currently used by the System for board governance and compliance with these procedures, rules and statutory provisions

**BACKGROUND**

As used in this report, the term "governance" refers to the system by which an organization is directed and controlled. A governance structure defines the roles of various participants in the components of the organization's decision-making process, including the identification of issues requiring action, analysis of alternatives, the making of the decision, the implementation of the decision, and for monitoring and assessing performance.[103]

The System's governance structure is articulated primarily in Chapter 3307 of the Ohio Revised Code, the provisions of Senate Bill 133, the Board's Rules set forth in Chapter 3307 of the Ohio Administrative Code (the "Rules") and the official Board Policies[104]. We have already commented on the most significant elements of the statutes and the policies implementing provisions relating to travel and ethics (see Investment Issues Section 9(A) above), and will not repeat that discussion here. Rather, this section of our report will focus on the official Board Policies and Rules that relate to other aspects of the governance of the System.

**FUNDAMENTAL PRINCIPLES REGARDING BOARD GOVERNANCE:**

- *A good governance structure includes most, if not all, of the following principal elements: accountability; transparency; fairness, responsiveness; inclusiveness, compliance with legal requirements; predictability; effectiveness and efficiency. These governance concepts are pertinent to all types of organizations, including public pension plans.*

[103] See, generally, "Preamble", *OECD Principles of Corporate Governance* (Organization for Economic Co-operation and Development, 2004).
[104] Our review examined the System's Rules and Policies as of March 2005.

- *It has been documented that the value of poorly performing companies improved significantly after the institution of good governance practices.*[105] *Thus, good governance adds value.*

- *Poor governance is an internal threat that can unnecessarily expose an entity to the possibility that policies and procedures may not be implemented properly. For a pension fund, poor governance creates the threat that the System's assets will underperform expectations.*[106]

- *Good board governance creates the context for the pension fund organization.*[107] *The costs of poor public pension fund governance, particularly given the System's asset size and number of participants, are potentially greater than the costs of poor corporate governance.*

- *Poor governance is typically ranked as the principal barrier to excellence within an organization, followed by inadequate resources and lack of focus or of a clear mission.*[108]

- *The starting point for a good governance structure is clear written documentation of its elements.*

## OBSERVATIONS REGARDING BOARD GOVERNANCE:

- The System's Policies and Rules are impressively comprehensive, and they cover all of the significant aspects of governance a sophisticated public pension fund requires.

- The "Purpose" provision of the Policies has been revised to render more prominent the member-orientation of the Board's mission and principles.

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[105] Wilshire study of "CALPERS effect." Steven L. Nesbitt, Long-Term Rewards From Shareholder Activism: A Study of the "CalPERS Effect", J. of Applied Corp. Fin. (Winter 1994), and Steven L. Nesbitt, The "CalPERS Effect": A Corporate Governance Update, July 19, 1995. The 1994 and 1995 studies were more extensive and supported Wilshire's initial 1992 study indicating that a company's stock performance seemed to improve as a result of CalPERS' focus.

[106] Public Pension Systems Statements of Key Risks and Common Practices to Address Those Risks, July 2000. Endorsed by the Association of Public Pension Fund Auditors (APPFA), the National Association of State Retirement Administrators (NASRA), and the National Council of Teachers Retirement (NCTR).

[107] The 7 Habits of Highly Effective Pension Funds by Keith Ambachtsheer, The Councilor, Council of Institutional Investors Newsletter, February, 2004.

[108] Source: "Excellence Shortfall in Pension Fund Management: Anatomy of a Problem" by Keith Ambachtsheer, Craig Boice, Don Ezra and John McLaughlin – October 1995.

- The System's mission, which had read, "*To be the leader in assuring financial security for Ohio educators*," was restated in March, 2005 as follows: "*To partner with STRS Ohio members in providing financial performance and member service that assures financial security for current and future retirees*."

- As restated, the Purpose provision now has a section with seven "Guiding Principles," the first of which is, "Make decisions that produce the greatest possible net benefit for members." What is significant in this formulation is the phrase, "*net benefit*," which properly implies consideration of the cost of providing a particular benefit or service in determining its value to the members. The Board's recognition of the relevance of cost should assist in addressing the concerns we heard regarding the need to assure that the Board considered whether the costs associated with improvements in services and benefits for members and staff could be justified.

*To assess the effectiveness and appropriateness of STRS' current policies, procedure, rules and statutory provisions used for board governance, we examined board composition (size, and membership criteria and process), the use of committee and the level of public access and participation in the STRS' governance process. This is discussed below.*

## OBSERVATIONS REGARDING BOARD COMPOSITION:

- We researched board composition at the 22 public pension funds, outside the state of Ohio, that constitute the customized peer group for STRS and OP&F. The results are set forth in Table B1 below – *Board Composition Comparison*. The STRS peer group is highlighted in blue. (The OP&F peer group is highlighted in yellow.) The average board size for the 22 funds identified in the table is 11 and the median is 11.

- The Board's size expanded from nine to 11 members as a result of the enactment of S.B. 133. When compared to the sample group, the current board size is in line with the combined peer group.

**Table B1: Board Composition Comparison**

| Fund Name | Size | Board Composition Description |
|---|---|---|
| **State Teachers Retirement System of Ohio** | 11 | **5** elected contributing teacher members; **2** elected retired teacher members; an investment expert appointed by the governor [**1**]; an investment expert appointed jointly by the speaker of the House and the Senate president [**1**]; an investment expert designated by the treasurer of state [**1**]; and the superintendent of public instruction or her designated investment expert [**1**] |
| **Ohio Police and Fire Pension Fund** | 9 | **6** employee members elected by their respective member groups; **3** statutory members with professional investment experience (*one appointed by the Governor, one appointed by the State Treasurer, one appointed jointly by the Senate President and the Speaker of the House*) |
| **The School Employees Retirement System of Ohio** | 9 | **4** members are elected by the membership and **2** members are elected by service and disability retirees. The remaining **3** are appointed investment experts. |
| **Ohio Public Employees Retirement System** | 11 | **6** elected, **4** appointed and **1** statutory |
| **State of Hawaii Employees' Retirement System** | 8 | **4** of the eight members on the Board are elected by the membership. **3** members are citizens of the State (*one of whom is an officer of a bank authorized to do business in the State or a person of similar experience, who are not employees and are appointed by the Governor*). The State Director of Finance is an ex-officio member by statute. [**1**] |
| **Arkansas Teacher Retirement System** | 15 | The Bank Commissioner, the Treasurer of the State, the Auditor of the State, and the Director of the Department of Education shall be the ex officio trustees. [**4**] 11 **<u>members shall be elected to the ATRS Board</u>** of Trustees – seven of whom shall be active members of the system with at least five years of credited service in force, one who is a member of a racial ethnic group and is either an active or retired member, and three (3) who are retiree members and reside in the State of Arkansas. |
| **Teachers' Retirement System of Oklahoma** | 13 | The State Superintendent of Public Instruction, ex officio, The Director of State Finance, ex-officio, The Director of the Oklahoma Department of Career and Technology Education, ex officio (or his/her designee) [**3**]; **1** member appointed by the governor; **2** members appointed by the Governor and approved by the Senate – other [**7**] ? – Karen will call back before the end of this week. |
| **New Mexico PERA** | 12 | **10** elected by various portions of the members (4 by state members, 4 municipal members and 2 by retiree members); [**2**] ex-officio (State Treasurer, Secretary of State)<br>– information provided by Jane Clifford @ PERA |
| **Maine State Retirement System** | 8 | The Treasurer of State or the Deputy Treasurer of State; A person who is a member of the retirement system through employment as a teacher; a person who is a member of the retirement system through |

**Table B1: Board Composition Comparison**

| Fund Name | Size | Board Composition Description |
|---|---|---|
| | | employment as a state employee [**3**]; **4** persons appointed by the Governor and subject to review by the joint standing committee of the legislature, [**1**] a person who is a member of the retirement system through a participating local district and who must be appointed by the governing body of the Maine Municipal Association |
| **Public Employee Retirement System of Idaho** | 5 | Retirement Board consists of **5** members **appointed by the Governor** to fulfill five-year terms. Two members of the Board must be active members of the system with at least ten years of service. The other three members are selected from private sector. |
| **Employees' Retirement System of Rhode Island** | 15 | The Retirement Board is composed of fifteen members chosen in accordance with Title 36 of the Rhode Island General Laws |
| **Indiana Public Employees' Retirement Fund** | 6 | **5** are appointed by the Governor; 1 is Director of the Budget Agency or Director's designee – an ex officio voting member of the board (effective July 1, 2005– Senate Bill #149) |
| **Indiana State Teachers' Retirement Fund** | 6 | **5** are appointed by the Governor – 2 of the trustees must be Indiana educators eligible to be members of the Fund. A Director appointed by the Governor carries out the policies set by the board and administers the Fund on a daily basis. Pursuant to Indiana law, the Director is also required to be a member of the Fund. 1 is Director of the Budget Agency or Director's designee – an ex officio voting member of the board (effective July 1, 2005 – Senate Bill #149) |
| **City of Los Angeles Police and Fire Pension System** | 9 | **5** appointed by Mayor and **4** are elected – two are elected by active fire and police officers and two are elected by retired fire and police officers – currently have 8 – w/ one vacancy – currently have only 4 mayoral appointees. (information obtained over the phone - spoke with David) |
| **Teachers' Retirement System of Louisiana** | 16 | 12 elected , 4 ex-officio; The four ex-officio members include the State Superintendent of Education, the State Treasurer, and the Chairmen of the House and Senate Retirement Committees. |
| **Colorado PERA** | 16 | State Auditor and State Treasurer as ex-officio [**2**], **14** representative members are elected by mail ballot by their respective division members to serve on the Board for a four-year term |
| **Georgia TRS** | 10 | **2** ex-officio members – the State Auditor, the Director of the Office of Treasury and Fiscal Services; **5** Governor's appointees, **1** appointee of the Board of Regents who is a TRS member, **2** appointees made by the Board of Trustees |
| **Maryland State Retirement and Pension System** | 14 | A combination of elected, appointed and ex-officio members |
| **Michigan State Employees' Retirement System**[109] | 5 | The State Treasurer [**1**] who may appoint a representative from the Department of Treasury to serve as a voting member of the board in the absence of the State Treasurer and **4** trustees appointed by the governor, with the advice and consent of the Senate. (*Not more than 2 of the trustees appointed under this subsection shall be members of the same political party*). |

[109] Bureau of Investments

**Table B1: Board Composition Comparison**

| Fund Name | Size | Board Composition Description |
|---|---|---|
| **New York State Teachers** | 10 | **3** teacher members, **1** NYSTRS retiree, **2** school administrators are appointed by the Commissioner of Education, **2** present or former school board members, **1** present or former bank executive is appointed by the Board of Regents, the State Comptroller or designee [**1**] |
| **North Carolina Retirement System Board of Trustees of the Teachers' and State Employees' Retirement System** | 14 | The Board of Trustees governing the State and Local Retirement Systems is composed of two governing bodies. The first is the Board of Trustees of the Teachers' and Sate Employees' Retirement and the second is the Board of Trustees of the Local Governmental Employees' Retirement System.<br><br>▪ The Board of Trustees governing the Teachers' and State Employees' Retirement System has 14 members. The State Treasurer and Superintendent of Public instruction serve ex officio [**2**]. **10** members are appointed by the Governor and confirmed by the Senate. **1** member is appointed by upon the recommendation of the Speaker of the House of Representatives and **1** member is appointed upon the recommendation of the President of the Senate. |
| **Board of Trustees of the Local Governmental Employees' Retirement System** | 17 | ▪ The Board of Trustees of the Local Governmental Employees' Retirement System has 17 members – the Board of Trustees of the Teachers' and State Employees' Retirement System, plus **3** additional members appointed by the Governor. |
| **Public School Employees Retirement System of PA** | 15 | Ex-officio [**3**] – Secretary of Education, the State Treasurer, the Executive Secretary of the PA School Boards Association; **2** persons appointed by the Governor, **3** persons elected by the active professional members of the system from among their number; **1** person elected by the active nonprofessional members of the system from among their number; **1** person elected by the annuitants of the System from among their number**;** **1** person elected by members of the PA public school boards from among their number; and **2** Senators and **2** members of the House of Representatives |
| **Teacher Retirement System of Texas** | 9 | Board members are appointed by the Governor for six-year, staggered terms and are confirmed by the Senate. The governor designates the board's presiding officer. |
| **Tennessee Consolidated Retirement System** | 19 | The Board consists of 9 ex-officio members. **8** representatives of the active TCRS membership and **2** representatives for retirees. |
| **Virginia Retirement System** | 9 | The Governor appoints five members, including the chairman. The Joint Rules Committee of the Virginia General Assembly appoints four members. The General Assembly confirms all appointments. Of the nine Board members, four must be investment experts; one must be experienced in employee benefit plans; one must be a local government employee; one must be an employee of a Virginia public institution of higher education; one must be a state employee; and one must be a public school teacher. The public employee members may be either active or retired. |

## OBSERVATIONS REGARDING MEMBERSHIP CRITERIA:

- S.B. 133 also changed the makeup of the Board. The five Board members who are elected active members of the System no longer constitute the majority of the Board since the Board now also includes two elected retirees, the Superintendent of Public Instruction (or her "investment expert" designee), the State Treasurer's "investment designee," and two "investment expert members", one appointed by the Governor, and the other appointed by the House Speaker and Senate President acting jointly.

- The State Auditor and Attorney General are no longer members of the Board and do not designate any Board members. While the fact that the AG is no longer a member of the Board mitigates somewhat the effect of the provision of S.B. 133 giving the AG the right to sue Board members for breach of fiduciary duty, serious concerns arising out of that point nonetheless remain as discussed earlier in this Report. Likewise, removing the Auditor from the Board resolves conflict issues arising out of the Auditor's oversight functions.

- The four appointed Board members (including the Superintendent of Public Instruction's investment expert designee) are all required to be residents of the state and to have "direct experience in the management, analysis, supervision or investment of assets." These members cannot, however, have been employed in the three years before appointment by any company that provided investment-related services to any of the five retirement systems.

- The changes in the Board's composition to add "investment experts" and "investment designees" create challenges to preserve both the appearance and the reality that the Board's decisions are not burdened by conflicts of interest.

- While the law now requires Board members running for election to one of the five seats for active members of the System or the two seats for retirees to disclose contributions to their campaigns, the "investment experts" appointed by the Governor, the Treasurer and the House Speaker and Senate President need not disclose their contributions to the campaigns of the state officials who appoint them.

- The System cannot do business with a Board member or a firm he or she controls.[110] However, that ban does not cover business dealings with the firm that employs the Board member and does not restrict the other state-wide systems in their dealings with the Board member or his or her firm or employer. Thus, for example, an "investment expert member" of the STRS Board can obtain brokerage business from the managers of the Police & Fire Pension Fund with that fund's assets even as that same manager is managing a STRS portfolio and subject to the STRS Board's oversight. In addition, there are no limits to a Board member's employer's dealings with the System after his or her tenure on the Board ends.

**Recommendation B1**

*We recommend that the Board require that the Board's "investment expert designees" and "investment expert members" be required to disclose any campaign contributions either they or their employers have made to the officials who have appointed them. In addition, the firms that employ those, and any other, Board members should be barred from doing business with the assets of any of the Ohio state-wide retirement systems while on the Board and for a period of at least three years thereafter.*

## OBSERVATIONS REGARDING ELECTION OF BOARD OFFICERS:

- The Policy entitled, "Officers, Term of Office, Duties" spells out the terms of the Chair and Vice Chair, the procedure for electing them and the scope and limits of their duties. Each officer serves for one year.

- The new process for electing the Board's officers is more democratic; a secret ballot election is held for Vice Chair each year, and the Vice Chair becomes Chair the following

[110] O.R.C. Sec. 3307.151

year. This replaces a system whereby officers served until replaced, and elected trustees rotated up to an office based on seniority, absent a nomination of a Board member other than the one next in line.

- The change in Policy renders the process more democratic. Another enhancement to the Policy states, "The Chair will welcome input from fellow Board members regarding the Board's agenda for each meeting."

## FUNDAMENTAL PRINCIPLE REGARDING THE USE OF BOARD COMMITTEES:

- *Board Committees provide a systematic, focused approach for trustees to deal with issues and achieve objectives. Smaller groups can generally work more efficiently and less formally. The use of a committee structure is consistent with governance best practices. In our experience most public fund boards employ committees as part of their governance structure.*

## OBSERVATIONS REGARDING STRS' USE OF COMMITTEES:

- The Board's policies on committees are complete and well stated. At the time of this review, the STRS Board utilized 12 committees. Each STRS committee has a charter delineating its areas of responsibility and the extent of its authority. There is also a general policy statement applicable to all committees, entitled, "Committee Principles." That policy statement articulates a useful rule that a committee "that has helped the Board create policy on some topic will not be used to monitor organizational performance on that same subject." This requirement enhances the objectivity of the monitoring process.

- The policy statement also covers issues such as the quorum for a committee to conduct business and limitations on committees' authority to speak or act for the Board and relations between committees and staff. The Committee Principles provide that each committee's meeting agenda is set by the committee chair "in conjunction with appropriate staff." This formulation could be read to exclude committee members other than the chair from participating in setting the agenda. This is unduly limiting, and is inconsistent with the recent change to the "Officers, Term of Office, and Duties" policy regarding Board member input into the Board's agenda discussed above.

| **Recommendation B2** |
|---|
| *We recommend that the Committee Principles be revised to require that the committee chairs be receptive to input on the agenda from committee members.* |

- The Board has dramatically reduced the number of Committees. In essence, virtually all Board functions are now lodged in the entire Board, either as a Board or as a "Committee of the Whole." There are now only two actual committees, Audit and Investments.

- When IFS began its work, the Board functioned with a total of twelve (12) committees, an unusually large number in our experience (although five of the 12 were "Committees of the Whole").

  - In March, 2005 the Board's policies were revised to reduce the number of committees to five: Audit, Disability (committee of the whole), Final Average Salary (committee of the whole), Investment and Staff Benefits.

    - ✓ The Investment Committee, which had been a committee of the whole, now consists of the Chair and the Board's four investment designees and investment expert members added by S.B. 133.

    - ✓ The Staff Benefits Committee, which had consisted of three board members, now has five members.

- The functions of several of the eliminated committees, such as the Actuarial and Election Committees, have been transferred to the full Board. Many of the functions of the Health Care Committee, which had been a committee of the whole, have now been assigned to "Board liaisons" to be appointed by the Chair to work with the Deputy Executive

Director – Benefits. In addition, the Vice Chair is to perform some of the functions of the eliminated Committee on Board Annual Planning and Evaluations. The new committee structure and other revisions of the policies make no provision for the functions performed by the eliminated Information Technology Committee.

- It is too early to know how the Committee changes will affect the Board's ability to do its work efficiently and effectively. The Board may have replaced an unwieldy proliferation of committees with a structure that has too few. All Board members will be involved in issues formerly handled by only a few, which will render the Board as a whole more clearly accountable for key decisions. However this means that the Board may lose the efficiency and the ability for particular members to develop specialized knowledge in areas such as information technology which a committee structure can facilitate. This last concern is mitigated somewhat in the case of the Investment Committee which, as indicated above, will include four members with investment experience among its five members.

- The elimination of the Information Technology Committee may be problematic in view of the technical issues associated with the subject area and the significant investment in resources and people which the System devotes to information technology.

**Recommendation B3**

*We recommend the Board re-examine the committee structure periodically to determine if more or different committees should be established to improve the Board's decision-making. Possible additions to the list of committees include a Budget Committee and an Information Technology Committee.*

- We also note that the Disability and Final Average Salary Committees are currently "Committees of the Whole" which means that they effectively are the Board, and not committees. We are unable to identify a reason for classifying the Board as a "Committee" for these purposes, particularly since, in the case of disability decisions, Section 1-7-05 of the Board's rules appear to require action by the full Board.

## OBSERVATIONS REGARDING PUBLIC PARTICIPATION:

- We understand that while the Open Meetings Law does not require it, members of the public have long been permitted to address the Board at its public meetings. However, during the interview process, we were informed that in the recent past Board meeting questions raised by the public went unanswered.

- There was no stated policy concerning the practice until the Board adopted a policy in March, 2005 entitled, "Public Participation at Board Meetings."

  - The Policy characterizes the Board as "the link between the Retirement System and its members and benefit recipients."

  - The Policy requires members of the public who desire to address the Board to sign up at the meeting, and to limit their remarks to three minutes.

  - The Policy reasonably reserves to the Chair the authority to terminate a speaker's remarks if, after being called to order, the speaker persists in "improper conduct or remarks."

  - The new Policy requires the Executive Director to "answer all pertinent questions verbally or in writing at a later time," but does not establish a procedure for recording either the fact that the questions have been answered or the content of the responses.

    - ✓ Maintaining that information is important to document compliance with the policy as well as to assure that information provided in response to questions is retained in the event of a dispute over what was stated.

- ✓ Maintaining records of such responses provides a basis for providing consistent responses to similar inquiries.

| **Recommendation B4** |
|---|
| *We recommend the Board direct the Executive Director to maintain a record of responses to questions posed by members of the public at the Board's public meetings, indexed by date and subject to permit verification of compliance with the Board's policies, to preserve a record of statements made and to promote consistency in information provided to the public.* |

### b. Compliance with Statutory Provisions and Rules and Governance Procedures[111]

## OBSERVATIONS REGARDING STRS' COMPLIANCE WITH STATUTORY PROVISIONS, RULES, AND GOVERNANCE PROCEDURES:

- The information available to IFS (including the documentation provided and the responses provided during the interview process) gives us no reason to believe that the Board is not currently in compliance with its internal governance procedures and statutory provisions and rules. Many of the statutory provisions have been recently changed as a result of S.B. 133, and the board has been adopting new policies and modifying existing ones to implement these changes. The System's Board and staff have been diligent in taking those steps (*see Table entiled, Status of Compliance with S.B. 133 in Section 9A*). Thus, many of our recommendations are directed at monitoring how elements of these changes are in fact being implemented.

[111] For purposes of readability we combined our evaluation of STRS' compliance with governance procedures and compliance with statutory provision and rules.

### c. Review of certain OP&F policies and procedures

The policies and procedures involving ethics and conflicts of interest are reviewed in Section 10(A) and 2(B) of this Report. Internal and external checks and balances are discussed at Section 12(A).

## Trustee Education and Training

### FUNDAMENTAL PRINCIPLES REGARDING TRUSTEE EDUCATION AND TRAINING:

- *Pension trustees may not escape the standard of prudence in decision making by having a "pure heart and an empty head."*
- *A trustee may be liable for a loss to the fund resulting from their failure to act as "a prudent person acting in a like capacity and <u>familiar with these matters</u> would use in the conduct of an enterprise of a like character and with like aims…"*
- *A trustee can not fulfill their duties without knowledge. To obtain the knowledge necessary to become "familiar with these matters," and become aware of what prudent persons "acting in a like capacity" are doing, education is both necessary and appropriate.*
- *Delegation is not abdication – a board of trustees may delegate responsibility for a function but delegation does not relieve the trustees from the duty to monitor. Since most public funds boards are composed of lay people, in order to prudently monitor they must acquire knowledge of the subject matter over which they have authority and control.*

### OBSERVATIONS REGARDING STRS' TRUSTEE EDUCATION AND TRAINING:

- The requirements for Trustee education and training introduced by S.B. 133 are referred to in Section 9(A) of this Report. The Board's new formal written policy entitled "Board Member Education," was adopted in March, 2005. It explicitly refers to the law's requirements and enumerates five broad subject matters that "Board members need to be knowledgeable about…." The first four are:

    - Obligations and liabilities of Retirement Board members

- Legal framework of the Retirement System;
- Operation and administrative practices of the Retirement System; and
- Benefit policies, including health care, of the Retirement System.

The fifth subject area, Financing of the Retirement System, has six sub-topics.

- We note that the STRS education policy declares that "participation in state and national pension organizations [is] essential to successfully carrying out [Board members'] fiduciary duties." Membership in such organizations was an element in the previous STRS education policy on the subject, "Board Member Development."

- New member orientation is also recognized as essential. Some have questioned whether participation in state and national pension organizations is appropriate in view of the fact that they generally meet outside of Ohio, often in resort-type settings. These observers have correctly pointed out that the System's assets are for the benefit of the members, and they challenge the appropriateness of using the System's assets to cover the expense of participating in such events. We respect the sincerity with which these objections were expressed. Nonetheless, we concur with the Board's stated philosophy, i.e., that membership in pension fund related organizations is essential as it contributes to the development of the Board and the System. National pension fund organizations provide the opportunity to bring together trustees and staff from retirement systems all over the country. Their sessions provide opportunities, formal and informal, to exchange ideas and learn about how other retirement systems respond to the issues that the System's board must face. Such programs can also attract expert speakers who might not be available to only a single fund, or even a single state's funds.

- We have no reason to doubt that the Board will enforce the new policies on travel expenses, discussed at Investment Issues Section 10(A), which will avoid abuses and wasteful expenditures. Moreover, as discussed in Section 10(A), the policy requires that a Board member who attends such sessions make a formal report to the Board concerning the program. All six peer funds in the STRS customized peer group, from outside Ohio, who responded to IFS' survey reported that their governing statutes did not limit out-of-state travel for education by either their trustees or staff .

- In early December of 2004, the Ohio state wide public pension funds held a joint-trustee orientation program. The majority of the Board trustees and many staff members attended the program. A representative from IFS observed. We found the program, including the subject matter and the presenters to be very substantive and professional. The two day program covered fiduciary basics, government and legislative relations, actuarial principles, ethics, investment basics, the difference between governing and operating fiduciaries, and health care issues. The approximate costs of the program was $15,331.

- The STRS Board also has an annual retreat. In 2004 the retreat was one day. In 2005 the retreat was held over a three day period. The retreats appear to focus primarily on planning – evaluating the status quo and developing a strategic plan for the future, including identifying influencing factors such as member expectations and industry. The annual retreat is also used as a time to discuss staff compensation. Retreats of this type serve a vital purpose.

- The joint orientation program and the annual retreat were very timely given (a) the number of new trustees that needed orientation as a result the changes in board composition that resulted from the enactment of SB133, and the need for strategic focus given all the changes which occurred during 2004 and 2005. However, these meetings are not a substitute for participation in substantive national and state pension organizations and conferences.

### d. General Overhead and Maintenance Costs of Office Building and Appropriateness of All Administrative Costs

## BACKGROUND

Based on information obtained during the interview process and our document review, we found that in the recent past (survey is as of August 2003) the impression of STRS has become less favorable (67%) and disapproval was expressed regarding the STRS' building space utilization and the appointments utilized within the building. [112] While the primary reason for feeling less favorable toward STRS was health insurance (43%), significant concerns were also expressed regarding money being unnecessarily spent on expenses like art and the "lavish" building (24%), as well as staff compensation, bonuses and perks (28%). While travel was one reason for feeling less favorable toward STRS, it was not as significant as others (8%)[113]. The level of concern was somewhat higher among retired members than among active members. Notwithstanding the concerns, the overall impression of STRS remains favorable – 25% had a very favorable overall impression and 43% had a somewhat favorable impression. 21% had a somewhat unfavorable impression and only 8% had a very unfavorable impression. Further, most STRS members who participated in the attitude survey in August 2003 were very satisfied (47%) or somewhat satisfied (37%) with the services received from STRS.[114] We understand that subsequent surveys in 2004 and 2005 indicated improvement in members' impressions of STRS.

Given the concern regarding the building and administrative expenses, we were tasked with reviewing STRS' general overhead and maintenance costs and its administrative costs in comparison to other retirement systems in Ohio and across the nation. Thus, we compared STRS to its customized peer group, as well as its sister pension funds. To accomplish this we surveyed the peer group to determine their total administrative costs as well as some of the components

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[112] Saperstein Associates Member Attitudes Study over the period July 28, 2003 to August 12, 2003 of 1,010 members (400 active Ohio members, 405 retired Ohio, and 205 retired non-Ohio members); Saperstein Associates Study of Active Members, August 2004; Saperstein Associates Study of Retired Members, August 2004.
[113] IFS attempted to evaluate the costs associated with travel related to education and due diligence separately; we requested the data, but were unable to obtain sufficient data from the peer groups to perform an analysis.
[114] Saperstein Associates Member Attitudes Study over the period July 28, 2003 to August 12, 2003 of 1,010 members (400 active Ohio members, 405 retired Ohio, and 205 retired non-Ohio members).

that comprised administrative costs, such as general overhead and maintenance, including fixed assets,[115] computer systems, telephones, and building utilities and maintenance.

The following two tables (Table B2 and B3) reflect the information provided by the peer group respondents. We caution the reader that, while we provided instructions with the survey instrument, the information presented in the tables reflects the data provided by the respondents, based on their individual reading of the instructions. We attempted to obtain clarification and provide explanations, where possible, when we were aware of differentiating factors.

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[115] **Fixed Asset**, are typically considered to be possession or valuable belonging to a business organization that are used over a long period of time. Examples of physical fixed assets include company cars, office equipment, art work, etc.

**Table B2: Comparison of General Overhead**

| Total Administration Expenses | Fund A | Ohio PERS | Ohio SERS | OP&F | Fund C | Fund D | Fund E | Fund F | Fund G | Median/ Average for Peers | STRS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fund Asset Size in billions | $33 | $64.97 | $8.97 | $9.83 | $51.77 | $49.52 | $64 | $45.12 | $91.28 | 52/ 57.09 | **$56.18** |
| Total Staff on Payroll[116] | 172 | 555 | 275 | 166.5 | 275 | 72 | 104.5 | 166 | 454 | 172/ 248 | **616** |
| General Overhead and Maintenance (Total) – BPS | 2.321 | 2.3 | 5.10 | 2.07 | 1.47 | 0.33 | 0.191 | 1.55 | [117] | 1.81/ 1.91 | **2** |
| Does the System own its building | yes | yes | yes | yes | yes | no | yes | yes | yes | | **yes** |
| Rent (BPS) | 1.68 | 0 | 0 | 1.1 | 0.30 | 0.1 | 0.15 | 0 | | 0.37 | **0** |
| Is a portion of the building leased | yes | no | yes | yes | no | - | yes | no | no | 50% | **no** |
| Building utilities and maintenance (BPS) | 0.013 | 0.70 | 1.36 | | 0.06 | 0 | Included in total | 0.11 | | 0.15 | |
| Building utilities and maintenance ($$) | $43,014[118] | $4,559,295 | $1,221,904 | | | N/A | | | | | |
| Telephones (BPS) | 0.18 | - | 0.13 | 0.07 | 0.01 | 0.03 | 0.023 | 0.05 | | 0.05/ 0.07 | |
| Telephones ($$) | $590,202[119] | - | 115,410 | | | $146,000 | | | | | |
| Computer systems (bps) | | 0.3 | 1.16 | 0.3 | | | | | | | **1** |
| Computer systems ($$) | 1,166,516 | $2,192,736 | 1,043,555 | | | $790,000 | | | | | |
| Fixed assets | 0.098 | 1.3 | 2.32 | 1.7 | 0.10 | N/A | 0 | 0.73 | | 0.37 | **1** |

[116] As of 6/30/2005
[117] The respondent did not break out general overhead and maintenance as a subset of total administrative expenses (net of investment related administrative expenses). The total administrative expenses (net of investment related administrative expenses) was 2.68 basis points.
[118] Amount included in base rent
[119] Includes purchase of new IVR System, net phone expense - $243,026.

## OBSERVATIONS REGARDING GENERAL OVERHEAD AND MAINTENANCE COSTS:

- Survey information regarding general maintenance was received from seven members of STRS' customized peer group. The respondents were geographically diverse, although the majority of the respondents were located in a climate and urban center similar to STRS.

- The total staff on payroll of the customized peer group respondents ranged from 72 employees to 555 employees.

- STRS' general overhead and maintenance costs are slightly higher than the median and the average for the customized peer group respondents. However, they are lower than its sister funds in Ohio.

- STRS owns its building and does not lease out a portion of it to outside tenants. Eight out of nine members of the peer group also own their own building. 50% of the respondents also did not lease out a portion of their building, including OPERS and 50% did, including Ohio SERS and OP&F.

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**Table B3: Administrative Cost Breakdown Comparison**

| | Fund A | Ohio PERS | Ohio SERS | OP&F | Fund C | Fund D | Fund E | Fund F | Fund G | Median/ Average for Peers | STRS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fund Asset Size in billions | $33 | $64.97 | $8.97 | $9.83 | $51.77 | $49.52 | $64 | $45.12 | $91.28 | 52/ 57.09 | **$56.18** |
| Total Staff on Payroll[120] | 172 | 555 | 275 | 166.5 | 275 | 72 | 104.5 | 166 | 454 | 172/ 256 | **616** |
| Is your System responsible for the administration of a healthcare program? | no | yes | yes | yes | yes | no | no | no | yes | | **Yes** |
| If so, what is the total administrative cost of the program? | N/A | $4,170,548 | $1,123,267 | $2,212,590 | $9,975,000 | N/A | N/A | N/A | $3,677,976 | 3,677,976/ $4,231,876 | **$3,900,000** |
| Total Administrative expenses in dollars | 22,864,708 | 61,691,260 | $18,926,844 | $16,841,820 | 42,645,000 | 5,063,100 | 3,165,761 | 12,493,000 | 25,114,716 | 22,864,708/ 24,719,649 | **63,745,000** |
| Total Administrative expenses [121] In basis points | 6.93 | 9.48 | 21.10 | 17.1 | 8.00 | | 0.19 | 2.70 | 2.68 | 5.00 | **11** |

[120] As of 6/30/2005
[121] Net of investment related expenses

## OBSERVATIONS REGARDING GENERAL ADMINISTRATIVE COSTS:

- STRS' overall administrative expenses are significantly higher than the majority of its customized peer group and slightly higher than Ohio PERS, but significantly lower than its other sister funds in Ohio (Ohio SERS and OP&F).

- Five out of nine of the peers have responsibility for the administration of a health care program. However, the majority of these are Ohio funds. Only two of the six non-Ohio funds have responsibility for the administration of a health care program.

  - The administrative costs associated with the administration of its healthcare program are significantly lower than average, slightly higher than the median fund and much lower than OPERS but much higher than Ohio SERS and OP&F.

## 2. Organizational Structure And Resources

### a. Staff Size, Qualifications and Performance Evaluations

## FUNDAMENTAL PRINCIPLES REGARDING STAFFING:

- *Staffing is the process of attracting, organizing, and retaining employees that possess the skill sets, which in the aggregate, enable an organization to carry out its mission and objectives in an effective and efficient manner.*

- *A pension fund's organizational structure and staffing strategy should be designed to accomplish its statutorily defined stated purpose and mission. Thus, whether or not an organization has adequate staffing is contingent on the sum and extent of tasks that are necessary to achieve its core business functions successfully and prudently.*

- *It is difficult to compare the staffing complement of one pension fund to another because their respective missions may be different or the board of trustees may have decided, for various reasons, that it is prudent to utilize one course of action rather than another viable means to achieve their stated purpose and mission. Additionally, factors beyond the control of the board of trustees may affect their ability to obtain sufficient staffing to* *carry out their stated purpose and mission in the most effective and efficient manner (e.g., lack of autonomy to determine staffing levels, absence of authority to establish its budget, etc.). As a result, staffing levels may be artificially depressed.*

- *We caution that making comparisons to staffing levels at other public investment entities is not an ironclad basis for determining what the Board needs, particularly if the goal is to operate in an efficient and effective manner consistent with best practices. The greater the number of shared characteristics, the greater the level of comparability. Use of asset size alone does not take into account levels of comparability nor does it recognize the fact that staffing needs are driven by required functions.*

- *Survey information reflects that while there is a moderate correlation between the size of the fund and the number of professionals responsible for administering its investment portfolio (0.42), there is a much higher correlation between the percent of the fund assets managed internally and the number of professionals responsible for these investments (0.75).*[122]

- *An entity with fewer assets, but a labor intensive, actively managed, internal investment program would be expected to have a higher staffing level than a large entity with a "plain vanilla," externally managed, passive investment program.*

## Fundamental Principle Regarding Qualifications:

*To enhance the likelihood that the organization will operate effectively and efficiently, it is vital that staff has the appropriate skill set, experience, and training to perform their assigned job functions. If they do not, it exposes the organization to operational risk.*

## Fundamental Principles Regarding Performance Evaluations:

- *Performance evaluations are an essential management tool as well as an instructional tool, helping staff to develop their goals and objectives for the coming year and providing feedback on work performance during the year. At a minimum, personnel evaluations should be done on an annual basis. Updates should also be done on a quarterly or semi-annual basis to provide an overview of each employee's work for the time period since the last evaluation and to determine whether the employee is on the right track toward meeting their goals and objectives.*

- *Staff should be evaluated in accordance with predefined standards that are achievable and measurable. Unless a job is purely quantitative in nature (e.g., producing widgets on a factory line), performance evaluations always have a subjective competent. The*

[122] Callan Associates Inc., "Fund Sponsor Cost of Doing Business Survey." A correlation of 1.0 is perfect correlation.

*evaluation should be balanced to reflect impartial criteria with those that are more easily measured.*

- *Performance guidelines should be tailored to the employee's particular functions.*

- *The annual evaluation should not contain any surprises for either the staff member or the supervisor. If the employee has not been working to their potential, do not wait until the annual evaluation to discuss the issue. However, if the issue has been frequently been discussed during the year, it needs to be included in the evaluation.*

- *Communication and buy-in by the employees, as well as training regarding the performance management process is essential.*

## OBSERVATIONS REGARDING STAFFING:

**Table B4: Comparison of Staffing Levels**

| | Fund A | Ohio PERS | Ohio SERS | OP&F | Fund C | Fund D | Fund E | Fund F | Fund G | Median/ Average for Peers[123] | STRS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Asset Value In billions | $33 | $64.97 | $8.97 | $9.83 | $51.77 | $49.52 | $64 | $45.12 | $91.28 | 52/ 57 | **$56.18** |
| Total FTEs | 172 | 553 | 275 | 166.5 | 290 | 72 | 104.5 | 171 | 445 | 172/ 250 | **616** |
| *Professional* | | *244* | *254* | *62* | *194* | *57* | *91.5* | | *219* | *194/ 164* | ***358*** |
| *Support* | | *309* | | *104.5* | *96* | *15* | *13* | | *226* | *100/ 127* | ***258*** |
| Office of the Executive | 29 | 10 | 5 | 8 | 22 | 8 | 7 | 9 | 10 | 9/ 12 | **13** |
| *Professional* | | *5* | *4* | *8* | *15* | *3* | *6* | *8* | *5* | *5* | ***6*** |
| *Support* | | *5* | *1* | *0* | *7* | *5* | *1* | *1* | *5* | *7* | ***7*** |
| Total Investment Staff | 10 | 44 | 10 | 14 | 25 | 46 | 55.3 | 43 | 46 | 43/ 33 | **105** |
| *Professional* | | *39* | *6* | *8* | *20* | *41* | *51.8* | | *42* | *39/ 30* | ***91*** |
| *Support* | | *5* | *4* | *6* | *5* | *5* | *3.5* | | *4* | *5/ 5* | ***14*** |
| Total Non-Investment Staff | 133 | 499 | 260 | 144.5 | 243 | 18 | 42.2 | 119 | 389 | 145/ 205 | **498** |
| *Professional* | | *200* | *124* | | *159* | *13* | *33.7* | | *172* | *142/ 117* | ***261*** |
| *Support* | | *299* | *136* | | *84* | *5* | *8.5* | | *217* | *110/ 125* | ***237*** |

123 Based on funds that reported information and rounded.

| Table B4: Comparison of Staffing Levels | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Fund A | Ohio PERS | Ohio SERS | OP&F | Fund C | Fund D | Fund E | Fund F | Fund G | Median/ Average for Peers[123] | STRS |
| **Investment Accounting** | 3 | 9 | 4 | 6[124] | 16 | 17 | 10.8 | 8 | 12 | 10/ 10 | **4** |
| **Systems & IT** | 30 | 102 | 39 | 24 | 67 | 4 | 11 | 26 | 73 | 30/ 42 | **151** |
| *Professional* | | *94* | *35* | *18* | *51* | *4* | *11* | *24* | *61* | *30/ 37* | ***136*** |
| *Support* | | *8* | *4* | *6* | *16* | *0* | *0* | *2* | *12* | *5/ 6* | ***15*** |
| **Legal** | 7 | 6 | 8 | 4 | 16 | - | 3.2 | - | 11 | 7/ 7.9 | **3** |
| *Professional* | | *4* | *6* | *2* | *6* | | *2.5* | - | *6* | *5/ 4* | **2** |
| *Support* | | *2* | *2* | *2* | *4* | | *0.7* | - | *5* | *2/ 3* | ***1*** |
| **Mgmt Services** | 6 | - | - | 48 | 19 | - | 14.7 | 2 | 19 | 17/ 18 | **26** |
| *Professional* | | | | *12* | *14* | | *7.9* | *2* | *12* | *12/ 10* | ***17*** |
| *Support* | | | | *36* | *5* | | *6.8* | *0* | *7* | *6/ 12* | ***9*** |
| **Benefits Admin** | 87 | 237 | *57* | 68.5 | 69 | n/a | n/a | 61 | 175 | 69/ 107.78 | **180** |
| *Professional* | | *46* | *9* | *14* | *29* | | - | *22* | *29* | *25/ 25* | ***80*** |
| *Support* | | *191* | *48* | *54.5* | *40* | | - | *39* | *146* | *51/ 86* | ***100*** |
| **Other** | | *130*[125] | *152* | - | *62* | - | *2.5* | *22*[126] | *87.0* | *75/ 76* | ***134*** |
| *Professional* | | *37* | *70* | | *45* | | *2.5* | *1* | *46* | *41/ 33* | ***23*** |
| *Support* | | *93* | *82* | | *17* | | *0* | *21* | *41* | *31/ 42* | ***111*** |

- In Table B4 above, we compare the total authorized staffing complement of STRS to the customized peer group respondent's data as of June 30, 2005. As noted earlier, these peers were chosen in part due to their similar asset size to STRS and due to the fact that they internally manage a significant portion of their assets internally. Two are investment

124 Part of Investment Department.
125 Finance, DC Plan, Human Resources
126 Call center, scanners, mbr. analysts.

boards, i.e., they are only responsible for the investment of assets and not benefits administration.

- The staffing levels at STRS exceed the reported staffing of the customized peer group in virtually every category except in the area of legal and OPERS non-investment staffing (but only slightly). STRS' staffing levels for legal are less than half the median or the average for the peer group. In fact, in most cases, STRS' staffing levels are more than double the typical staffing levels of the customized peer groups. We note that STRS has 60 associates in custodial, safety and security, childcare and food service areas; OPERS contracts out for these services.

- The most significant disparity is seen in the information technology area, where STRS has more than double the number of staff of any of its peer group, including OPERS.

## OBSERVATIONS REGARDING STAFF QUALIFICATIONS

- The skill set required of STRS' staff is elevated as a result of the sophisticated, highly complex systems associated with its internal investment operations as well as its member services.

- Based on our review of executive and manager level position descriptions and information obtained during the interview process, it appears that the STRS staff reviewed possesses the qualifications and requisite skill sets (including advanced educational degrees, professional designations, and years of relevant experience) required to perform their respective duties and responsibilities.

    - Based on data received during the course of this review, at least 157 members of the STRS staff possess some type of professional certification germane to their duties and responsibilities.

- The majority of STRS investment management staff are designated as Chartered Financial Analysts (CFAs) and many remaining members of the portfolio management staff have passed levels level one or two of the exam required for the CFA designation. Additionally, many have also received their Masters' in Business Administration (MBA).

- A significant majority of the Accounting and Financial Reporting staff also well as a number of other staff members within STRS are Certified Public Accountants (CPA).

- Other professional designations possessed by a number of STRS staff members include EPA-certified Universal Technician, Certified Retirement Counselor, and Registered Nurse.

## OBSERVATIONS REGARDING PERFORMANCE EVALUATIONS:

- The STRS has a highly developed, through performance evaluation process that is much more advanced that the process used by some public retirement systems. The components and design of STRS' performance evaluation process are reflective of best practices principles.

- STRS performance evaluation process is based on predefined standards and has multiple stages, including (1) performance planning and setting of accountabilities, (2) feedback and coaching, (3) performance summary, and (4) recognition and rewards. The stages are described below:

  - The process begins with the supervisors completing the performance summary stage for the year and establishing.

- Each employee completes and online self-appraisal.
- Supervisors' performance summaries, salary recommendations, and performance accountabilities are then reviewed by next-level management.
- Following the review and approval by next-level management, performance summaries and performance planning for the coming planning are presented, discussed and finalized with each employee. After discussion with the employees, the information is provided STRS' Human Resources Services (HRS).
- Performance Management Conference are held annually.
- Supervisors meet with employees to present approved performance increases.
- Mid-year performance reviews are conducted.
- Performance summaries are used to objectively evaluate performance and determine a final performance rating for each accountability and core competency. Model guidance is provided to assist in establishing accountabilities, to simply the performance summary process, to facilitate professional development, and performance management training is provided to supervisors and manager.

- STRS adopted a pay for performance model (i.e., performance based incentive plans) for its employees. However, the performance based incentive plan for non-investment employees was suspended in fiscal 2004. The pay for performance model (i.e. performance based incentive plans), while not common among most public employees retirement systems, is used several of the more progressive retirement systems/investment entities. That said, pay for performance for non-investment employees is rare among public funds. But it can be found. The Missouri Employees Retirement System (MOSERS) uses a pay for performance system for its non-investment staff which is tied to annual goals based on information obtained from its annual CEM Defined Benchmark Analysis. The CEM analysis is a tool STRS already uses. The MOSERS' performance measurement model aligns the interests of the employees with the success of the organization in meeting its objectives and link employee expectations and performance to pay.

| **Recommendation B5** |
|---|
| *We recommend consideration be given to using a pay for performance model for non-investment personnel that includes an incentive component.* |

### b. Reporting Lines of Authority and Roles

## FUNDAMENTAL PRINCIPLES REGARDING REPORTING LINES OF AUTHORITY:

- *A Statement of Governance Principles should clearly delineate roles and responsibilities of the Board, key staff and service providers.*
- *Fiduciary responsibilities should be acknowledged in writing.*
- *A clear organizational structure should be defined and distributed.*

## OBSERVATIONS REGARDING REPORTING LINES OF AUTHORITY AT STRS:

- The organization of the in-house legal counsel function presents an issue of organizational consistency. The System has a General Counsel whose position description states that the position is to "oversee and manage the legal matters of the retirement system," and the legal services covered include those related to "investment matters and transactions." However the Real Estate Department employs an attorney in the position of "Real Estate Counsel" who does not report to the General Counsel. Rather, the Real Estate Counsel reports to the Assistant Director, Portfolio Management within the Real Estate Department, and appears to have the authority to work directly with outside counsel and the AG. Given the number and importance of the legal issues that arise in an internally managed real estate portfolio as extensive and sophisticated as the System's, it is appropriate that the System have staff counsel dedicated to real estate. However, while the Real Estate Counsel's immediate "client" is the Real Estate investment team, the General Counsel should still have an overall supervisory role with respect to the Real Estate Counsel in order to carry out the General Counsel's responsibilities for the overall legal affairs of the System.

**Recommendation B6**

*The Real Estate Counsel should be subject to the overall supervision of the General Counsel as part of the General Counsel's function of overseeing and managing the System's legal affairs.*

### c. Policies for Professional Ethics Standards and Conflicts of Interest

See also the additional discussion on Conflicts of Interest with regard to Chapter 742 and S.B. 133 in Investment Section 10(A) above.

## FUNDAMENTAL PRINCIPLES REGARDING ETHICAL STANDARDS AND CONFLICTS OF INTEREST:

- *The nature of retirement systems such as STRS Ohio demands a high degree of confidence from the beneficiaries of the funds and the public in general. Every board member and employee is expected to exhibit the highest level of integrity, professionalism, and ethical behavior.*

- *Public retirement systems typically operate pursuant to ethics codes, disclosure requirements, conflict of interest prohibitions, and other policies designed to ensure the proper administration, effective operation, and prudent investment of assets. 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 beneficiaries for whose benefit the assets under control of the board are invested. Such conflicts of interest involve gifts and disclosure of confidential information. A Code of Ethics may also cover specific issues and standards of conduct, such as personal securities trading, disclosure, political contributions, and travel and entertainment policies.*

- *Adherence to ethics policies, such as those that relate to managing conflicts of interest, are critical for the Board and staff to carry out their fiduciary responsibilities.*

## ANALYSIS:

- We reviewed professional conduct policies of two trade associations which are relevant to the investment professionals employed--The CFA Institute (formerly the Association for Investment Management and Research) and the Investment Management Consultants Association (IMCA).

- The CFA Institute produces a Code of Ethics and Standards of Professional Conduct (as amended and restated May 1999). Among other elements, the Code of Ethics dictates that members of the CFA Institute "act with integrity, competence, dignity, and in an ethical manner when dealing with the public, clients, prospects, employers, employees, and fellow members" and "use reasonable care and exercise independent professional judgment."

- The Standards of Professional Conduct imposes various requirements on members:

  - Maintain knowledge of, and adhere to, all applicable laws and regulations of any entity governing the member's professional activities;

  - Not engage in any professional misconduct;

  - Prohibition against plagiarism;

  - Duties of loyalty, compensation disclosure, and avoidance of conflict, with respect to an employer;

  - Responsibility to exercise diligence and thoroughness with investment actions and recommendations, which includes an obligation of objectivity and independence;

   - Requires an exercise of fiduciary responsibility with all matters relating to investment decisions and portfolio management; and

   - Requires full disclosure of all forms of compensation, and any conflicts of interest.

- The CFA Institute has also issued an exposure draft to its members for comment, "Asset Manager Code of Professional Conduct." While the above-cited Code of Ethics and the Standards of Professional Conduct address individual conduct, the exposure draft is meant to apply to organizations responsible for managing assets. It is meant to provide a blueprint for minimum standards an organization should adopt when providing asset management services for clients. As such, it is useful to examine this exposure draft for elements which are relevant to internally managed assets of a public retirement system, as well as the oversight responsibility for outside managed portfolios.

- The exposure draft discusses various factors that related to several broad areas:

   - Loyalty to clients;

   - Investment process and actions;

   - Trading;

   - Compliance and support;

   - Performance and valuation; and

   - Disclosures.

- The IMCA has adopted a Code of Professional Responsibility (July 2003). It requires its members to:

  - Place the financial interests of the client first;
  - Fully disclose to clients services provided and compensation received;
  - Comply fully with all statutory and regulatory requirements affecting clients; and
  - Maintain the highest standard of personal and professional conduct.

## OBSERVATIONS REGARDING ETHICS STANDARDS AND CONFLICTS OF INTEREST:

- We reviewed several sections of the STRS Ohio Associate Code of Ethics which outlines expectations for the personal and professional behavior of employees of STRS. The Code of Ethics includes discussions of fiduciary responsibilities, avoidance of conflicts of interest, standards of professional conduct, personal trading polices, gift policies and political activity policies. We found that STRS has adopted reasonable policies and practices regarding professional conduct.

- STRS has developed an associate Code of Ethics which consists of policy, set by the Retirement Board, and standards of conduct, which were developed by a committee of STRS employees. They have been designed to apply to all employees, and not just those handling investment matters. The principles incorporated in the Code encompass the areas discussed above in the codes adopted by investment trade associations.

- Several elements in the ethics policy are typical of what are found in other investment organizations:

- Conflicts of interest – internal investment staff should disclose any conflicts of interest generated by any relationships with brokers or other entities doing business with STRS.

- Appearance of impropriety – the Code of Ethics indicates that STRS investment staff should always seek to avoid situations, such as gift receipt or doing business with a related party, where the action could be expected to affect their independence, objectivity, or loyalty to STRS.

- Standards of conduct with respect to personal trading and inside information – the Code stipulates that STRS investment staff should never act (i.e., trade) on material nonpublic information or give priority to personal investment trading over that which could affect the value of STRS' portfolio. Employees must not follow trading and brokerage practices which do not directly benefit STRS. The Code outlines the requirement for financial reporting and prior approval of certain personal investments. STRS compliance officials, ultimately responsible for implementing STRS code of ethics, and related policies and procedures, should ensure that all personal investment transaction information is collected and processed in an efficient and timely manner.

**Recommendation B7**

*The Investment Company Institute and the SEC recommend a third party notification process. It requires that employees with a personal securities account direct each financial institution with whom the employee maintains such an account to send monthly statements to the individual designated as the Compliance Officer for accounts in which the employee has a direct or indirect beneficial ownership interest. This third party notification provides a further "check and balance" in maintaining a successfully executed policy. We recommend that the Board adopt such a policy for its employees and add it to its policies and procedures.*

### d. Reasonableness of System's Practices and Costs

The reasonableness of the systems practices is addressed above and the reasonableness of the System's costs is discussed in Management Issues Section 1(B) and in the Investment Issues Sections 4(A) and 5(A).

## OBSERVATIONS REGARDING FRINGE BENEFITS

- To assess the reasonableness of STRS' costs, we examined the fringe benefits that came under fire in Ohio. The following table compares STRS' fringe benefits to the customized peer group. We note that STRS has reduced some of its fringe benefits in the recent past.

**Table B5: Comparison of Staffing Levels**

| | Fund A | Ohio Public Employees Retirement System | School Employees Retirement System of Ohio | Ohio Police & Fire | Fund C | Fund D | Fund E | Fund F | Fund G | STRS |
|---|---|---|---|---|---|---|---|---|---|---|
| **Asset Value In billions** | $33 | $64.97 | $8.97 | $9.83 | $51.77 | $49.52 | $64 | $45.12 | $91.28 | $56.18 |
| **Total FTEs** | 172 | 553 | 275 | 166.5 | 290 | 72 | 104.5 | 171 | 445 | 616 |
| **Transportation Allowance** | yes | no | no | no | yes | yes | no | | | no |
| **Agency Car** | yes | no | yes[127] | no | yes | yes | No | | | No |
| **Day Care** | no | no | no | no | no | no | No | | | yes |
| **Tuition Assistance** | yes | yes | yes | yes | no | yes | Yes | | | yes |
| **Adoption Assistance** | no | no | no | no | no | no | no | | | yes |
| **other** | | Free parking | | Free parking | | | | | | Free Parking |

**Funds F and G did not respond to the fringe benefit questions in the survey*

- None of STRS' peers or OPERS, Ohio STRS or OP&F offers day care to its employees, although OPERS does offer subsidized child care. STRS does charge employees who

127 Pool vehicle – available to staff on system business

utilize the service a fee in an effort to diminish the cost to STRS and expects the child care center to become cost neutral to STRS in 2007. The benefit has become more prevalent in the private sector as well as the Federal Government.

- None of STRS' peers or OPERS, Ohio STRS or OP&F offers adoption assistance.

- Only one member of the peer group did not offer tuition assistance.

### e. Communication Policies and Procedures between the Board and its Members and Retirees

## FUNDAMENTAL PRINCIPLES REGARDING PARTICIPANT COMMUNICATIONS:

- *The amount of financial data and statements available to individuals has multiplied over recent years. Whether it be banks, insurance companies, mutual funds, brokerage accounts or mortgage companies, the amount and sophistication of information available to individual customers has increased dramatically. The ways in which individuals access this information has also multiplied, in particular through telephone and internet access. Customers expect to be able to find out what they want to know quickly and efficiently, and most financial services providers have built systems to do this.*

- *Pension plans are obligated to provide some information to their participants on an annual basis, but most attempt to provide more than is required. Plan managers recognize that an effective communications program can boost participant satisfaction and can more efficiently handle the volume of calls and information requests that inevitably grows each year. Today it is common to see plans offer newsletters, call centers, web sites and mailed statements, all coordinated to respond to the major issues facing the plan and its participants. Although not all measure participant satisfaction or staff response time, virtually every plan and its executives recognize the need for a program and expect to devote a growing amount of staff and resources to this function.*

## OBSERVATIONS REGARDING OHIO STRS COMMUNICATION PROGRAM:

- STRS has an extensive communications program. The Director of Communication Services reports that this department is responsible for:

    - Brochures on programs and briefing papers on specific issues;

- Newsletters for employers, active participants, and beneficiaries;
- News releases on Plan activities and Board actions;
- Website that provides access to personal participant account information;
- Participant surveys and member research; and
- Public speaking to constituency groups.

- STRS offers call center services through its Member Benefits area.

- STRS makes an effort to test its information and materials in order to continually improve the clarity and effectiveness of these materials.

- STRS program appears to conform to best practice among its peers. IFS' survey found that of the peers:
  - All provide a website with access to essential information about the plan;
  - 86% produce newsletters for participants;
  - 86% operate a call center offering telephone access to information;
  - 71% provide participants with a Plan Summary;
  - 86% provide participants with an annual statement of benefits; and
  - All provide participants with an Annual Report for the plan.

- STRS distinguishes its communications program making its Annual Report available on-line. Only two of the seven peers surveyed do so.

- STRS staff reports that since the launch of its website in 1997, 40,000 members have used the site to obtain information about the plan or participant accounts.

## 3. Ability to Attract and Retain Employees

In this section we review the methodology used by AON Consulting in their compensation study and determine whether the conclusions AON reached are based on reasonably reliable information, and a reasonable, objective methodology[128].

### FUNDAMENTAL PRINCIPLES REGARDING COMPENSATION:

- *Salaries in the public pension sector across the United States – both for funds that use external management exclusively as well as those that use internal management – vary widely. Nonetheless, competitive salary schedules are necessary to ensure the Board's ability to attract and retain qualified investment professionals. The need for competitive salaries may be more acute when there is extensive internal management.*

- *Incentive plans can play an important role. Financial incentives can provide 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) the employee's efforts and skills in that regard produce desirable outcomes for the organization. Employees that participate in the incentive program should have responsibilities that enable them to contribute directly and significantly toward achievement of major fund objectives.*

- *The compensation of private sector investment management professionals is not subject to the public sector "fish bowl" complications and frustrations of government bureaucracy. As a result, private sector professionals are much better compensated relative to the value they create. While it is generally expected and accepted that public pension funds will not be able to compete with the salaries offered by private investment*

[128] In accordance with the September 14, 2005 letter agreement between the ORSC and IFS, IFS agreed to review the methodology and information AON employs and report to the ORSC whether we believe the conclusions of the Total Compensation Study are based on reasonably reliable information and a reasonable, objective methodology.

*management firms, these private sector firms are still competition for at least some of STRS' staff.*

## BACKGROUND:

- IFS reviewed the Aon/McLagan Partners Total Pay Review (the "Compensation Study") prepared for the Ohio State Teachers Retirement System. We did not assess whether the incentive plan or compensation plan was adequate to attract and retain employees, nor did we try to assess whether the incentive plan was properly structured to align employee interests with the fund.

- AON was retained to analyze the following programs:

    - Salary;
    - Incentives;
    - Health and Welfare;
    - Retirement; and
    - Ancillary benefits

  In addition, Aon was retained to recommend and design a salary structure, and advise on how the annual incentive program compares to current market practices.

## OBSERVATIONS REGARDING AON/McLAGAN COMPENSATION STUDY:

- Overall, we believe that Aon used an appropriate methodology for the Compensation Study and their conclusions were based on reasonably reliable information. We enumerate below our observations:

- Aon developed three distinct peer groups for comparison to evaluate three aspects of the program: Investment Associates compensation, all other Associates compensation and employee benefits. IFS spoke to the Aon consultants and examined the criteria used to develop each peer group and found them to be reasonable. Each peer group was defined by a unique set of criteria and Aon took extra steps to ensure that each peer group reflected characteristics that provided a sound basis for comparative analysis.

  - The peer group for Investment Associates included 17 public funds identified from the McLagan database of 52 public funds that were "large" and had a significant amount of assets under internal management as well as 200 private sector financial service firms that participate in the McLagan Partners' 2005 pay surveys for comparative purposes. In addition, a blended group of 50% private/50% public was also utilized.

  - For all other Associates, Aon "compiled competitive compensation data from a number of compensation surveys that reflect pay rates for the Columbus, Ohio area" and applied a "geographical differential" to national pay rates to expand the available data points.

  - The peer group for employee benefits included ten organizations of various sizes (five public and five private) that were either based in Ohio or had a large presence in Ohio. Although the selection process for the five public employers and the five private employers from the geographic area used for benefit benchmarking was not explained in the Study, we did discuss the criteria with Aon/McLagan separately via conference call and they explained the process to us. "In addition, Aon benchmarked the STRS benefits program against national employee benefits surveys to give STRS a sense of the competitiveness of its benefit program when compared to a broader competitive market."

- Using the peer groups, comparative pay analysis was conducted. Aon presented the results in a manner which clearly indicates the results and provides clear guidance to the client (STRS) on recommended courses of action.

- Additional input to the compensation program followed interviews with staff and management; adjustments to the pay program were put forth. Typically these adjustments reflect the philosophy of the client and how best to reflect that philosophy in a compensation system. For example, STRS may have a desire to target median levels of compensation, relative to a defined peer group. Aon factored these considerations into its recommendations.

- For the Investment Associates, Aon analyzed the salaries and incentives (maximums and plan performance standards) paid to the 39 incumbents. As mentioned above, Aon used both private sector and public sector data, focusing on comparisons to public sector data for base compensation and private sector data for total cash compensation (salary + bonus).

- For the non investment Associates, Aon analyzed 73 positions for compensation equity, representing about 75% of the workforce. Aon worked with STRS to make sure the position descriptions analyzed matched up with respective peer group comparison positions.

  - The aging factor used appears reasonable where current data was not available.

- Aon used at least 16 different surveys as reference points for this analysis, and at least three reference points from surveys were used for each position analyzed, where possible. Some surveys were focused by job function while others were had an organizational focus.

- The benefits benchmarking process was comprehensive in its scope, including 10 specific benefit components.

  - National survey data and data specific to Central Ohio were used, which is appropriate, given that these positions are primarily filled from the immediate geographic area.

  - Each component of benefits was contrasted with the reference group and specific conclusions were drawn. The reporting of comparisons across benefit components is logical and presented in a manner that is clear and easily understood.

- The incentive plan design comments provided by Aon did not relate to any documented peer group analysis. It seemed that Aon made comments about the structure of the incentive plan, but we did not see evidence of peer group comparisons which would have put the STRS approach in perspective. From our discussions with Aon, we understand that they did make anecdotal comparisons based on data on they already had, but they did not survey peers regarding the design of their incentive compensation plans.

## ADDITIONAL OBSERVATIONS REGARDING AON/McLAGAN COMPENSATION STUDY:

- While, the study focused on comparative analysis with external organizations, there did not seem to be an attempt to set pay and incentive scales and tables to reflect intra-organizational parity ("internal equity").

- While the study highlighted a variety of "unique" and/or "better-than-average" benefit features, we did not see any attempt to assess the value of these features, e.g., cashing out sick time and ancillary benefits such as education assistance and adoption support. We believe that there is likely a value to these types of features, and the presence of features like this would affect the pay scales, relative to organizations that do not have these. We note that Aon did evaluate the overall level of benefits.

- There is reference in the study to certain features as being "standard practice" in public funds versus private employers. Differences like this are not explained, nor is there an assessment of what impact these features have on a compensation scheme. For example, the report states "STRS is fairly unique in its practice of allowing employees to cash-out sick time at the end of the year when compared to the 5 private employers, but this appears to be standard practice amongst the state agencies and the other five pension funds."

- The "value" of annual monetary service awards is not factored into the overall compensation program. AON notes that in the private sector, "service awards are less common and when they are offered, they are usually provided less frequently in the form of a gift instead of a cash bonus."

## 4. Monitoring of Investments and Reporting

### a. The Effectiveness of the System's Investment Oversight

## BACKGROUND

This section addresses what information the System uses to monitor the investments and overall strategies of the investment program and the overall effectiveness of the System's oversight. This includes the numerous performance reports that they receive from the various consultants as well as the staff's role in monitoring of investments.

Reporting to the ORSC is covered separately in the following section 5(B). Performance and the performance measurement process are discussed in detail in Investment Issues Section 3(A) and how the System uses its consultant(s) and the functions they perform are discussed in detail in 5(A).

## FUNDAMENTAL PRINCIPLES REGARDING INVESTMENT PERFORMANCE REPORTS:

- *Those charged with responsibility for oversight of sophisticated investment programs require clear, concise, consistent reports on the performance and risk of the programs. The reports should be prepared on a regular periodic schedule (e.g., at least quarterly). Key statistics (such as investment rates of return) should be verified by a third party that is independent of those making the investment decisions within the program. These reports serve as one of the most important management tools available to those with oversight of the investment program.*

  *Quarterly performance reports should include detailed information on:*

  - *Investment performance over multiple cumulative and consecutive time periods for the total fund, each asset class composite as well as each individually managed portfolio;*

  - *Comparisons of that performance to well-defined benchmarks and market indices;*

  - *Comparisons of that performance to appropriate peer groups, at the total fund level, the asset class level and individual manager portfolio level;*

  - *Measurement of a variety of risk metrics and portfolio characteristics, selected on the basis of investment strategy and style, at the total fund level, the asset class level and individual manager portfolio level;*

  - *Comparisons of these risk metrics and portfolio characteristics to those of the benchmarks and market indices;*

  - *Attribution analysis that decomposes the investment returns to investigate the sources of those returns;*

- *Compliance verification against investment guidelines regarding performance, peer group comparisons, holdings, portfolio composition, permitted and prohibited securities, other deviations from stated benchmarks, etc.*

*Such reports should also be designed to enable the end-user to answer a set of key investment questions:*

- *How does the performance of the investment program and its individual components compare to its objectives?*
- *How does the performance compare to other sources of investment performance?*
- *Is the investment program generating appropriate risk-adjusted returns?*
- *What are the magnitude of the risks incurred by the investment program and its components?*
- *How does the risk level compare to its benchmark(s)?*
- *Do the active investment managers generate a return that is consistently in excess of the return of the appropriate benchmark or market index?*
- *Do the active investment managers demonstrate skill that adds value above what the investment program could achieve by using passive management? If so, how does that skill compare to peers?*
- *Are the passive investment managers achieving benchmark returns with benchmark risks at reasonable cost?*

*The elements listed above can be organized in such a way that each and every performance report has a similar structure that provides useful, actionable information to decision makers.*

## GENERAL OBSERVATIONS REGARDING INVESTMENT PERFORMANCE REPORTS:

We describe the various useful and typical elements that should be included in a quarterly performance report below. In the following sections we then discuss STRS individual performance reports and the elements they include.

### b. General Market Environment Overview

A "Market Environment" report is useful in that it provides insight to both the short and long-term performance of the various asset classes where a Fund has made investments. It is also useful for explaining the current market environment in which the System was investing. Typical information included in these reports range from broad based index returns to economic statistics such as Gross Domestic Product[129], employment data and the current Federal Funds rate[130].

### c. Summary Performance for the Total Fund

The quarterly report should provide an exhibit summarizing the performance of the Total Fund against its policy index, which reflects the System's asset allocation, established in its investment policy. Performance history should include both short, mid and long- term performance. Periods such as one quarter, year-to-date, one year, three year and five year performance should be included.

### d. Asset Allocation versus Policy Index Exhibit

This exhibit should document how the Fund's allocation has changed since the previous time period and how it compares to the fund's Policy Index. It shows the major asset classes of the policy index (Domestic Equity; International Equity; Real Estate; Alternatives; Fixed Income; Liquidity Reserves), in comparison to the policy index. Although use of this exhibit is not universal, we believe it is important to determine whether or not the Fund is in compliance with its asset allocation policy, and whether rebalancing decisions should be considered.

[129] Gross Domestic Product – Total Value of a country's output produced by residents within the country's physical borders: "International Investments" Fifth Edition, Bruno Solnik & Dennis McLeavey
[130] Federal funds rate is the interest rate at which depository institutions lend balances at the Federal Reserve to other depository institutions overnight: www.federalreserve.gov

### e. Breakdown by Asset Class and by Investment Manager

Reports should provide a section for each major asset class, showing performance for that asset class compared to the top level policy index, over trailing and consecutive periods, and with universe comparisons. Some asset classes may require further breakdowns. For example, domestic equity may be broken down further by capitalization range and/or by style. Finally, each breakdown should include exhibits down the manager level. For example, all the domestic small cap growth managers may be included in an exhibit, giving the decision maker the ability to compare all of them together versus a benchmark, and in a universe of similar managers.

### f. Cumulative and Consecutive Time Period Performance

In order to maintain a thorough understanding of investment performance, it is important to review cumulative (trailing periods, e.g., three years, five years) and consecutive time periods (annual or calendar periods) performance for the Total Fund, each asset class and each investment manager compared to their respective benchmarks.

### g. Universe Comparisons on a Cumulative and Consecutive Basis

Universe comparisons provide the Board an additional tool in evaluating the performance of the total Fund, an investment manager or an asset class. While the Board may primarily judge the manager against its performance benchmark, the additional information of a universe ranking will inform the Board as to how well their current investment manager compares to other alternative investment options for a particular sub-asset class. This is an important additional perspective since situations frequently arise where an investment product may outperform its benchmark but still lag its peers (who are measured versus the same strategic benchmark). Comparisons on a total Fund basis are also useful, for political and economic reasons, despite the fact that the peer funds will all have different asset allocations. Universe comparison should be presented on a cumulative and consecutive basis for the total Fund, each asset class and each manager, with benchmarks and appropriate style specific peer groups and indexes where applicable.

### h. Domestic Equity Style Analysis

Style based analysis can be helpful in determining what, if any, particular style bets have been taken, compared to benchmarks and policy indices. A holdings based style analysis may help the Board determine if the Fund has taken any particular bets in structuring its domestic equity portfolio, such as tilting towards growth versus value, or overweighing small cap stocks versus the market. Style analysis (holdings and/or returns based) for the domestic equity managers and the total domestic equity composite, preferably over time to show style drift, should be presented on a quarterly basis.

### i. Portfolio Characteristics for each Equity Manager and Total Equity Composite

The quarterly report should include summary characteristics such as Price/Earnings, Price/Book, beta, dividend yield, average and median capitalization, number of holdings, best and worst performers, etc. as compared to the benchmark. An equity analytics summary page will allow the System to evaluate how individual portfolios compare relative to their specific benchmark. For example, a portfolio with a lower dividend yield than its benchmark may have a style bias towards growth stocks. A portfolio with a low beta (a measure of risk relative to the broad market) may have a value bias relative to the broad market. Receiving this information for each investment manager would give the Board more insight as to how their investment managers run their portfolios relative to an objective benchmark.

### j. Portfolio Characteristics for each Fixed Income Manager and Total Fixed Income Composite

The quarterly report should include fixed income portfolio characteristics such as duration, yield to maturity, time to maturity, average quality, etc. as compared to the benchmark;

the Board's ability to evaluate the underlying investment managers would be enhanced by receiving these analytics. Statistics such as duration, a measure of interest rate sensitivity, would give the Board better information for understanding the specific strategies that a manager employees as well as how the portfolio is expected to react in certain interest rate environments.

#### k. Risk and Return Analysis for the Total Fund and each Asset Class

It is important to evaluate performance on an absolute basis as well as a risk-adjusted basis, to ensure that the System is following the prescribed investment policy and strategy of the Board. The quarterly report should show the risk-adjusted return or Sharpe ratio for the total Fund, policy index and asset class benchmarks as well as other appropriate risk measures.

### OBSERVATIONS REGARDING CONSULTANT PERFORMANCE REPORTS:

- As discussed in Investment Issues Section 5(A), the consultants do an adequate job collecting performance data and summarizing so that the Board can evaluate it systematically. The source of data to the consultant is of some concern to IFS since STRS staff calculates performance data and provides it to the consultants. (See additional discussion on performance measurement in Investment Issues Section 3(A).) Third party investment consultants are of particular value with regard to providing independent performance monitoring. We understand that Russell conducted a review of STRS performance measurement system and found STRS system to be "robust and accurate to generally accepted industry standards." The system was also found to be cost-effective and determined that while the returns are not calculated by an independent third party, they are verified by two other STRS departments. CRA Rogers Casey also independently calculates returns, although STRS is the source of their underlying data.

- However, in a review of the performance reports presented to the Board, we found that very little data was provided beyond investment performance compared to benchmarks, specifically lacking are risk measures that, at the individual portfolio level, asset class level and total fund level, help to assess whether the types and amount of risk being taken are reasonable in relation to the value added (out performance of benchmarks) or excessive. IFS found that the inclusion of more evaluative data would help to improve performance reviews and investment decision making.

## Internally Generated Reports: Performance Evaluation Report

- ***Performance Evaluation Report*:** This report includes strictly investment returns, and predominantly domestic equity returns. It summarizes calendar and trailing year performance by asset class compared to benchmarks; summarizes calendar and trailing year performance for each individual portfolio, internally managed and externally managed, with data that is labeled Bank of New York.

| IFS Recommended Categories | Performance Evaluation Report |
|---|---|
| Frequency | Quarterly |
| Market Summary | No |
| Performance Total Fund vs. Policy Index | Yes |
| Performance Asset Classes vs. Policy Indices | Yes (no policy index or benchmark for Alternative) |
| Performance Sub-Asset Classes | Yes, for Domestic Equity: by style, by total internal vs. external managers |
| Performance Manager Level Performance vs. Specified Benchmark | Some, not all |
| Asset Class Characteristics | No |
| Risk Measures | No |
| Universe Comparisons of Performance at Total Fund, Asset Class and Manager Levels | No |

| Recommendation B8 |
|---|
| *The Performance Evaluation Reports should include sub asset class and manager level returns for all asset classes.* |

## Review of Frank Russell Reports to the Board

- IFS reviewed the performance reports provided by Russell to the Board. In the course of a year, Russell provides a series of performance reports and asset class reviews, including: Three Level Performance Reports, Real Estate Review, International Equity Review, and External Manager Review (equity and fixed income). By contract, the Real Estate report is produced semi-annually; the external manager reviews for international, domestic equity and fixed income are also prepared and presented semi-annually. The Three Level Report is produced quarterly, information being provided by the System's Performance reporting department on a monthly basis.

- ***Three Level Report*:** This report provides a snapshot of the investment program at the total fund, asset class and portfolio level (internally managed and externally managed) compared to designated benchmarks. For domestic equity, it summarizes asset class characteristics compared to stated benchmarks, to show how the asset classes differ from the benchmarks by capitalization, style and sectors. The report also provides trailing performance for each individual investment portfolio, internally managed and externally managed. The exception is real estate, which is a top down summary. Alternative investments are not included in the asset class analysis. There are no explicit risk characteristics, such as beta or standard deviation of returns for any asset class.

[**Space intentionally left blank**]

| IFS Recommended Categories | Russell Three Level Report |
|---|---|
| Frequency | Quarterly |
| Market Summary | No |
| Performance Total Fund vs. Policy Index | Quarter and one year only |
| Performance Asset Classes vs. Policy Indices | Domestic equities, international equities, fixed income, real estate: trailing period |
| Performance Sub-Asset Classes | Domestic equities, trailing periods for large and mid cap, internally managed<br>International equities, trailing periods for developed and emerging markets<br>Fixed Income, trailing periods for high yield and emerging markets<br>Real Estate, trailing periods for base RE, natural resources, REITS |
| Performance Manager Level Performance vs. Specified Benchmark | Domestic equities, trailing periods for large, mid and small cap externally managed<br>International equities, trailing periods for developed and emerging markets<br>Fixed Income, trailing periods for high yield and emerging markets |
| Asset Class Characteristics | Return attribution by asset class: domestic equity, international equity<br>Asset class weights compared to benchmark for size, sectors; domestic equity, international equity<br>Asset class characteristics vs. benchmark domestic equity, international equity |
| Risk Measures | No |
| Universe Comparisons of Performance at Total Fund, Asset Class and Manager Levels | No |
| Other | Total returns compared to actuarial rate, T-Bill rate; Net of fee active management rates of return; External management costs |

- ***International Equity Report:*** This report provides performance by internally and externally managed portfolios, for EAFE and Emerging Markets investments, down to the individually managed portfolio level, compared to benchmarks. Non-U.S. characteristic data is provided, including country and sector deviations from the benchmark and certain style characteristics (e.g., P/E, P/B, etc.). No risk statistics are presented however.

| IFS Recommended Categories | Russell International Equity Report |
|---|---|
| Frequency | Semi annual |
| Market Summary | No |
| Performance Total Fund vs. Policy Index | Not relevant |
| Performance Asset Classes vs. Policy Indices | Yes, half, one, three, five years<br>Also, by internally managed total, externally managed total versus benchmark |
| Performance Sub-Asset Classes | Yes, half, one, three, five years<br>By total emerging, total internally managed, total externally managed |
| Performance Manager Level<br>Performance vs. Specified Benchmark | Yes |
| Asset Class Characteristics | Yes: regions, 10 largest country weights, price/book, PE vs. benchmark |
| Risk Measures | No |
| Universe Comparisons of Performance at Total Fund, Asset Class and Manager Levels | No |

**Recommendation B9**

*STRS should discuss with Russell including in the International Review report risk statistics, such as risk/return ratios, Sharpe ratios, standard deviation.*

- ***Real Estate Report:*** This report shows performance for the asset class as well as comparing performance and characteristics of the portfolio to the policy index (benchmark) by property type and region.

| IFS Recommended Categories | Russell Real Estate Report |
|---|---|
| Frequency | Semi Annual |
| Market Summary | Yes |
| Performance Total Fund vs. Policy Index | Not relevant |
| Performance Asset Classes vs. Policy Indices | Yes: calendar, trailing<br>Compared to Domestic Equity and Fixed Income<br>Separately for REITS, Timber |
| Performance Sub-Asset Classes | Annual performance by regions, property types |
| Performance Manager Level<br>Performance vs. Specified Benchmark | |
| Asset Class Characteristics | Diversification compared to benchmark |
| Risk Measures | No |
| Universe Comparisons of Performance at Total Fund, Asset Class and Manager Levels | No |
| Other | Purchases and sales by type of real estate (period not labeled)<br>Adherence to policy guidelines |

- ***External US Equity and Fixed Income Manager Review:*** For domestic equity, this report summarizes the large cap equity and small cap equity characteristics compared to stated benchmarks, to show the sub asset classes differ from the benchmarks by capitalization, style and sectors. The report provides individual external manager performance compared to stated benchmarks for small cap equity, high yield fixed income and emerging markets fixed income, but not for large cap equity or traditional fixed income.

| IFS Recommended Categories | Russell External Manager Review |
|---|---|
| Frequency | Semi-annually |
| Market Summary | No |
| Performance Total Fund vs. Policy Index | Not relevant |
| Performance Asset Classes vs. Policy Indices | No |
| Performance Sub-Asset Classes | Half year and one year: domestic equity large cap equity<br>Half, one, three year for domestic equity |

| IFS Recommended Categories | Russell External Manager Review |
|---|---|
| | small cap<br>Half, one, three year for High Yield, Emerging Markets Debt |
| Performance Manager Level Performance vs. Specified Benchmark | Large cap, half and one year<br>Small cap growth half, one, two years<br>Small cap value half, one, three years<br>Small cap core half, one two years<br>Fixed: separate high yield and Emerging Mkts Debt managers, half, one, three years |
| Asset Class Characteristics | Domestic Equity Large Cap, Domestic Equity Small Cap, Fixed Income compared to benchmarks |
| Risk Measures | No |
| Universe Comparisons of Performance at Total Fund, Asset Class and Manager Levels | No |

**Recommendation B10**

*The External US Equity and Fixed Income Manager Review should provide more consistent and longer time periods for performance data, risk statistics and additional equity manager style information as longer-term data becomes available.*

## CRA Rogers Casey Reports

- Rogers Casey also provides performance reports to STRS staff, which IFS reviewed and we were informed that these reports do not go to the Board. These are high level reports that cover the Total Fund and major asset classes compared to their stated benchmarks: domestic equity, international equity, domestic fixed income, real estate and alternative investments. Data for this report is provided by STRS. The Rogers Casey report offers an additional data element missing from the Russell reports: that being peer group comparisons of the Total Fund and each asset class, along with the stated benchmark.

| IFS Recommended Categories | Rogers Casey Quarterly Performance Report |
|---|---|
| Frequency | Quarterly |
| Market Summary | Yes, along with detailed analysis of the policy index for each major asset class |
| Performance Total Fund vs. Policy Index | Yes, trailing periods, annual periods |
| Performance Asset Classes vs. Policy Indices | Yes, trailing periods, calendar periods |
| Performance Sub-Asset Classes | Domestic equity breakdown: large core |
| Performance Manager Level Performance vs. Specified Benchmark | No |
| Asset Class Characteristics | No |
| Risk Measures | Risk/Return chart for total plan vs. policy index, large cap US equity; broad market fixed income; international equity |
| Universe Comparisons of Performance at Total Fund, Asset Class and Manager Levels | Yes, all asset classes, trailing and annual periods |

| Recommendations B11 – B12 |
|---|
| *All performance reports should provide some type of risk measure, beta or standard deviation compared to a benchmark, by investment portfolio (internally managed and externally managed), asset class and Total Fund. Knowing portfolio risk compared to that of the benchmark would help the Board begin to evaluate how much risk is being taken to generate returns.* |
| *Other useful metrics include style scores compared to a benchmark; valuation measures such as Price/Earnings ratios, Debt/Equity ratios, Dividend Yield, and Weighted Average Capitalization. Reviewed regularly and consistently in conjunction with performance and risk measures, these metrics can help a board to evaluate return in light of the risk being taken to achieve out performance.* |

## Alternative Investments: Frank Russell Review

- IFS reviewed a report by Frank Russell regarding the Alternative Investment Process (June 2003). This was a qualitative review, not a quantitative review. The major areas of study were staffing and resources, the investment process, and methods of performance evaluation. This was a comprehensive report that made several recommendations that have been addressed by STRS. Since the sources of performance data for alternative investments is less standardized than it is for other asset classes, this type of review gives credence to the structure of the investment program.

- Russell had recommended in this report that the STRS staff establish a performance benchmark for the asset class. STRS measures alternative investments versus the Russell 3000 Index plus 300 basis points, or the domestic equity target plus 300 basis points. While this benchmark is not used for Total Fund performance measurement purposes, it is what STRS has established for the purpose of incentives. (See also IFS' benchmark assessment in Investment Issues Section 3(A).)

## OBSERVATIONS REGARDING MONITORING BY STRS STAFF:

- STRS devotes enormous internal resources to the monitoring of investments. This includes the data gathering and performance analytics departments, as well as review and analysis by the investment staff of each asset class on a regular, scheduled basis. The internal monitoring and reporting processes are generally well documented and appear to be followed closely. Interviews with staff members indicated that as a whole, the STRS staff knows exactly the timetable for review processes.

- As discussed in Investment Issues Section 3(A), STRS staff collects data and produces performance for Domestic Equity, internally managed Fixed Income, Real Estate, Alternative Investments and Liquidity Reserves. The Finance Department independently reviews and verifies the monthly performance reporting package, performing tasks like security price samples and verifying changes in market values. Monthly performance and market values are sent to Russell. The Performance Department verifies returns and benchmarks with Russell calculations. For international accounts and externally managed fixed income accounts, Bank of New York calculates and produces official performance.

- STRS appears to strive for the highest standards and has built internal checks and balances to ensure quality. However, as mentioned earlier, the data gathering process is largely internal, with few external, third party checks and balances so that STRS is the primary source for all data and analytics.

## FUNDAMENTAL PRINCIPLES REGARDING DOCUMENTATION OF THE INVESTMENT MANAGEMENT PROCESS:

- *Documentation of the investment management program begins with the written IPS and should be carried through to the level of single managers. As discussed in detail in Investment Issues Section 1(A), the IPS puts forth allowable and prohibited asset classes, investment techniques, such as the use of derivatives or leverage, and should make clear the cycle and process for reviewing performance and managers.*

- *Following the instructions of the IPS, the investment program should be documented to reflect allowable and prohibited strategies, and to give the System tools by which to analyze and measure results. This takes the form of internal instructions and guidelines and external written investment manager guidelines. Finally, the System needs to agree to a minimum timetable by which it analyzes adherence to policies and performance results.*

## OBSERVATIONS REGARDING DOCUMENTATION OF THE INVESTMENT MANAGEMENT PROCESS:

- IFS found that STRS has procedures in place for internal and external manager review. They are particularly in-depth for the domestic equities program and real estate, but they exist for most asset classes.

- Domestic Equity has internal guidelines for active and passive strategies, including a statement of investment objectives, investment policies, and portfolio characteristics. There are also policies for securities selection and stock transactions. International Equities and Fixed Income had similar documents. Real Estate has an acquisitions and dispositions manual, asset management manual and valuations manual. IFS did not receive similar documentation for the Alternative asset class.

- As a sample, IFS reviewed written investment guidelines for domestic equity external managers. These guidelines were consistent, each providing investment objectives, benchmarks, cash requirements and the permissibility of derivatives and leverage. In IFS' meetings with the investment staff, it is clear that the staff meets regularly – weekly, monthly and quarterly - to review the performance of internal and external managers, sub asset classes, asset classes and the Total Fund.

### 1. Sufficiency of authority and resources to monitor the Fund's investments

## BACKGROUND

Evaluating whether the Board in fact has the autonomy appropriate to that level of authority can be evaluated by considering whether the Board has independent budgetary, spending, procurement and personnel authority over the retirement system it is responsible for administering. In exchange for needed independence, public pension fund trustees are typically subject to high fiduciary standards and stringent reporting and disclosure requirements. Those standards and obligations provide the checks and balances appropriate to a public body such as a public retirement system.

## FUNDAMENTAL PRINCIPLE REGARDING BOARD'S AUTHORITY AND RESOURCES TO MONITOR INVESTMENTS:

- *Operating autonomy provides public pension funds with the ability to manage their investment program optimally so as to maximize returns. At the same time, trustees must exercise such autonomy in a manner that minimizes risk and expense for the benefit of plan participants.*

## OBSERVATIONS REGARDING BOARD'S AUTHORITY AND RESOURCES TO MONITOR INVESTMENTS:

- Chapter 3307 gives the Board broad authority to administer the System. The Board "may sue and be sued, plead and be impleaded, contract and be contracted with, *and do all things necessary to carry out [Chapter 3307].*"[131]

- The Board has the authority to set its own budget. While S.B. 133 requires that the administrative budget be submitted to the ORSC at least 60 days before it is adopted[132], the Board retains final authority, and therefore can devote the resources necessary to manage the System and its investments subject to the fiduciary principles applicable to all Board decisions regarding use of the System's assets.

- STRS has an in-house General Counsel, appointed by the Executive Director, who is answerable solely to STRS and has no duties to the state government as a whole or to other state agencies.

- The Board Policy entitled, "Operational Financial Planning," provides, "[t]he Executive Director may not cause or allow budgeting that . . . [i]s not derived from a long-term administrative plan." The only document we received that was described as a "long-term administrative plan" for budgeting purposes was the "Balanced Scorecard..."[133]

  - The Balanced Scorecard is a pamphlet that lists success factors in various categories and articulates measures by which performance on those factors is to be judged. The document's only reference to budgeting for investment-related expenses identifies as a "measures" of "Operating Efficiency," whether annual increases in budgeted

[131] Ohio Revised Code Chapter 3307.03 (emphasis supplied).
[132] O.R.C. Sec. 3307.041(D).
[133] According to the Balanced Scorecard Institute, the Balanced Scorecard "is a management system (not only a measurement system) that enables organizations to clarify their vision and strategy and translate them into action." It was developed by Drs. Robert Kaplan (Harvard Business School) and David Norton. See www.balancedscorecard.org/basics/bsc1.html (accessed Feb. 11, 2006). Our remarks regarding the Board's use of the Balanced Scorecard for budgeting purposes is not intended and should not be construed as a criticism of the utility of the Balanced Scorecard for other organizations and for other purposes.

investment expenditures are limited to 75% of the 4-year average increase in market value of investment assets. This standard does not seem appropriate.

- Growth in assets does not necessarily require an increase in investment-related expenditures or resources. While the costs of external management of investment assets can be a function of asset size given the prevalence of asset-based fees, most of the System's assets are internally managed.

- It doesn't necessarily follow that investment-related expenditures should fall when poor performance causes assets to drop. While such events may limit expenses such as incentive pay, poor performance can be an occasion for more intensive review of the investment function. In short, fluctuations in investment performance should not drive the budgeting of investment-related expenses.

| Recommendation B13 |
| --- |
| *The Board should adopt a method of budgeting for investment expenses that does not use changes in asset values as the standard. Rather, the budget should reflect a realistic, long-term assessment of the needs of the System and the resources available to meet them.* |

## 5. Reporting to the ORSC

This section area addresses the ORSC's request for identification of items critical for an oversight body to review on a regular basis as part of its oversight duties, including the reporting form and content. In formulating our findings and recommendations for this task, we researched pension oversight in each state.

## FUNDAMENTAL PRINCIPLES/BACKGOUND REGARDING PENSION OVERSIGHT:

*The Uniform Management of Public Employee Retirement Systems Act ("UMPERSA") affirms trustee autonomy in the management of public retirement systems as a best practice.*[134] *At the same time, UMPERSA also affirms the compelling interest of the legislature to insure that mismanagement of the retirement systems does not occur.*[135] *In order to balance the competing legitimate public interest of the legislature with the trustee's legitimate need for autonomy, pension fund trustees should be subject to strict fiduciary standards, and transparent reporting and oversight. Thus, pension fund trustees are not independent without accountability.*

*The federal government is responsible for oversight of private pension funds. However, it has virtually no oversight responsibility for state and local government pension plans. Oversight of public pension funds is within the purview of the individual state and local governments. As a result, levels of trustee autonomy and the methodology for pension fund reporting and oversight vary greatly from state to state. In most states, pension fund oversight is part of the customary duties of the Legislature, i.e., addressed within the purview of one or more standing legislative committees. The Executive branch may also have pension oversight authority. Thus, most states have vested pension fund oversight within multiple entities, i.e., some combination of executive branch (e.g. the Governor, and/or some other state official and/or agency/commission separate from the Legislature (e.g., the State Auditor, the State Comptroller, the Department of Insurance) and the Legislature. About a dozen states, in addition to Ohio, have established formal, permanent pension oversight entities (e.g., commissions, councils, etc.) which are not part of the state legislature's standing committee structure.*[136] *The purpose of most such formal entities is to provide continuity of expertise and informed independent research, analyses and advice regarding proposed retirement system(s)-related legislation, the condition/performance of the retirement system(s), and other pension-related matters to the Legislature, the retirement system(s), and the general public.*

*To the best of our knowledge, confirmed by a 1999-2000 study conducted by the Texas Pension Review Board, a comprehensive, up to date list of permanent oversight entities, such as the ORSC, does not exist. Therefore, in order to identify items critical for an oversight body to review on a regular basis as part of its oversight duties we researched the pension oversight entities of each state. Exhibit G sets forth the information we were able to glean regarding pension oversight in each state, including the entities responsible for pension*

[134] Note seven states in relevant part that "*the authority conferred upon the trustees is intended to ensure that retirement system trustees have a level of independence sufficient to permit them to perform their duties and to do so effectively and efficiently*." Comments to Section 7 of UMPERSA by the National Conference of Commissioners on Uniform State Laws (1997).

[135] Note five states in relevant part that "*the legislature has a strong interest in effective and efficient management of public retirement systems. Mismanagement presents obvious political hazards and, in the long run, may result in lower benefits, higher contribution levels, or both*." Comments to Section 5 of UMPERSA by the National Conference of Commissioners on Uniform State Laws (1997).

[136] These entities are typically composed solely or primarily of representatives from the Legislature. However, the composition in several states also includes lay members that are required to have investment or benefits expertise.

*oversight, their responsibilities, and the information they receive as part of their oversight duties.*

*In addition to the ORSC, Exhibit G identifies twelve other formal pension oversight entities:*

- *The Indiana Pension Management Oversight Commission;*
- *The Commission on Government Forecasting and Accountability (previously the Illinois Pension Laws Commission);*
- *The Louisiana Commission on Public Retirement;*
- *The Massachusetts Public Employee Retirement Administration Commission;*
- *The Minnesota Legislative Commission on Pension and Retirement;*
- *The Missouri Joint Commission on Public Employee Retirement;*
- *The Oklahoma State Pension Commission;*
- *The Pennsylvania Public Employee Retirement Commission;*
- *The Tennessee Council on Pensions and Insurance;*
- *The Texas State Pension Review Board:*
- *The Virginia Joint Legislative Audit and Review Commission; and*
- *The Wisconsin Joint Survey Committee on Retirement.*

*Exhibit G confirms that pension oversight in a majority of states is assigned to standing or interim committees within the legislature, typically also in combination with the executive branch of the state. Performing such oversight functions is consistent with the necessity to balance the interests of the legislature in the proper management of the pension funds with the pension fund trustees' need of autonomy (see notes to UMPERSA). The authority of oversight entities varies from state to state. However, whether oversight is the responsibility of a formal oversight entity or within the purview of a standing legislative committee, the oversight function typically includes – (1) review of the annual report(s) and financial statement(s), (2) monitoring, reviewing and commenting on pension-related legislation (including the financial and actuarial impact), and (3) monitoring the pension funds' actuarial soundness (e.g., funding status, actuarial assumptions).*

*As Exhibit G reflects, in addition to monitoring proposed legislation and actuarial soundness issues, in a number of states oversight authority may also extend to (1) regulation of pension funds, (2) conducting independent actuarial valuations and performance reviews, (2) requiring periodic experience studies, (3) researching the practices of other states to suggest necessary pension reform, (4) conducting surveys and studies regarding pension issues, including the practice of other public pension funds, as well as (5) monitoring and providing advice regarding:*

- *investment performance of the fund(s),*
- *pension fund management practices,*
- *adherence to sound pension policy,*
- *compliance with applicable statutory pension fund laws,*

- *the fairness of benefits structures against the efficient use of tax dollars, and*
- *the impact of federal legislation.*

*In determining the items critical for an oversight body to review on a regular basis, it is essential to first establish the oversight body's mission and scope of authority. There should be a correlation between the oversight entity's scope of authority and the information that it requires to fulfill its mission. What is critical information for one oversight entity may not be necessary for another.*

## BACKGROUND OF THE ORSC

The ORSC was established in 1968 as an independent, bi-partisan body,[137] to advise and inform the Ohio General Assembly on all matters relating to the benefits, funding levels, investments and operations of the five statewide retirement systems. The ORSC has nine voting members and five non-voting members, [138] its own dedicated staff and budget. By law, the state retirement systems are required to pay a proportionate share of the ORSC's costs based upon their respective assets; the ORSC receives no legislative appropriations.[139] This model is consistent with that of most of the formal pension oversight entities. (See Exhibit G.) The ORSC is one of the oldest of the permanent oversight entities. As a result, it has provided input and served as a model for the other oversight entities in their consideration of composition, statutory duties and oversight functions, etc.

A comprehensive description of the ORSC, its history, objectives, goals, structure and operations is available on its web site at www.orsc.org. The website also contains links to reports

[137] It is IFS' understanding that the formation of the ORSC was initiated, in part, in response to concerns of the Legislature to prevent future insolvencies in light of the insolvency at that time of a majority of the 464 local police and fire funds. This concern is consistent with the Note to Section 5 of UMPERSA.

[138] The ORSC is composed of three representatives appointed by the Speaker of the House, three senators appointed by the President of the Senate, three gubernatorial appointees representing state government, local government and education, and the five executive directors of the state retirement systems who are non-voting members. This composition is consistent with most other formal oversight entities. However, several oversight entities (e.g., Indiana, Louisiana, Massachusetts, and Texas) also have lay members, required to have experience in a pension-related field (e.g. investments, actuarial science). (See Exhibit G.)

[139] The costs of most of the formal oversight entities are paid by the retirement system(s) subject to their oversight. However, the costs of the Texas Pension Review Board are paid from the Texas General Fund. Staffing support for a number of the other formal pension oversight entities is provided by the applicable legislative services agency.

and analyses generated by ORSC, applicable excerpts of the Ohio Revised Code, schedules, and other useful links to several pension-related organizations with whom the ORSC interacts.

## ITEMS CRITICAL FOR ORSC TO REVIEW:

In determining the items critical for ORSC to review on a regular basis, it is essential to keep in mind ORSC's mission and scope of authority. There should be a correlation between ORSC's scope of authority and the information that it requires to fulfill its oversight responsibilities. The ORSC's enabling statute is particularly specific in defining the reporting requirements imposed on ORSC and, in turn, on the retirement systems under its jurisdiction.

### a. ORSC Statutory Oversight & Reporting Requirements:

Set forth below is a listing of the statutory reporting requirements for the ORSC and the Retirement Systems under its jurisdiction.

Pursuant to Chapter 171 of the Ohio Revised Code governing the ORSC, it is responsible for complying with the following statutory oversight and reporting requirements:

**As needed**

1. **LAW CHANGES**: *Report to the General Assembly on all proposed changes to the retirement laws, including their probable costs, actuarial implications and desirability as a matter of public policy*. R.C. §171.04(C).

**Semiannual/Annual Requirements**

2. **SEMIANNUAL INVESTMENT REVIEW**: *Report to the Governor and General Assembly on its semiannual review of the investment programs of the*

*state retirement systems. This requirement includes the review of the policies, objectives, and criteria of the system's investment programs.* R.C. §171.04(D).

3. **ANNUAL ACTUARIAL REVIEW**: *Have prepared an annual actuarial review to determine the adequacy of the OP&F contribution rates and make recommendations to the General Assembly for the proper financing of the OP&F benefits.* R.C. §742.311. The ORSC voted to expand their review of the contribution rates to the other retirement systems under its jurisdiction.

4. **ANNUAL REPORT**: *Make an annual report to the Governor and General Assembly covering its evaluation and recommendations with respect to the operations of the state retirement systems*. R.C. §171.04(B).

**Every three years**

5. **SUPPLEMENTAL CONTRIBUTION RATE STUDY**: *Have prepared an actuarial study of the supplemental contribution rate necessary to mitigate any negative fiscal impact of the alternative defined contribution plan for higher education employees on PERS, STRS and SERS once every three years and submit it to the Ohio Board of Regents*. R.C. §171.07.

**Every ten years**

6. **ACTUARIAL AUDIT**: *Have prepared actuarial audits of the state retirement systems at least once every ten years and report them to the Governor and General Assembly.* R.C. §171.04(E).

**From time to time**

7. **LAWS REVIEW:** *Make an impartial review from time to time of all laws governing the administration and financing of the state retirement systems and recommend to the General Assembly any changes it may find desirable with respect to the level of benefits, the sound financing of benefit costs, the prudent investment of funds, and the improvement of language and organization of governing laws*. R.C. §171.04(A).

### b. State Retirement Systems' Statutory Reporting Requirements to the ORSC

The cooperation of the five state retirement systems is essential to the work of the ORSC because they generally possess the basic information necessary on all public pension matters and because the ORSC has a duty to assemble factual, comparable and consistent data for the legislature on such matters. Thus, in order to meet its reporting mandate, ORSC requires each of the retirement systems to undertake various management activities and to submit a number of reports.

The state retirement systems are subject to the following reporting requirements to ORSC:

**As needed**

1. **ACTUARIAL ANALYSIS OF PROPOSED LEGISLATION**: *Have prepared an actuarial analysis of any proposed retirement legislation expected to have a measurable financial impact upon the retirement system and submit it to the ORSC, the standing committees of the house and senate with primary responsibility for retirement legislation and LSC within 60 days of introduction*. §§145.22(D), 742.14(D), 3307.51(D), 3309.21(D), 5505.12(D).

## Semiannual/Annual Requirements

2. **ANNUAL ACTUARIAL VALUATION**: *Have prepared an annual actuarial valuation of the retirement system and submit it to the ORSC and the standing committees of the house and senate with primary responsibility for retirement legislation*. §§145.22(A), 742.14(A), 3307.51(A), 3309.21(A), 5505.12(A).

3. **RETIREE HEALTH CARE ANNUAL REPORT**: *Have prepared an annual report giving a full accounting of the revenues and costs related to retiree health care benefits and submit it to the ORSC and the standing committees of the house and senate with primary responsibility for retirement legislation.* §§145.22(E), 742.14(E), 3307.51(E), 3309.21(E), 5505.12(E).

4. **ANNUAL REPORT ON THE DISABILITY EXPERIENCE**: *Have prepared an annual report on the disability experience of each public employer and submit it to the ORSC and the standing committees of the house and senate with primary responsibility for retirement legislation*. §§145.351, 742.381, 3307.513, 3309.391, 5505.181.

5. **PROPOSED ANNUAL OPERATING BUDGET**: *Have prepared an annual operating budget, including an administrative budget for the board, and submit it to the ORSC within 60 days prior to adoption*. §§145.092(D), 742.102(D), 3307.041(D), 3309.041(D), 5505.062(D).

6. **INTERNAL AUDIT COMMITTEE REPORT**: *Have prepared an annual report of the internal audit committee and submit it to the ORSC*. §§145.095, 742.105, 3307.044, 3309.044, 5505.111.

## Every five years

7. **ACTUARIAL EXPERIENCE STUDY**: *Have prepared an actuarial experience study of the retirement system at least once every five years and submit it to the ORSC and the standing committees of the house and senate with primary responsibility for retirement legislation.* §§145.22(B), 742. 14(C), 3307.51(B), 3309.21(B), 5505.12(B).

8. **DEFERRED RETIREMENT OPTION PLAN REPORT (OP&F AND HPRS)**: Have prepared an actuarial investigation of the deferred retirement option plan at least once every five years and submit it to the ORSC and the standing committees of the house and senate with primary responsibility for retirement legislation. §§742.14(F), 5505.12(F).

## From time to time

9. **FUNDING PERIOD PLAN**: *Have prepared in any year in which the funding period of the retirement system exceeds 30 years a plan approved by the retirement board to reduce it to no more than 30 years.* §§145.221, 742.16, 3307.512, 3309.211, 5505.121.

10. **ETHICS VIOLATIONS**: The State Ethics Commission is required to report to the ORSC findings with respect to any violations of the ethics laws committed by a board member of any of the five state retirement systems under the oversight authority of the ORSC. §102.06.

11. **STATE AUDITS**: The State Auditor is required to report the results of any audit of any of the five state retirement systems under the oversight authority of the ORSC. §117.10.

STRS also publishes a Comprehensive Annual Financial Report that provides financial, investment, statistical and actuarial information about the system in a single publication.[140]

### c. Analysis of Whether Items Critical for Oversight Function are Being Received by ORSC

As demonstrated by the preceding list, the ORSC receives a wide range of recurring and special reports to facilitate its oversight function. We observed that some of the required reports are thoroughly analyzed and refined in a manner that facilitates meaningful understanding and action, while others are essentially compilations of raw data in need of perspective and analysis. Some of these reports are particularly designed to meet information needs of the retirement systems and ORSC, some follow industry standards, and others appear to respond to legislative or regulatory requirements.

The information currently received by the ORSC from the systems and provided by the ORSC to the executive branch, the legislature, and the public appears to be very comprehensive and more than adequate to fulfill its oversight requirements. When compared to the oversight practices of other states set forth in Exhibit G, in most cases, the ORSC currently receives more information to facilitate its oversight function than most of its peers. The one notable exception to this observation is the Massachusetts Public Employee Retirement Administration Commission (PERAC). However, PERAC's mission includes regulation of the pension systems. Therefore, one would expect the information required for PERAC to perform its oversight mission to be different from the ORSC since the respective missions are different.

The fundamental aim of the oversight function is to insure that the pension fund is operating effectively and efficiently. The efficiency and effectiveness of ORSC's activities will be enhanced to the extent that the need for and content of the information the ORSC receives is confirmed to be a material input into the ORSC's further reporting and oversight requirements.

[140] The GFOA has awarded its Certificate of Achievement for Excellence in Financial Reporting to STRS in recognition of its conformance with the highest standards for preparation of state and local government financial reports for at least the last 15 years. OP&F has been awarded the GFOA Certificate of Achievement for Excellence in Financial Reporting in 17 of the last 18 award periods.

| Recommendations B14 – B15 |
|---|
| *We recommend that ORSC, with the assistance and advice of appropriate representatives of its target audiences (e.g., the Governor, the Legislature, constituent groups), confirm the continued need and value-added of each of the reports it is currently required to produce.* |
| *We recommend that the ORSC develop a strategic plan (for the coming three and five years), setting forth its goals, objectives and strategies to insure that the information required from the retirement systems is material input to the ORSC reporting requirement and oversight function and to serve as a benchmark for measuring the efficiency and effectiveness of its oversight activities.*[141] |

### d. Review of Report Form & Content

To the extent applicable, the following observations address individual report form and content as stand-alone documents and as they support the recommended consolidated reporting.

## OBSERVATIONS:

- Current system reports to ORSC cover a broad range of their activities. Most if not all of these reports cover areas of system activity that are necessarily being managed by each system's board and staff. Some of these reports are already being prepared for the system in the same or similar formats. Thus, given the duplication, arguably the incremental cost to the systems is minimal. Others may involve additional work in data collection, formatting, and reporting incurring additional cost in preparation time and professional fees.

- Portfolio performance is a major economic factor for each system that can be measured as frequently as daily. However, there is a risk in looking at portfolio performance too frequently and becoming focused on short term effects. The widely acknowledged standard is to measure investment performance no more frequently than quarterly and no

[141] See, The Texas Pension Review Board Strategic Plan – www.prb.state.tx.us/about/strategicplan

less frequently than annually. ORSC currently receives semi-annual performance reports. We find this is an appropriate performance review interval.

- Other areas of reporting tend to be more stable over longer periods, rendering frequent measurement costly and unnecessary. Such areas as participant demographics, actuarial computations, and benefits experience are most appropriately considered annually at most. Again, we find that the frequency of actual reporting fits this model.

- Administrative and capital budgeting is an area of reporting required under SB 133, and thus is still in development. Budgets are typically prepared on an annual, and sometimes on a rolling multi-year, basis. We find this level of frequency to be adequate and appropriate. Reporting of actual expenditures and variances against budget is also sufficient on an annual basis – and may lead to erroneous conclusions if provided over shorter periods of time. These observations are premised on the ORSC confidence in each system's board and staff to manage expenditures against budget throughout the year.

In each of these areas we discuss our assessment of current reporting, comment on its strengths, weaknesses, and reasonable uses. We then, if applicable, suggest the content and frequency of additional or substitute reporting.

### e. Annual Report of the Auditing Committee

## Background

- Each retirement system is required to prepare an annual report of the internal audit committee and submit it to ORSC. SB 133 requires the boards to appoint a committee to oversee the selection of an internal auditor and prepare and submit annually a report of the internal auditor's actions during the preceding year to the ORSC.

- This requirement essentially supplements the activities of each system's internal audit department and board audit committee. As such, it provides a control to assure that the audit processes at each fund are being undertaken in an effective and thorough manner. This report has four principal areas:

    - A listing of internal audit reviews completed;
    - A listing of special projects completed;
    - Summary of the board audit committee meetings and actions; and
    - The internal audit plan for the subsequent year.

## OBSERVATIONS REGARDING ANNUAL REPORT OF AUDITING COMMITTEE:

- These appear to be a well focused and comprehensive set of areas appropriate to the oversight role. As a new reporting requirement, the actual content of the reports will be a developing process.

- STRS' report includes a fair degree of detail, but is not easily understood. The 2005 audits are presented in detail. Various tables of relative risk in various portions of the areas audited may lead to identifying where high risk lies, but does not provide any information on the nature of the risks and what recommendations have been made to mitigate them. To achieve this, a detailed study of the quantitative methods and the tables displaying the results is required. The audit committee reporting only briefly describes the subjects discussed at each of its two meetings. The subsequent year audit plan is particularly clear. It shows a ranking of a long list of audit targets, which were selected, and explains to an extent, why.

- OP&F's report is short and direct. The completed audits and special projects sections describe, each in one or two sentences, the purpose of each activity. The audit committee (converted to an administration and audit committee in June) portion describes the subject matter of each of its monthly meetings. The audit plan is a simple list of the scheduled projects.

- As a recommendation for developing the annual report of the auditing committee into a more useful tool, we recommend the following:

| Recommendation B16 |
|---|
| *Completed audits and projects should be articulated including what was audited, the overall result, and what material recommendations were made. Any critical issues identified should be pointed out, and the action or planned action to remediate the situation described.* |

- The audit committee reports are fairly sufficient summaries. We understand that detailed committee minutes are available. Nevertheless, the reporting requirement specifies that the report reflect the actions taken. The report should be sufficiently comprehensive to constitute a standalone document.

| Recommendation B17 |
|---|
| *We recommend that the report include what was decided, what further work was directed, etc, and not just what was presented to the committee.* |

- The quantitative measures in the STRS report do not make clear what will be audited and why a particular subject was selected. The OP&F report provides a simple listing, but does not provide any insight. Listing topics not selected has both positive and negative possible ramifications. Showing the overall set of possible subjects and their ranking demonstrates the extent of the responsibility and gives some indication of the risk ranking process used to set priorities. On the other hand, it opens the possibility of having to defend the rankings. The unselected projects may be better limited to discussion in the System's audit committee and only the selected topics reported to ORSC.

| Recommendation B18 |
|---|
| *We recommend that the audit plan include a brief description of what will be audited and why a particular subject was selected.* |

### f. Performance Reporting

## BACKGROUND

ORSC retains its own investment consultant, Evaluation Associates ("EAI"), independent of the retirement systems' investment consultants. EAI provides a semi-annual comparative study report to ORSC. The form and content have evolved over the roughly six years the report has been produced, reflecting refinements and improvements identified by the various parties providing data, producing, and using the report. From time to time the report will include appendices addressing particular issues of interest.

Each report contains a multi-page executive summary with several comparative charts and graphs depicting key measures for the five funds laid out side by side followed by a one page multiple chart summary of each system. The main part of the report follows with more detailed information on the Systems, both comparatively and individually. There are several pages of peer group floating bar charts with all five Systems included, displaying both cumulative and consecutive time periods. This information is followed by individual System data, displayed at the total fund and asset class level. Often, the report includes an appendix providing supplemental information (e.g., performance attribution analyses or cost information).

## OBSERVATIONS REGARDING PERFORMANCE REPORTING:

- EAI has done a very commendable job of summarizing a very complex set of data elements from five large systems into a reasonably usable comparison report. Performance is shown on an absolute basis and against custom or policy benchmarks. Showing performance in this context allows evaluation that is relative to a reasonably achievable standard. The main body of the report includes all necessary and useful views of performance for the material portions of the portfolio. The executive summary includes key views of the data except it does not include the discrete, consecutive period performance.

| Recommendation B19 |
|---|
| *We recommend the current executive summary include performance for consecutive time periods (i.e. successive years) in addition to cumulative periods (i.e., varying periods all ending on the report date).* |

- We believe multiple views of the same data gives a different and important perspective on not only what was achieved, but how (relative to market conditions) it was achieved.

- The volume of information in the investment performance report is considerable. The amount and substance of information in the executive summary may be useful to certain readers, but is likely to be excessive to others who need to identify key action items more quickly. While it is important and meaningful to make this level of detail available, it may be more useful if the key points are clearly identified in the executive summary. Such a "review by exception" approach in which attention is focused on the areas that fall outside of expected ranges tends to make identifying and acting on those issues more effective. There is a risk, of course, that such reporting addresses primarily negative aspects, and can result in an erroneous conclusion regarding the financial health of the entity. A well designed one to three page key points summary can focus the critical issues (positives and exceptions) and lead the reader to the section of the report where more detailed information can be found.

- Performance data among the five funds is correctly presented relative to appropriate benchmarks, both at the total fund and asset class level. In particular, this is essential at the total fund level, to reflect appropriately different asset class weightings. It is a reasonable approach at the asset class level as well, enabling each System to assess its performance relative to sub-asset class weightings and different style mix and risk tolerance.

  - However, comparability is affected since the systems are using different sets of benchmarks. Each system's benchmarks are likely to be the most relevant measure for that system and thus provide an accurate measure of that system's relative performance, although that relevance has to be tested. If the benchmarks and policy indices for each system constitute the best available reflection of the compositions of the portfolio and its investment approach, then comparing each system's relative performance to that of the other systems.

- We believe that a summary highlights, key points and significant exceptions report designed as a "legislative oversight summary" and attached as a cover or preface to the current executive summary (lettered pages) in the EAI report should be developed. In developing the current report and current long executive summary, the elements included and the format of presentation was developed collaboratively and evolved in response to user feedback. This approach represents best practices in report development and should be continued in developing useful and meaningful exception and summary reporting. The following is a list of elements the report should contain:

  - Absolute and relative to policy index five year performance for each system at the total fund and major asset class level.

- Absolute return of the total fund relative to the actuarially assumed rate of return for five and ten year periods.

- Narrative exceptions report by system, describing each material variance to guidelines that occurred during the reporting period, and what resolution or correction was or is being done.

- Narrative report of significant events and developments by system during the reporting period, and plan of action if applicable.

- References to pages in the full executive summary and/or the full report for any topics on which further data may be useful or on which action may be warranted.

**Recommendation B20**

*We recommend the development of a summary report designed as a "legislative oversight summary" of key events, highlights and exceptions to be included as a cover attachment to the current executive summary in the EAI report (i.e., the lettered pages of the EAI report) for distribution to senior executives, legislators and others having oversight responsibility.*

- Section 171.04(D) of the Revised Code requires the ORSC to review the policies, objectives, and criteria of each system's investment program. However, the reports reviewed by IFS focused on evaluating investment performance (i.e., returns, asset allocation, and performance attribution). We did not find a review of the systems' investment policy statements (IPS), which sets forth the policies, objectives and criteria for each system's investment program.

**Recommendations B21 – B22**

*We recommend the semiannual review of the systems' investment programs also include findings regarding each retirement system's investment policy statement, including the adequacy of the objectives and criteria set forth in the policy and whether the systems' actual investment program is consistent with and in compliance with the IPS.*

**Recommendations B21 – B22**

*If the intent of Section 171.04(D) is to limit oversight to measuring and evaluating investment performance and does not extend to the policies, objectives, and criteria of each system's investment program, then the language of the statute should be amended to clarify the scope of the oversight.*

### g. Investment Costs

## BACKGROUND

Investment costs are an important component in evaluating the effectiveness of portfolio management and of system administration. Particularly in systems that undertake significant internal management, the net after cost portfolio return achieved internally over time on a full cost basis compared to the net return of external management is a critical issue.

EAI provides a summary of the operating costs of each of the five systems subject to the oversight of the ORSC as an appendix in its performance report for the period ending December 31. For the past several years the four largest systems have provided cost information as part of a cooperative survey conducted by a Canadian cost consulting firm, Cost Effectiveness Management, Inc. (CEM). The four systems that participate in the survey provide a copy of their CEM report to EAI. The fifth pension fund, the Highway Patrol Retirement System (HPRS) does not participate in CEM. Therefore, EAI provides, the Highway Patrol Retirement System with a spreadsheet so they can report the same information as the other funds that participate in CEM. This appears to be a reasonable means of providing a comparative overview of the costs of each system relative to each other. Among the five Ohio funds, costs vary significantly. However, this is to be expected, since costs are driven by the size of the fund and the approaches to investing undertaken and these factors vary considerably among the five funds.

A peer group comparison of costs for the five systems is not provided. Peer group comparisons would put the costs of each Ohio fund into better perspective by comparing it to other funds of similar size and investment structure and afford the ORSC with the opportunity to see how the Ohio funds compare to other similar funds across the country. EAI has promised to endeavor to provide peer group comparisons in the future. The CEM reports typically provide peer group comparisons for both administrative costs as well as investment costs. As an initial step in providing at least some level to peer group comparisons, it may be worthwhile to request that HPRS participate directly in the CEM cooperative survey (assuming they otherwise qualify).

Cost data is meaningful and potentially very important information which is integral to reaching any conclusions on investment performance. However, we caution that as a tool to reasonably evaluate the value added of internal versus external management and active versus passive management, the information provided by CEM and summarized by EAI, is only a start. Ideally such an evaluation is able to measure the incremental costs of internal management and the investment return achieved against the external costs and investment return achievable from external management. The CEM collection and reporting does not reach the level of detail and degree of control over measurement standards to provide the cost measures necessary for such an evaluation.

The question of whether internal or external investment management results in a higher net return is complex, ongoing, and not typically capable of yielding an unequivocal answer. The direct costs of both internal and external asset management can be measured reasonably easily and the indirect costs can be allocated using standard cost accounting principles. The process becomes more complex given the need to factor in longer term costs (such as turnover and training/learning curve costs) and in determining the investment rates that should be used for the alternatives not chosen. EAI has indicated that being able to include reasonable, supportable net returns would enhance their reporting process. We agree. Further, such data would also be useful in the continuing process of evaluating when and where internal asset management adds value relative to external asset management in each system. That said, the process for measuring these costs with the degree of precision necessary to reach clear conclusions (recognizing that cost accounting[142] is as much art as science) may not in itself be justifiable relative to the costs (in terms of time and money) to do so.

We acknowledge that some believe that cost accounting is too subjective a process to produce meaningful results. Nevertheless, while standard cost accounting may not be the appropriate measurement tool, it is the opinion of IFS that a more detailed costs measurement would be useful, which EAI would be able to incorporate into actual and potential returns and risk data so that meaningful net performance reporting, at the level of individual portfolios, could be done periodically.

| **Recommendations B23 – B24** |
|---|
| *We recommend ORSC, in coordination with each system, evaluate whether to undertake a project to develop or refine (if such a model already exists) basic cost accounting systems that support measurement of investment costs as well as other cost centers management may need to control.* |
| *We recommend that ORSC continue to work with EAI and the systems to develop a meaningful net performance report, including appropriate explanatory information to guide its proper use, and publish this annually as a separate report or appendix to the existing semi-annual report.* |

### h. Actuarial Reporting

## OBSERVATIONS REGARDING CONSOLIDATED AND COMPARATIVE REPORTING:

### 1) Experience Studies

A simple executive summary and table of key measures is probably the best way to present experience data, with the full reports available as backup for professionals to review.

[142] **Cost accounting** is the process of tracking, recording and analyzing costs associated with the activities of an organization. In modern accounting, costs are measured in accordance with the Generally Accepted Accounting Principles (GAAP). Cost accounting can be used to support management decision-making to reduce costs and improve profitability. However, for purposes of analyzing management decisions, standard cost accounting has been replaced with "direct costs" and "indirect costs" analyses to better reflect proper allocation.

Showing key measures (e.g., wage escalation, funded status, amortization years for actuarial unfunded liability absorption, investment rate of return) as of the most recent period as assumed and as they would stand using adjusted data is a meaningful approach that will be widely understood. The individual system actuaries can be of help deciding what data is meaningful to show, how to present it, and how to include explanations to put the changes in context.

### 2) Annual Actuarial Valuation

Because actuarial valuations are prepared each year, and because they present the same type of information, comparative reporting and evaluation is more easily accomplished. However, it is an area where care has to be taken to avoid costly misinterpretation. Each retirement plan is unique; reflecting a history of operations and employee relations, labor negotiations, benefit formulas, management objectives, political decisions over many years, and a host of other factors. Thus, few of the key values reported in an actuarial valuation report are cleanly comparable across systems.

Arguably, macroeconomic assumptions such as general inflation and expected investment returns, risk, and correlation at the asset class level lend themselves to common values. However, given the complexity of global economic activity and the resulting difficulty to predict it, there is ample room to argue that very different assumptions may have equal probabilities of being correct.

Other assumptions clearly need to reflect the characteristics of the individual system. Each system will have different benefit programs, different risks, different demographics, and different asset mixes reflecting different objectives, cash flows and funded status.

A brief summary of key actuarial and funded status information can be presented annually, provided it contains adequate explanation of differences. The two measures that are most reasonably comparable are funded ratio and years to amortize the actuarial shortfall. However, even here, the most economical objective may not be common among all funds. On a cost-benefit basis, given uncertainty, 100 percent funded may not be the most desirable financial position.

Data that can be presented and, to some degree compared, included also assumptions for asset class and total fund rates of return, wage increase assumptions, major plan provisions, and key demographic data. Again, input from the systems' actuaries and from the various target audiences as to what is meaningful and useful, while avoiding material distortion, is helpful.

| Recommendation B25 |
| --- |
| *We recommend that ORSC work with its independent actuary and the retirement systems' actuaries to develop annual reporting of actuarial and demographic information at a summary level.* |

### i. Health Care and Disability Reporting

## OBSERVATIONS REGARDING DISABILITY REPORTS:

- Each system submits a required annual Disability Report to ORSC. The report is purely statistical. It lists the number of disability applications received, approved, denied and in process in total and by employer. This ranges from one employer (Highway Patrol Retirement System) to literally hundreds for the other systems. There is no information regarding the disabilities except raw number of cases.

- Based on these reports in isolation, it is impossible to determine the financial effect the disability experience is expected to have. Unless this data is tracked against prior year data it is impossible to distinguish favorable or unfavorable trends. Without information on types of disability, there is no insight into whether measures might be taken to reduce incidence.

- IFS found no information regarding whether this additional information is analyzed elsewhere. We recognize there are confidentiality issues in publishing such information and we are mindful that there may have been a historical rationale behind the generation of the report.

| Recommendation B26 |
| --- |
| *We recommend ORSC review with the appropriate governmental and legislative representatives the use and purpose of these reports, with the goal of either amending the requirements to serve a beneficial purpose or eliminating the reports.* |

### j. Health Care Reports

## OBSERVATIONS REGARDING HEALTH CARE REPORTS:

- Each system provides post-employment health care benefits, basically for retired and disabled participants and their eligible dependents. The statute requires each system to submit an annual report of revenues and costs as well as the applicable statutory authority and a summary of benefits. How each system interprets the requirement, particularly with regard to the summary of benefits, differs markedly.

- Overall the financial information provided is reasonably standard and clear, including a balance sheet and statement of cash flows, for most systems. However we found the following differences in the information provided by the systems :

  - Two systems (PERS and HPRS) include detailed financial statements for the current and five prior years.

  - Two systems (STRS and OP&F) include detailed financial statements for the current year and summary financial information for the current and prior five years.

  - One system (SERS) includes summary information only for the current and prior ten years.

- No system provides projections of future contributions, benefit payments or earnings. Thus there is no indication of the future financial adequacy of their respective health care program. In some cases, this issue is discussed verbally in the context of plan provisions.

- The reporting of the summary of benefits, eligibility, and related information ranges from a half page listing of broad categories only to multi-page detailed listings of coverage, premiums, benefits, etc.

- Health care is arguably less controllable, more rapidly growing, potentially financially larger, and a more controversial benefit than pensions and disability payments. The current reporting does not give adequate insight into future costs and future issues stemming from these programs. As a first step in managing these programs in a way that seeks to avoid significant negative surprises, a common standard of reporting that facilitates subsequent analysis is needed.

**Recommendation B27**

*We recommend ORSC design a content and form of health benefits reporting – including the assumptions and results of actuarial projections for future costs – that facilitates long term planning and control, and that appropriate action be taken to implement this reporting across systems.*[143]

## CONSIDERATION OF WHETHER THE FOLLOWING ADDITIONAL ITEMS WOULD ENHANCE ORSC'S OVERSIGHT FUNCTION:

In discussions regarding potential additional information that could be required from the retirement systems to be utilized as part of ORSC's oversight function, as well as current oversight issues, the following items were mentioned:

[143] This recommendation should be considered in light of new Government Accounting Standards Board (GASB) accounting standards (GASB 43 and GASB 45) that will go into effect beginning in fiscal year 2006-2007 and in fiscal year 2007-2008.

- Asset allocation studies
- Asset liability studies
- Volatility analysis as part of asset allocation/liability studies
- Financial audits
- Inclusion of Medicare Part B premium reimbursements in the annual actuarial valuation

IFS addresses each of these items below, including whether or not the item would be critical for an oversight body to review on a regular basis as part of its oversight duties.

In general, IFS is a proponent of periodic asset allocation and asset liability studies, as well as financial audits. However, from the perspective of an oversight entity, we do not believe that an oversight body needs to review these studies on a regular basis for the following reasons:

- **Asset allocation studies** analyze different mixes of asset classes in the overall investment portfolio. The basic model for this mathematical exercise was developed over fifty years ago. While such periodic studies provides certain helpful guidance to the boards of the retirement systems in the development of their target asset mixes given their risk tolerance, their results are entirely dependent on the capital market assumptions for future return expectations and volatility and are typically custom tailored to suit the individual investment needs and preferences of a given board.

  We do not believe that imposing a requirement that the retirement systems conduct asset allocation studies as part of its reporting to the ORSC would add value to the ORSC's oversight function. Instead, as part of its current oversight authority, pursuant to §171.04(D), we suggest that ORSC monitor the policies of the retirement systems to determine whether or not the individual retirement systems are periodically conducting asset allocation studies (e.g., whether an asset allocation study is called for in the investment policy statement, the frequency, and whether or not the system is in compliance with its stated policy).

- **Asset/liability studies** are expansions on asset allocation studies in which distribution in the measure of the liability stream is juxtaposed against the distribution of asset values. Liability changes may be the result of changes in discount rates, demographics, plan design and benefit levels, etc. Asset/liability studies can be used as a planning tool as well as an early warning device regarding contribution requirements and funding status. Asset/liability studies are also periodic in nature, typically recommended every three to five years.

  We do not believe that imposing a requirement that the retirement systems conduct asset/liability studies as part of their reporting to the ORSC would add value to the ORSC's oversight function. Instead, as part of its current oversight authority, pursuant to §171.04(D), we suggest that ORSC monitor the policies of each retirement system to determine whether or not the individual retirement system is periodically conducting an asset/liability study (e.g., whether an asset/liability study is called for in the investment policy statement, the frequency, and whether or not the system is in compliance with its stated policy).

- While both asset allocation and asset/liability studies are, under certain circumstances, useful tools for managing portfolios and helpful in providing input data to actuarial computations, they do not provide good tools for controlling results. The output of each study is a probability distribution in which the most likely outcome has only a slightly higher probability of occurrence than the others. In our opinion, for an oversight entity to try to measure actual results against the output of such studies would inevitably leads to invalid conclusions.

- Financial academia is developing different approaches to constructing portfolios against upper and lower limits of return and risk. Deciding what to use and when to use it is a management issue. Legally mandating a particular approach is likely to be counterproductive and would constrain the autonomy of the pension fund board in the management of the investment program.

- **A volatility analysis** is based on the same set of assumptions and essentially the same set of mathematical relationships as an asset allocation study or asset/ liability study. While both the asset allocation and asset/liability study usually focus on one or a small set of possible outcomes, a volatility analysis describes the shape of the range of possible outcomes. The most significant use of a volatility analysis is identifying investment structures where the probability of particularly unacceptable outcomes is unacceptably high.

  The same conclusions noted above regarding requiring an asset allocation and an asset/liability study would also apply to requiring a volatility analysis as part of such studies.

- **Financial audits** are important in the preparation of financial statements, and are typically required under GAAP (already defined). Financial statements, however, are not meaningful in evaluating economic returns and risks. Further, the State Auditor is already required to report the results of any audit of the five state retirement systems under the oversight authority of the ORSC. §117.10

- **Inclusion of mandated Medicare Part B premiums reimbursement[144] in the calculation of the unfunded liability of the Retirement Systems**: The general

[144] Legislation for reimbursement of the Medicare Part B premium became effective in 1977 for all five systems subject to the oversight of the ORSC. Three systems, SERS, STRS, and HPRS sought legislative changes in 1988, 1991, and 1994 respectively to change the law. As a result, these systems each have limits and/or board control over the amount they pay each year for Medicare Part B. Thus, they are able to control this component of their health care expenses as much as any other portion. STRS only provides partial premium reimbursement to service and disability retirement benefit recipients who are enrolled in Medicare Part B. OP&F and OPERS are still subject to the 1977 legislation. (However, it is our understanding that OPERS is currently planning to seek a legislative change.) Thus, OP&F benefit recipients who submit satisfactory evidence of payment for Medicare Part B to OP&F are also entitled to full reimbursement of their Medicare Part B premium.

principle is that all liabilities that must be funded out of a particular pool of assets and stream of income cash flow should be measured so that a reasonable conclusion regarding the financial health of the system can be reached.

- The excess of the total statutory contribution above the amount required to actuarially fund the mandated pension benefits may be allocated to the Systems' Healthcare Fund. OP&F and STRS[145] pay the mandated Medicare Part B premium reimbursement from their respective Healthcare Funds.

- It is the position of the ORSC (as recommended by its actuary) that the funding period calculation required by law should be based on the actuarial costs of all benefits mandated by statute - the pension benefits and the Medicare Part B premium reimbursements. Currently, SERS is the only system that includes the statutorily mandated Medicare Part B premium reimbursements in the development of its funding period calculation.

- The ORSC has recommended that both OP&F and STRS[146] include the actuarial costs of providing Medicare Part B premium reimbursements in their 2006 and future actuarial valuation reports.[147] Consistent with its recommendation, ORSC's actuary already includes an estimate of the cost of the mandated Medicare Part B premium reimbursements with retirement benefits when examining the adequacy of contribution rates. It is our understanding that OP&F and STRS consider the mandatory Medicare Part B premium reimbursement to be a health care benefit and not a pension retirement benefit.

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145 As well as HPRS and PERS, although these funds are part of this fiduciary performance audit.
146 As well as HPRS and PERS, although these funds are part of this fiduciary performance audit.
147 ORSC Annual Report 2005, *Evaluations and Recommendations Regarding the Operations of the Retirement Systems and Their Funds*, issued January 2006.

- GASB 43 will require the disclosure (but not the funding) of the actuarial costs of providing health care benefits (mandatory and discretionary). Accordingly, all the retirement systems will have to disclose the actuarial cost of Medicare Part B. This should provide the ORSC with the information it requires to evaluate the adequacy of the contribution rates.

* * * * *

# Exhibit A - Summary of Recommendations

Set forth below are summaries of all recommendations from the preceding report. They are listed in the order they appear in the report with corresponding page number. The Task Area of each recommendation or related series of recommendations is set forth for ease of reference.

| Page | Recommendation |
|---|---|
| **A – Investment Issues** | |
| **1. The Investment Policy Statement** | |
| 25 | *The IPS Purpose section should be amended to state clearly for whom and why the Plan exists (i.e., STRS' mission and purpose) or at a minimum reference the mission and purpose stated in the Board's Policies.* |
| 27 | *The STRS IPS Investment Objectives section should be expanded to clearly incorporate STRS' actuarial, accounting and financial objectives. The language of the IPS investment objectives section should include (a) earning a rate of return in excess of inflation that equals or exceeds the actuarial rate of return over an established investment horizon, (b) earning a rate of return that enables the System to meet liabilities and fulfill minimum funding requirements (as well as possibly the goal of achieving a certain funded ratio), (c) maintaining sufficient liquidity to satisfy annual cash flows, and (d) earning a rate of return that equals or exceeds the System's long term policy index with an acceptable level of risk.* |
| 27 | *The STRS IPS Investment Objectives section should document STRS' official Policy Index using representative index benchmarks for each asset class.* |
| 29 | *The IPS should identify the key documents that must be produced (IPS, Asset Allocation Study, Actuarial Study, and Asset Liability Study), the party responsible (consultant, actuary, etc.), the frequency with which key documents are developed and/or reviewed, and how they are incorporated into the System's investment policies. The following is a suggested frequency of review schedule for some of the documents that are key to the investment process:*<br>• *Conducting an asset liability study – once every five to seven years,*<br>• *Conducting an asset allocation study – once every two to three years* |
| 29 | *The IPS should reference delineation of investment decision making roles and responsibilities set forth in the Statement of Governance and the Board Policies.* |
| 29 | *The IPS should define the lines of reporting among the Board, Investment Staff, and the investment consultant.* |
| 29 | *If the Board of Trustees and Investment Staff rely on interim updates to key financial data, the IPS should specify in an addendum the source of the data, what it supplants and how it is relied upon.* |

| Page | Recommendation |
|---|---|
| 33 | *The STRS IPS could be a more significant summary document of the System's investment program if it were to account explicitly for the amount of risk in the program and how it may impact the financial condition and funding requirements.* |
| 35 | *The IPS should explicitly acknowledge the specific funding requirements that the investment program is designed to satisfy. It may also include language that addresses the need to review how well the System has performed each year in terms of complying with funding requirements, and the explicit steps that the Board and Investment Staff will take to address underperformance*[1]. |
| **2. Portfolio Risk** | |
| | *None* |
| **3. Investment Performance** | |
| 74 | *Consider adding additional international equity portfolio characteristics to the regular quarterly reporting* |
| 76 | *We recommend that the Fund consider the MSCI All Country World ex. U.S. Index (50% hedged) as a possible secondary or new primary benchmark to measure the performance and risk of the composite international equity program since the MSCI All Country World ex-U.S. Index includes both developed and emerging market country allocations which are slightly broader in number of emerging market countries than the current International Equity Hybrid Index.* |
| 82 | *IFS recommends that Fund staff review the current fixed income reporting provided to the Board and staff and work with its outside consultants to include additional fixed income reporting as determined necessary.* |
| 88 | *As part of the Annual Investment Plan and the Fund's investment objectives, the Fund may wish to reconsider an expanded role for "value added" or "opportunistic" real estate strategies if compelling investment opportunities on a risk adjusted basis are identified.* |
| 93 | *Although the Real Estate program's performance has registered solid gains over the past five year period, ending June 30, 2005, versus the custom real estate benchmark, IFS suggests attempting to identify the sources and reasons for the Real Estate program's increased volatility over the past one to two years as a way to further monitor and control risk.* |
| 100 | *IFS recommends Fund staff consider ways to improve monitoring the program's allocation, portfolio structure and risks.* |
| 104 | *IFS recommends the Fund consider formally adopting a new benchmark to benchmark risk and performance in the Alternative program and to better reflect the benchmarking process outlined in the IPS such as the Wilshire 5000, Russell 3000 or Russell 2000 small cap index, plus an additional risk* |

[1] STRS investment staff informed IFS that STRS submits reports to ORSC that address the status of 30 year funding requirements.

| Page | Recommendation |
|---|---|
| | *premium of 500 basis points to compensate the Fund for additional risk in the private markets which is being assumed. The Cambridge Associates Private Equity and Venture Capital benchmarks could also be utilized.* |
| **4. Investment Structure and Costs** | |
| 117 | *Continue to evaluate the use of passive and active management in the equity and fixed income portfolios.* |
| 120 | *Consider reevaluating the number of external small cap domestic equity managers to determine whether there is unnecessary overlap and whether it is cost effective to retain them all.*[2] |
| **5. Use of External Consultants** | |
| 136 | *Russell's contract with STRS should be amended to ensure that the contract reflects all the services/advice STRS expects its consultant to provide, including, but not limited to, advice from Russell on:*<br><br>• *Guidelines for external investment managers;*<br>• *Review of the investment strategy and processes employed by STRS internal portfolio management teams;*<br>• *Evaluate the value-added by internal investment management at STRS;*<br>• *Review of proxy voting practices; and*<br>• *Review of internal brokerage practices, transition management advice and STRS' use of soft dollar services.* |
| 144 | *Russell's contract with STRS should be amended to require Russell to provide annual disclosure of its business relationships with all investment managers or other providers of investment services. This contractually-required disclosure should include information from Russell on the specific amounts paid to Russell by those investment managers employed by STRS and on the specific services provided to those managers.*[3] |
| **6. Asset Allocation** | |
| 150 | *The next asset allocation study, or asset liability study, should provide STRS with additional risk statistics by which to assess the Board's tolerance, particularly to the downside, of not achieving an expected return. It should also show probability statistics that establish the likelihood of achieving an expected return over different time periods and include the recommended target asset allocation in the scenarios that are tested.* |
| 156 | *If the consultant is confident with its sub asset capital markets projections and they are deemed essential to the expected return of the investment program,* |

[2] Since our fieldwork and initial due diligence, we were informed by STRS staff that there has been a significant consolidation of the manager accounts for domestic equities. Five external manager accounts have been terminated between the time of our interviews and the writing of this report.
[3] STRS' sister fund, SERS, has developed an excellent investment consultant disclosure policy and annual disclosure document which would be used as a template. SERS also uses Russell.

| Page | Recommendation |
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| | *the Board may want to come to an agreement with the consultant that this information will be developed and presented in all future studies.* |
| 157 | *Given the potential for alternative assets to provide better returns with less risk that traditional assets, it may be meaningful for the System's consultant to model the Fund's asset allocation with increased amounts of private equity and hedge funds to determine if there is an optimal percentage of these assets.* |
| 161 | *The 2005 Asset Liability Study helps to improve many of the deficiencies of the earlier study. IFS continues to recommend that STRS engage in an asset allocation study at least every three years. IFS continues to recommend that an asset allocation study provide volatility analysis, e.g., showing how a 1% change in expected rates of return in both directions would impact the System's key targets and funding requirements: liabilities, assets, unfunded liability, and funded ratio.* |
| 164 | *As a result of the 2005 Asset Liability Study, STRS increased its allocation to alternative investments from 2% to 3%. Future studies should continue to assess whether it adds value to the total Fund to increase the allocation further.* |
| 166 | *The STRS rebalancing policy is clear and followed closely, however STRS may want to reconsider having a policy that allows the investment staff to rebalance as frequently as intra-monthly.* |
| **7. Brokerage Practices** | |
| 171 | *We recommend that STRS arrange, at least periodically, to measure the transactions costs of its external, active domestic and international equity investment managers and use those measurements to assist in monitoring and controlling the managers' use of STRS commissions.* |
| 175 | *Enhance the policy by articulating the factors staff should consider when voting on and ranking brokers.* |
| 179 | *The STRS policy and procedures governing the selection of emerging and women-owned brokers should articulate additional objective criteria and policies regarding such selections and each candidate's ability to provide best execution.* |
| 180 | *For reasons parallel to those cited above regarding selection and ranking of minority-owned firms, we believe that the STRS brokerage policy should articulate specific criteria to govern selection and ranking of in-state brokers. These criteria should be designed so using Ohio-based broker dealers is allowed only insofar as such firms provide STRS best execution, as objectively measured.* |
| **8. Due Diligence Procedures/Selection of Investment Service Providers** | |
| 188 | *Expand the manager selection policy memo to a full policy and procedure document covering all aspects involved in the manager selection and hiring process, including the specific objectives, authority, and controls. Roles and* |

| Page | Recommendation |
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| | *responsibilities in the process should be designated by position rather than by name.* |
| 188 | *Amend the manager selection policy to reference the language in the Statement of Fund Governance delegating investment decision making for the selection, management and termination investment managers.* |
| **9. Statutory Provisions and Administrative Rules** | |
| 195 | *See recommendations in Section 11 to amend the current law to remove the in-state bank requirement and to authorize the retirement systems to select their custody banks.* |
| 195 | *If the law cannot be changed as we recommend, the Board should formally request a memorandum of understanding with the State Treasurer which would provide that for the input of the retirement systems into the search, selection, and ongoing monitoring of the custody bank, including by not limited to (a) all negotiations and discussions with the custody bank, (b) participation in the preparation of requests for proposals for custodial services, (c) analysis of the responses to such RFPs, (d) the process for selecting the custodian and monitoring the services provided, and (e) the development of guidelines for the periodic evaluation of the custodian's services.* |
| 196 | *While the existing statutory framework is in effect, the Board should request that the Treasurer's staff meet with the Fund's staff to establish additional procedures to eliminate duplication of effort in reconciling and auditing the custody bank's work.* |
| 198 | *The Board should review and amend its Statement of Investment Objectives & Policy and/or the Investment Staff Policies and Procedures to reflect the legislative provisions related to investments in businesses owned and controlled by women or minorities. If it has not already done so, the Board should direct the staff to establish and implement the plan regarding investments in businesses owned and controlled by women or minorities which the amendment to the Statement of Investment Objectives & Policy may require. The Board should also develop and implement a system for monitoring and evaluating the implementation of these statutory requirements, taking special care to assure that the monitoring and evaluation processes themselves do not encourage imprudent investment decision-making.* |
| 201 | *The Board should consider amending the portions of its Policy entitled, "Board Member Travel and Expenses" which authorizes up to three trips out-of-state each year for education programs in view of the mandatory in-state education requirement.* |
| 205 | *The Board should review the Ohio and Emerging Brokerage Firm Procedures to assure that they are consistent with the Ohio Investment Manager and Broker Policy and Program, and that they (i) harmonize with the certification and list procedures adopted by the several retirement systems pursuant to S.B.* |

| Page | Recommendation |
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| | *133, and (ii) do not impair the quality of services provided to STRS.* |
| 206 | *The Board should revise the Ohio Investment Manager and Broker Policy and Program to delete the requirement that at least one Ohio-qualified investment management firm be included among the finalists in every search for an external asset manager. The Board should identify and implement steps to assure that Ohio-qualified managers are aware of opportunities to submit proposals to manage STRS assets and the processes and criteria STRS uses to select external managers.* |
| 208 | *We recommend that the statute be amended to authorize STRS to retain independent out-side legal counsel without the prior approval of the State Attorney General.* |
| 208 | *In the alternative, if the statue is not amended, or until the statue is amended, we recommend, working with the AG and the Fund's in-house counsel, the Board delineate the respective roles and responsibilities of the AG and STRS' in-house counsel, and develop a memorandum of understanding which establishes a procedure for the Board to obtain independent out-side counsel if and when a conflict arises with the AG.* |
| 209 | *STRS' staff should monitor and report to the Board changes in the flow of responses to requests for proposals to provide investment management services to STRS. In addition, requests for proposals for investment management services should require all respondents to acknowledge that they are familiar with the lobbyist registration requirements and certify that they will comply with them to the extent applicable. The staff should also periodically review respondents' registration filings under the new law which reference STRS decisions in order to determine what, if any, information should be disclosed by STRS with respect to reported lobbying activity, using random sampling as appropriate to assure that the time and effort spent on this effort is commensurate with the value to STRS of the information derived from the review.* |
| 211 | *Upon obtaining clarification of the positions within STRS that are covered by the definition of "state retirement system officers," the Position Descriptions for those positions should be modified to state explicitly that candidates for those positions must be qualified for licensing by the Division of Securities.* |
| **10. Conflicts of Interest** | |
| 216 | *STRS should adopt a prohibited transaction policy to define the term "parties in interest." The policy should be modeled on the definition of "parties in interest" contained in ERISA.* |
| 217 | *STRS should also develop a process for analyzing transactions with "parties in interest" to assure that their terms and conditions satisfy the legal standard of comparability to the terms of similar transactions between unrelated parties.* |

| Page | Recommendation |
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| **11. Custodian** | |
| 228 | *We recommend that the applicable Ohio statutes be amended to remove the requirement that financial institutions retained to provide custodial services must have a presence in Ohio.* |
| 228 | *We recommend that the applicable Ohio statutes be amended to grant authority to select, contract with, manage, and terminate the financial institution(s) that will provide master custody services to the retirement systems which are subject to the oversight jurisdiction of the ORSC.* |
| 228 | *As an alternative to granting the retirement systems the power to independently select the custody bank, we recommend that the statue be amended to (a) allow the pension fund to select the custodial bank from a list of candidates developed by the Treasurer of State, pursuant to specific written criteria established by the respective pension fund defining the services required, and (b) require the consent of the retirement system as a prerequisite to effecting a change of their respective custody bank.* |
| 228 | *To maintain accountability and oversight, we recommend amending the applicable statutory language regarding the Ohio Treasurer of State custody bank reporting requirements to provide for periodic review, spot check, and audits rather than complete transaction data transfer.* |
| **12. Internal Controls and Risk Management** | |
| 237 | *The Board should takes steps to elevate the chief audit executive position on par with the department heads being audited both in title and organizationally. The Board and the Executive Director should make a conscious effort to reinforce the concepts of internal control and internal auditing and their importance to the organization beginning with the senior management team. The organization should depict the Internal Auditor reporting by a solid line to the Board and a dotted line to the Executive Director.* |
| 240 | *STRS should increase the audit staff responsible for investments, benefits, and information technology, commensurate with its size, needs, complexity, and industry practice. An average size would be fourteen (14) auditors based on 2.3% of total staff size at the time of this review.* |
| 240 | *STRS should develop an audit plan that is appropriate for its size and complexity, i.e., one that reflects an appropriate internal audit staffing level.* |
| 240 | *Once the appropriate size and plan are achieved the internal audit department should undergo a Quality Assessment in accordance with professional standards.* |
| 240 | *STRS should supplement its Internal Audit capabilities with outsourcing audits in accordance with an approved audit plan until staff size and capabilities come up to speed.* |

| Page | Recommendation |
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| 241 | *Each department head should establish operational, financial and compliance objectives. Risks to achieving established objectives should then be identified.* |
| 242 | *The System's overall mission, goals, and objectives should be integrated into the risk assessment.* |
| 242 | *A formal tool for department heads to periodically provide risk reports to senior management should be developed.* |
| 244 | *Implementation of any new paradigm is not without cost. Therefore, we recommend that STRS consider the relative benefits and costs of implementing the ERM Integrated Framework prior to doing so.* |
| **13. Investment Accounting** | |
| | *None* |
| **B – Management Issues** | |
| **1. Board Governance, Policies and Oversight** | |
| 256 | *We recommend that the Board require that the Board's "investment expert designees" and "investment expert members" be required to disclose any campaign contributions either they or their employers have made to the officials who have appointed them. In addition, the firms that employ those, and any other, Board members should be barred from doing business with the assets of any of the Ohio state-wide retirement systems while on the Board and for a period of at least three years thereafter.* |
| 258 | *We recommend that the Committee Principles be revised to require that the committee chairs be receptive to input on the agenda from committee members.* |
| 259 | *We recommend the Board re-examine the committee structure periodically to determine if more or different committees should be established to improve the Board's decision-making. Possible additions to the list of committees include a Budget Committee and an Information Technology Committee.* |
| 261 | *We recommend the Board direct the Executive Director to maintain a record of responses to questions posed by members of the public at the Board's public meetings, indexed by date and subject to permit verification of compliance with the Board's policies, to preserve a record of statements made and to promote consistency in information provided to the public.* |
| **2. Organizational Structure and Resources** | |
| 277 | *We recommend consideration be given to using a pay for performance model for non-investment personnel that includes an incentive component.* |
| 278 | *The Real Estate Counsel should be subject to the overall supervision of the General Counsel as part of the General Counsel's function of overseeing and managing the System's legal affairs.* |
| 282 | *The Investment Company Institute and the SEC recommend a third party notification process. It requires that employees with a personal securities* |

| Page | Recommendation |
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| | *account direct each financial institution with whom the employee maintains such an account to send monthly statements to the individual designated as the Compliance Officer for accounts in which the employee has a direct or indirect beneficial ownership interest. This third party notification provides a further "check and balance" in maintaining a successfully executed policy. We recommend that the Board adopt such a policy for its employees and add it to its policies and procedures.* |
| **3. Ability to Attract and Retain Employees** | |
| | *None* |
| **4. Monitoring of Investments and Reporting** | |
| 298 | *The Performance Evaluation Reports should include sub asset class and manager level returns for all asset classes.* |
| 301 | *STRS should discuss with Russell including in the International Review report risk statistics, such as risk/return ratios, Sharpe ratios, standard deviation.* |
| 303 | *The External US Equity and Fixed Income Manager Review should provide more consistent and longer time periods for performance data, risk statistics and additional equity manager style information as longer-term data becomes available.* |
| 304 | *All performance reports should provide some type of risk measure, beta or standard deviation compared to a benchmark, by investment portfolio (internally managed and externally managed), asset class and Total Fund. Knowing portfolio risk compared to that of the benchmark would help the Board begin to evaluate how much risk is being taken to generate returns.* |
| 304 | *Other useful metrics include style scores compared to a benchmark; valuation measures such as Price/Earnings ratios, Debt/Equity ratios, Dividend Yield, and Weighted Average Capitalization. Reviewed regularly and consistently in conjunction with performance and risk measures, these metrics can help a board to evaluate return in light of the risk being taken to achieve out performance.* |
| 309 | *The Board should adopt a method of budgeting for investment expenses that does not use changes in asset values as the standard. Rather, the budget should reflect a realistic, long-term assessment of the needs of the System and the resources available to meet them.* |
| **5. Reporting to the ORSC** | |
| 319 | *We recommend that ORSC, with the assistance and advice of appropriate representatives of its target audiences (e.g., the Governor, the Legislature, constituent groups), confirm the continued need and value-added of each of the reports it is currently required to produce.* |

| Page | Recommendation |
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| 319 | *We recommend that the ORSC develop a strategic plan (for the coming three and five years), setting forth its goals, objectives and strategies to insure that the information required from the retirement systems is material input to the ORSC reporting requirement and oversight function and to serve as a benchmark for measuring the efficiency and effectiveness of its oversight activities.*[4] |
| 322 | *Completed audits and projects should be articulated including what was audited, the overall result, and what material recommendations were made. Any critical issues identified should be pointed out, and the action or planned action to remediate the situation described.* |
| 322 | *We recommend that the report include what was decided, what further work was directed, etc, and not just what was presented to the committee.* |
| 323 | *We recommend that the audit plan include a brief description of what will be audited and why a particular subject was selected.* |
| 324 | *We recommend the current executive summary include performance for consecutive time periods (i.e. successive years) in addition to cumulative periods (i.e., varying periods all ending on the report date).* |
| 326 | *We recommend the development of a summary report designed as a "legislative oversight summary" of key events, highlights and exceptions to be included as a cover attachment to the current executive summary in the EAI report (i.e., the lettered pages of the EAI report) for distribution to senior executives, legislators and others having oversight responsibility.* |
| 326 | *We recommend the semiannual review of the systems' investment programs also include findings regarding each retirement system's investment policy statement, including the adequacy of the objectives and criteria set forth in the policy and whether the systems' actual investment program is consistent with and in compliance with the IPS.* |
| 327 | *If the intent of Section 171.04(D) is to limit oversight to measuring and evaluating investment performance and does not extend to the policies, objectives, and criteria of each system's investment program, then the language of the statute should be amended to clarify the scope of the oversight.* |
| 328 | *We recommend ORSC, in coordination with each system, evaluate whether to undertake a project to develop or refine (if such a model already exists) basic cost accounting systems that support measurement of investment costs as well as other cost centers management may need to control.* |
| 328 | *We recommend that ORSC continue to work with EAI and the systems to develop a meaningful net performance report, including appropriate explanatory information to guide its proper use, and publish this annually as a separate report or appendix to the existing semi-annual report.* |

[4] See, The Texas Pension Review Board Strategic Plan – www.prb.state.tx.us/about/strategicplan

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| 331 | *We recommend that ORSC work with its independent actuary and the retirement systems' actuaries to develop annual reporting of actuarial and demographic information at a summary level.* |
| 332 | *We recommend ORSC review with the appropriate governmental and legislative representatives the use and purpose of these reports, with the goal of either amending the requirements to serve a beneficial purpose or eliminating the reports.* |
| 333 | *We recommend ORSC design a content and form of health benefits reporting – including the assumptions and results of actuarial projections for future costs – that facilitates long term planning and control, and that appropriate action be taken to implement this reporting across systems.*[5] |

[5] This recommendation should be considered in light of new Government Accounting Standards Board (GASB) accounting standards (GASB 43 and GASB 45) that will go into effect beginning in fiscal year 2006-2007 and in fiscal year 2007-2008.

Exhibit B

## OHIO STRS CUSTOM PEER GROUP SURVEY RECIPIENTS

**Ohio Public Employees Retirement System (OPERS)**

**Colorado PERA**

**Georgia TRS**

**Maryland State Retirement and Pension System**

**State of Michigan**

**New York State Teachers Retirement System**

**North Carolina Retirement System**

**Public School Employees Retirement System of PA (PSERS)**

**Teacher Retirement System of Texas**

**Tennessee Consolidated Retirement System**

**Virginia Retirement System**

**State of Wisconsin Investment Board (SWIB)**

Exhibit C

## OHIO STRS CUSTOM PEER GROUP SURVEY RESPONDENTS

**Ohio Public Employees Retirement System (OPERS)**

**Georgia TRS**

**Maryland State Retirement and Pension System**

**State of Michigan**

**Public School Employees Retirement System of PA (PSERS)**

**Teacher Retirement System of Texas**

**Virginia Retirement System**

**State of Wisconsin Investment Board (SWIB)**

# Comparison of Current Custodian's Capabilities vs. Top-tier Custody Bank Capabilities

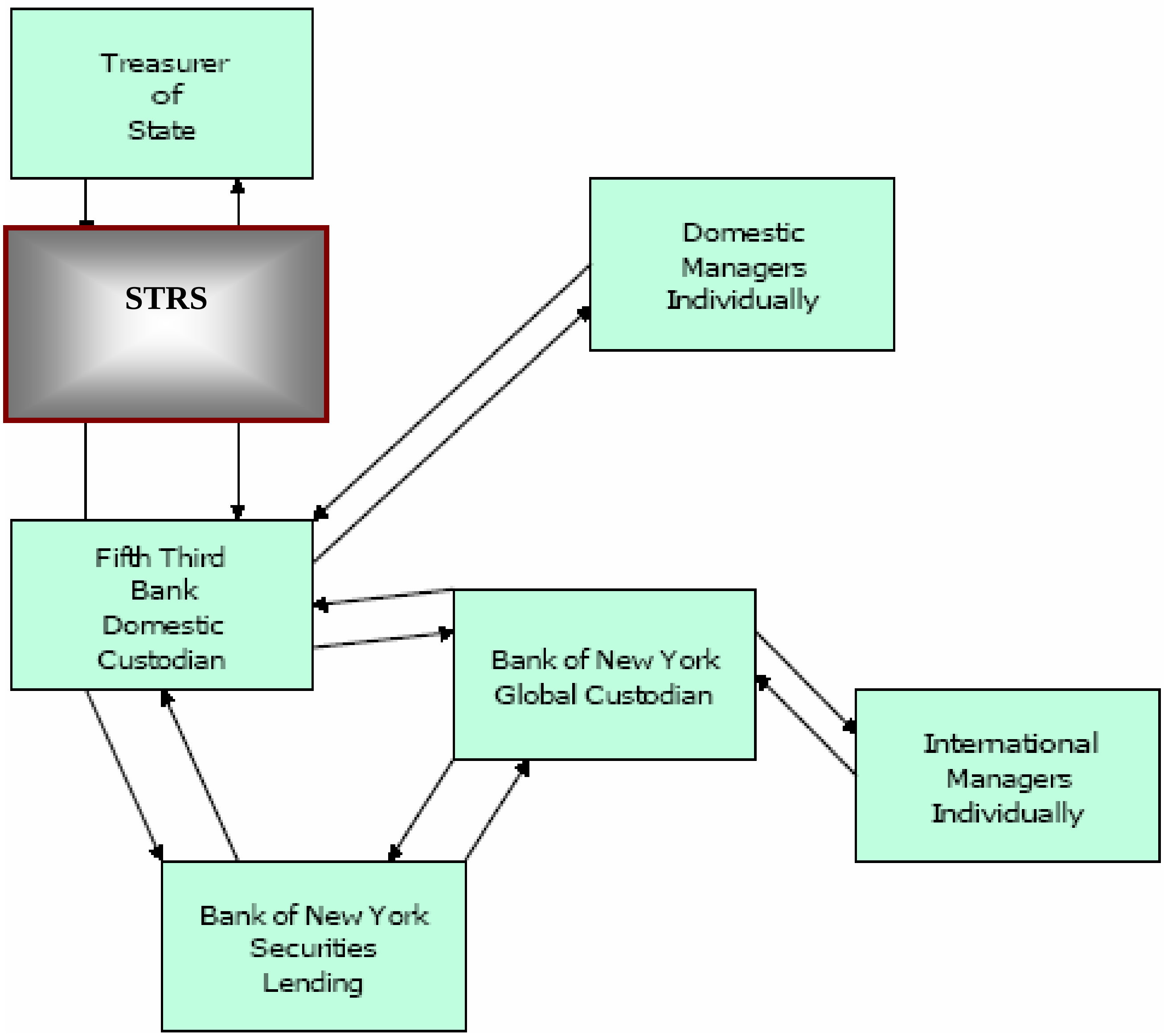
Sophisticated pension funds require top tier banks because they have developed sets of excellent, well integrated measurement and control services, they have established very highly controlled systems for efficient handling of ordinary transactions, the day by day process of settling trades, collecting income, handling proxies, and reporting values and results. Other banks, even regional banks with significant personal trust operations, have less sophisticated, more manual processes for such operations.

The table below, entitled *Comparison of Current Custodian's Capabilities vs. Top-tier Custody Bank Capabilities*, provides a summary comparison of the current Ohio statutory custody model and an alternative model based on the use of one of the leading global custodians. The comparison illustrates the areas which can add costs and risk to the process.

| Comparison of Current Custodians Capabilities vs. Top-tier Custody Bank Capabilities | | |
|---|---|---|
| **Custody Area** | **The Ohio Treasurer of State/Ohio Bank/Others** | **Integrated Global Custody** |
| Domestic custody, clearance, income and record keeping | System designed for small volume of relatively simple transactions | System designed for large volume, real time electronic interface with virtually all financial institutions |
| Global sub-custody clearance, income and record keeping | Single client arrangement with a recognized global custody bank | Integrated system of branches and sub-custodians covering high volume, quality tested communications and integrated reporting |
| Securities lending | Limited, special purpose data communication with third party agents | Combination of custody bank securities lending and tested, high volume communication with third party agents |

| Comparison of Current Custodians Capabilities vs. Top-tier Custody Bank Capabilities | | |
|---|---|---|
| **Custody Area** | **The Ohio Treasurer of State/Ohio Bank/Others** | **Integrated Global Custody** |
| Supporting analytical services | Few if any available directly; interface with third party providers must be created in each case | Many available directly or through third party providers over regular, proven interfaces |
| Reporting and reconciliation to the statutory custodian and the Fund | Daily with transaction by transaction detail reporting and reconciliation between custody bank and managers, between custody bank and global sub-custodian, and between custody bank and the Fund, in case the of case of internally managed portfolios | Typically monthly data and exception reporting to the Fund based on detailed reconciliation between custody bank and managers |
| Frequency and reason for turnover | Potential for periodic change based on The Ohio Treasurer of State overall state bank relationship management | Infrequently in order to maintain continuity of systems and usually based on quality of services |
| Access to historical data, such as to support class action claims | Typically lost or difficult and expensive to maintain with custody bank changes unless maintained internally at System | Continuity of relationship affords long term access to historical data, although custody bank changes have same loss of access effect |

Ohio State Teacher Retirement System Pension Fund
Custody Structure
Flows of data on transactions,
holdings and values



***Additional Examples of How the Current Statutory Custody Model has Impaired STRS' Ability to Invest the Assets of the Fund Effectively and Efficiently.***

- Fifth Third is able to provide the basics of securities custody at a level generally commensurate with a regional bank personal trust operation. Their agreement with the Ohio Treasurer of State identifies their responsibilities with regard to receiving and delivering securities, collecting income, valuing the portfolio, and maintaining accounting records. Fifth Third also provides interfaces with STRS, the Ohio Treasurer of State, and the sub-custody banks.

- A number of services that top tier custody banks regularly offer are not available to STRS directly from Fifth Third. Global custody and securities lending are and must be done on a sub-custody basis by other banks. Such basic services as portfolio analytics, trading cost measurement and risk management are not available except through STRS' own systems or from outside vendors. In all these cases, decisions to use separate vendors is not driven by cost and quality, but by the custodian bank's not having the volume of custody business to justify the time and money cost of developing the capability.

- The Ohio Treasurer of State has maintained an international sub-custody relationship for STRS with the Bank of New York (BONY) since at least 1997. STRS has elected to also use this relationship with BONY for purposes of its domestic and international securities lending. BONY is one of the recognized top tier custody banks. STRS has fewer custodial relationships than OP&F and SERS.

    - While STRS has been allowed to maintain the same custody bank for many years, the current statutory custody model results in STRS facing the possibility of a change on a continuing basis.

- Changing custody banks is very costly in terms of time, disruption and money. These costs are a combination of out of pocket fees, transactions costs within the investment portfolios, and opportunity costs of staff and management time, the bulk of which are borne by the System involved.

    - Approximately 10 years ago STRS, the Ohio Treasurer of State, consistent with the statutory custody model, selected Fifth Third to provide domestic custody services to STRS.

        - During the document and interview process IFS did not glean any rationale for the change of STRS' domestic custody bank to Fifth Third.
        - It is our understanding that it resulted in increased costs and no service enhancements or demonstrated benefit.
        - We were informed that Fifth Third had to build systems and controls and interfaces with other institutions in the Ohio Treasurer of State' complex custody system.
        - STRS also faced systems changes, such as rebuilding the data feeds that existed among its in-house Maximis portfolio accounting system, BankOne and CRA Rogers Casey.
        - STRS and Fifth Third invested a lot of effort into creating a manageable arrangement for handling STRS domestic custody needs. Despite Fifth Third's efforts to create a workable system, its capabilities still seriously lag fairly routine services provided by a top tier custody bank. In this area we found:

            - ✓ Quality standards for basic settlement and income collection are lower.
            - ✓ Reporting capabilities such as trade date accounting cannot be done on a timely basis.
            - ✓ Supplemental services such as guideline compliance monitoring and management do not exist.

- ✓ Being limited to basic domestic custody, it is unable to alleviate the complexity and risk of transaction fails[1] that exist in the complex, multiple institution system necessary to cover all the custody needs of a large, complex portfolio.

- Other costs associated with changing custody banks include:

    - actual transaction and change of registration costs,
    - data transfer and reformatting, and
    - the many hours of staff time and weeks if not months associated with the logistics of moving securities, records, receivables, data, reporting, controlling and monitoring processes, securities loans, sub-custody agreements,
    - disturbance of communications links to investment managers, brokers, sponsors, beneficiaries, and hundreds of other large and small relationships.

- Custodian changes disrupts the recordkeeping systems that are necessary to support activities requiring long term data recovery, this is particularly true in the securities class action litigation and claims processing area.

    - We learned during the interview process that Fifth Third cannot adequately meet the Fund's securities class action litigation support needs.[2]

[1] Transaction fails occur when one party to a trade does not settle the trade at the required time. Various securities are sold subject to the trade closing on a defined date, ranging typically in U.S. markets from same day to three business days after trade date. Trades are actually effected between agents such as brokers and custody banks who maintain accounts in depositories where securities records are maintained electronically. If, for example, a custody bank is supposed to deliver securities sold by an investment manager and does not do so on the designated day, the trade fails. If as a result of a fail, the party not responsible for the fail incurs a loss or expense, the responsible party may be required to make the other whole.
[2] When banks do not have adequate long term data search and retrieval capabilities and structures to support an institutional investors securities class action protocol, pursuing lead plaintiff status and recovery becomes even more difficult.

- Further examples of the functions associated with changing custody banks that require STRS time and often cash expenditures are listed below:

  - ✓ Time to find, hire, and negotiate documentation;
  - ✓ Establishing account structure and reporting requirements;
  - ✓ Setting up communications protocols with investment managers, performance measurement services, brokers and other service providers;
  - ✓ Developing securities inventories and verifying receipts and delivers;
  - ✓ Changing registered owner;
  - ✓ Implementing and testing reporting links;
  - ✓ Coordinating short term (unsettled trades, accrued income) and long term (securities litigation, dividend reclaim) transitional activity;
  - ✓ Working parallel operations; and
  - ✓ Staff time in coordinating the process.

| State Retirement Systems Oversight [1] | | |
|---|---|---|
| **State** | **Oversight Entities** | **Role and Responsibilities of Entities and/or Information Required** |
| Alabama | The State Examiner of Public Accounts | • Perform an annual audit, report any expenditures or contracts that violate law to the Governor and Legislative Committee on Public Accounts. |
| | Legislative House Ways and Means Committee and the Senate Finance and Taxation Committee | • Oversight of public pension related matters |
| Alaska | The Governor and the Legislature have oversight responsibility for the Retirement Management Board.[2] The Legislature provides oversight of the Alaska Permanent Fund. | • THE ARMB submites reports to governor, the Alaska Legislature, the Legislative Budget and Audit Committee by first day of each legislative session |
| Arizona | The Governor as well as several Legislative Committees[3] have continuing oversight responsibility for the retirement system. | • Each fiscal year an annual report must be submitted which must include, but is not limited to, the actuarial valuation of assets and liabilities, investment information, and statistical and financial data necessary to understand the operation and status of the retirement system (Arizona Revised Statute § 38-714). |
| Arkansas | Legislative Joint Committee on Public Retirement and Social Security and the Legislative Council and its Rules and Regulations Subcommittee. | • Preparation of fiscal notes for each retirement bill setting forth the estimated cost or fiscal impact. |
| | Department of Finance and Administration | • Contracting, procurement, and compensation approval |
| California | The California State Controller | • State and local public retirement systems submit audited reports to the State Controller within six months of the end of their respective fiscal years. |

[1] The data set forth in this table is for informational purposes only; it is based on our best knowledge derived from conducting state-by-state INTERNET research as well as third party publications, including the Biennial Report of the Texas Pension Review Board, "Protecting Retirees' Money, 5th edition, prepared by Cynthia L. Moore, Washington Council, National Council on Teacher Retirement, and data from the National Conference of State Legislators website. Information regarding other entities with pension oversight responsibility in a particular state may not be reflected in the table because the information was not readily discoverable from the INTERNET search. Information regarding compensation, staffing, and costs are provided where it is available. Interim/Temporary entities that have expired are included for informational purposes.

[2] The Public Employees' Retirement Board and the Teachers' Retirement Board were abolished effective July 1, 2005. Their duties and responsibilities were transferred to the Department of Revenue. These Boards, along with the Investment Board, were replaced with the nine-member Alaska Retirement Management Board (ARMB). The ARMB is responsible for the supervision of the state retirement systems and the state's new defined contribution plan.

[3] The Senate Finance Committee, the Joint Legislative Budget Committee, the Senate and House Appropriations Committees, the Public Institutions and Retirement Committee, and the Joint Legislative Audit Committee.

| State Retirement Systems Oversight [1] | | |
|---|---|---|
| **State** | **Oversight Entities** | **Role and Responsibilities of Entities and/or Information Required** |
| | | • The State Controller is required to review the triennial valuation of each public retirement system and consider the actuarial assumptions used. |
| | California State Assembly Public Employees, Retirement and Social Security Committee | This Committee has primary jurisdiction over retirement issues in the California Assembly. Oversight ability in pension issues is limited. For example, the Committee does not have access to an independent actuarial analysis of legislation and it depends upon the actuarial analysis provided by the system's actuary. |
| Colorado | Legislative Audit Committee | • Reviews funding status and investment performance |
| | House and Senate Finance Committee | • Meets with State retirement system annually. |
| Florida | The Florida Division of Retirement - Bureau of Local Retirement Systems | • Monitors the actuarial soundness of local retirement systems;<br>• Reviews the actuarial impact of any proposed changes to the systems;<br>• Approves the distribution of insurance premium tax revenues to qualified municipal police officer and firefighter pension plans; and<br>• Issues an annual report to the Legislature detailing its activities, findings, and recommendations concerning all local government retirement systems |
| Georgia | Governor and General Assembly | • Receives annual report from retirement system reflecting the condition of the system, the financial transactions conducted during the preceding year, a summary of actuarial valuation |
| Idaho | Governor and State Legislature | • Review annual report of activities, including financial report |
| Indiana | The Indiana Pension Management Oversight Commission | The Commission oversees public retirement funds in Indiana.[4] Its oversight duties include, but are not limited to the following:<br>• Study the investment and management practices of the boards of the public retirement funds;<br>• Determine what constitutes adequate wage replacement levels at retirement (including benefits from public retirement funds and social security) for public employees;<br>• Study the impact of federal law and proposals concerning pensions, annuities, and retirement benefits;<br>• Study the retirement funds established in IC 36-8 (public safety code);<br>• Study methods and levels of funding for public retirement funds;<br>• Study the funding status for police and fire pension funds;<br>• Review the state's deferred compensation program; and<br>• Study other topics as assigned by the Legislative Council or as directed by the Commission's chairman. |

[4] IC 2-5-12

| State Retirement Systems Oversight [1] | | |
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| **State** | **Oversight Entities** | **Role and Responsibilities of Entities and/or Information Required** |
| | | COMPOSITION: The Commission is composed of 12 members: four Representatives, four Senators, and 4 lay members. EXPERTISE: The four lay members must be experts in the areas of finance, investments, or pension fund management. The chair of the Legislative Council appoints the chair of the Commission. STAFFING: The Commission is provided staff support by the legislative service agency, and is authorized to employ consultants. COSTS: The legislative services agency provides staff support to the Commission. |
| Illinois | Commission on Government Forecasting and Accountability (previously the Pension Law Commission)[5] | In addition to its other functions, the Commission is charged with reviewing the laws and practices relating to public pensions, retirement and disability benefits for people serving in State or local government and their survivors and dependents. The Commission evaluates existing laws and practices and makes recommendations on proposed changes to the Illinois Pension Code and annually issues a Report on the Financial Condition of the Illinois public pension systems. COMPOSITION The Commission consists of 12 members as mandated by the Legislative Commission Reorganization Act of 1984. The four legislative leaders each appoint three members. STAFF: 13 |
| | Illinois Division of Insurance | In addition to its other functions, the entity provides an oversight role as the repository for the retirement systems' investment policy statements and investment managers' contracts, which must be filed with the Division. |
| | The Senate Pensions and Investment Committee | Has jurisdiction over the state retirement systems |
| Iowa | The Governor and the Legislature | The Legislative Appropriations Committee reviews the retirement system's budget; the Joint State Government Committee reviews legislation concerning plan design; and interim study committees are used to review the pension funds, including actuarial reports, proposed benefit changes, research developments in other states and the private sector, and recommendations regarding system reform (e.g., 2003, 2001, 2000, and 1997). |
| Kansas | Governor and Legislature | An annual report regarding the retirement system's operations is submitted to the Governor, the Chair of the Legislative Coordinating Council, the Secretary of the Senate, and the Clerk of the House of Representatives.[6] |
| Kentucky | Governor and Legislature | Legislation affecting the retirement system is subject to the jurisdiction of the Appropriations and Revenue Committees and the Education Committees. The retirement system's annual report is required by law to set forth the fiscal transactions of the preceding year, the amount of accumulated cash and securities, a balance sheet showing the financial condition of the system, and a summary of the actuarial report. |

[5] Effective February 1, 2004, the responsibilities of the Pension Laws Commission (a bipartisan entity comprised of 16 members appointed by the four leaders of the General Assembly, which was responsible for conducting studies of the laws and practices pertaining to pensions and related retirement and disability benefits) were absorbed by the Commission on Government Forecasting and Accountability (renamed from the Illinois Economic and Fiscal Commission).
[6] GFOA has recognized the Kansas PERS report for its comprehensiveness numerous times.

| State Retirement Systems Oversight [1] | | |
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| State | Oversight Entities | Role and Responsibilities of Entities and/or Information Required |
| | | Copies must be provided to the Governor, the State Auditor, the Chairs of the Appropriations and Revenue Committees and the Education Committees of both Houses of the Legislature. |
| Louisiana | Louisiana Commission on Public Retirement (created in 1991 and reconstituted in 2003) | The 11-member Commission is charged with studying retirement issues and reviewing and prioritizing proposed legislation prior to the session. Notwithstanding the Commission, in practice, the House and Senate retirement committees take the lead in pension policy decisionmaking, The Commission's responsibility is to review the administration, benefits, investments and funding of the public retirement systems in Louisiana. It is responsible for making recommendations and annual reports to the Joint Legislative Retirement Committee on those issues. It is also responsible for reviewing the efficiency and accountability of the various systems, differences in benefits within individual systems, issuance of bonds, and the need for retirement legislation. It includes legislators, the state treasurer, actuaries, attorneys with experience in public pension design and management and the president of the public affairs research council.<br>COMPOSITION: The Commission is composed of the Chair of the Senate Retirement Committee (or his designee); the Chair of the House Retirement Committee (or his designee); the State Treasurer (or his designee) the Legislative Actuary; an actuary designated by the state systems; an actuary designated by the statewide systems; two attorneys with experience in public pension fund design and management chosen by the Chair of the House and Senate Retirement Committee (from a list of thirteen names recommended. by the state and statewide systems); one person chosen by the Chair of the House and Senate Retirement Committee from a list of four names recommended by LMA and Police Jury Association of LA; and the President of PAR (or his designee). |
| Maine | Legislative joint Standing Committee on Labor and the Joint Standing Committee on Appropriations and Financial Affairs | Consideration of the purpose of legislation affecting the retirement system, whether or not its impact is equitable treatment of the members, the funding of the costs of benefits, consistency of proposed legislation with other provisions applicable to the retirement system, etc. |
| Maryland | General Assembly's Special Joint Committee on Pensions (functioning since 1985) | The Committee is responsible for the review of issues affecting the state pension systems. COMPOSITION: 15 member committee, composed of the Senate Chair, the House Chair, six members appointed by the Senate President, and seven members appointed by the House Speaker. STAFF: two people. |
| Massachusetts | The Massachusetts Public Employee Retirement Administration Commission ((PERAC) was created in 1996) | PERAC was created for and is dedicated to the oversight, guidance, monitoring, and regulation of each of 106 public pension systems within Massachusetts. PERAC has six units:<br>• The Investment Unit - responsible for (a) the annual report on the investment activity of the retirement boards; (b) promulgation of regulations governing investment of system assets; (c) approval of requests from boards for expansion of investment authority; and (d) audits of investment activities of the boards;<br>• The Actuarial Unit - responsible for (a)actuarially valuating the retirement systems; (b)analyzing costs associated with legislative initiatives; (c)approving funding schedules adopted by retirement |

| State Retirement Systems Oversight [1] | | |
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| **State** | **Oversight Entities** | **Role and Responsibilities of Entities and/or Information Required** |
| | | boards which are designed to eliminate unfunded liabilities and transition systems from "pay as you go" funding to actuarial based funding; (d)establishing annual appropriations owed to the retirement systems by governmental units; and (e)approving individual benefit calculation;<br>• The Disability Unit - responsible for (a)medical panel appointments as part of the disability review process; and (b)post retirement examination and rehabilitation evaluation of disability retirees;<br>• The Fraud Unit - responsible for Pension Fraud Program;<br>• The Legal Unit - responsible for all litigation; issuance of legal opinions and memoranda; legislative and regulatory analysis; drafting of legislative and regulatory proposals; and advising the Commission and retirement boards on legal issues; and<br>• The Communications Unit - responsible for maximization of communication potential of the internet; media relations; organization of educational seminars for retirement board members and staff; develop educational materials for retirement board members and staff; and produce retirement guides for employees, retirees and beneficiaries.<br>COMPOSITION: Seven members - three of whom shall be appointed by the governor, three of whom shall be appointed by the state auditor, and one of whom shall be chosen by the first six members and who shall be chairman. Of the three persons appointed by the governor, one shall be the governor or his designee, one shall be a representative of a public safety union, and one shall be qualified by having training and experience in the investment of funds as a result of having been principally employed in such occupation for a period of at least ten years. Of the three persons appointed by the state auditor, one shall be the state auditor or his designee, the president of the Massachusetts AFL–CIO or his designee, and one shall be a representative of the Massachusetts Municipal Association.<br>STAFF: 50 employees: 11 in administration; three within the actuarial unit; six within the investment unit; six within the disability unit; four assigned to the legal unit; two in the fraud unit; 10 in audit; five in information system; and three in communications.<br>COSTS: The Commission's budget is funded from the investment income account of the state employees and state teachers' system. |
| Michigan | Governor and Legislature | Annual summary of the financial and actuarial condition of the system must be submitted to the Governor and the Legislature. The House and Senate committees (including but not limited to Appropriations, Education, Health Policy, Higher Education) have authority to review and approve legislation affecting the retirement systems. |

| State Retirement Systems Oversight [1] | | |
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| **State** | **Oversight Entities** | **Role and Responsibilities of Entities and/or Information Required** |
| | Governor formed the Michigan Commission on Public Pension and Retiree Health Benefits (November 16,1999) – *Expired Temporary Commission* | Nine-member commission[7] responsible for examining various issues involving the oversight, funding, management, and fiscal integrity of the public pension and retiree health benefit systems within Michigan, including reviewing state laws affecting retirement systems; assessing the adequacy of funding; and making recommendations, where appropriate, for changing state laws affecting retirement systems. STAFF: Staffed by personnel within the Department of Treasury to be designated by the State Treasurer. The Report of the Commission was issued February 20, 2001 and the Commission was disbanded. |
| Minnesota | The Minnesota Legislative Commission on Pension and Retirement Commission (MLCPR) (initially created as an interim commission, established as a permanent entity in 1967)[8]; | A ten member Commission, the MLCPR's duties include but are not limited to --<br>• Reviewing and making recommendations on pending proposed public pension legislation, with particular reference to analysis of their cost, actuarial soundness, and adherence to sound pension policy, and reporting its findings to the legislature; [9]<br>• conducting ongoing research on pension policy issues;<br>• providing legislative oversight for Minnesota's system of public employee pension plans;<br>• arranging for the preparation of regular actuarial valuations and periodic experience studies of the statewide and major local public pension plans;<br>• assessing the sufficiency of current public pension plan funding and recommends required modifications;[10]<br>• filing a report at least biennially to each session of the legislature; and<br>• creating and maintaining a library for reference concerning pension and retirement matters, including information about laws and systems in other states.<br>COMPOSITION: Five members of the House of Representatives (appointed by the Speaker of the House) and five members of the Senate (appointed by the Subcommittee on Committees of the Senate Rules Committee). STAFF: 3.5 permanent staff positions.[11] The Commission retains a consulting actuarial firm for the performance of regular actuarial valuations and related actuarial work (selected by periodic competitive bid process. COSTS: Approximately two-thirds of the pension commission's budget for actuarial services is recouped from the statewide and major local public pension plans[12] and redeposited in the State's General Fund. |

[7] Established pursuant to Executive Order No. 1999-13 (rescinding Executive Order 1999-8, effective July 29, 1999). Members are appointed by the Governor and serve at the pleasure of the Governor.
[8] Laws 1967, Chapter 549; Coded as Minnesota Statutes, Section 3.85
[9] In recommending proposed pension legislation, the Pension Commission rules require bicameral support for any proposal, necessitating affirmative support from a majority of both House and Senate Commission members.
[10] The general practice of the committees of the Minnesota Legislature with jurisdiction over public pension issues is to informally refer proposed public pension legislation to the Pension Commission for its review and recommendation before further action on those initiatives.

| State Retirement Systems Oversight [1] | | |
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| **State** | **Oversight Entities** | **Role and Responsibilities of Entities and/or Information Required** |
| Mississippi | Senate Finance Committee and the House Appropriations Committee | The retirement system is required to prepare an annual report that includes detailed financial information, a summary of all invesments, a statement of income and expenditures and a balance sheet showing the financial condition of the system by means of an actuarial valuation. The annual report is distributed to all employers. |
| Missouri | The Missouri Joint Committee on Public Employee Retirement (created in 1983); | The 12 member committee is a joint agency of the Minnesota Legislature. The MJCPER is responsible for –<br>• Make a continuing study and analysis of all state and local government retirement systems;<br>• Devise a standard reporting system to obtain data on each public employee retirement system that will provide information on each system's financial and actuarial status at least biennially;<br>• Determine from its study and analysis the need for changes in statutory law; and<br>• Make any other recommendations to the General Assembly necessary to provide adequate retirement benefits to state and local government employees within the ability of taxpayers to support their future costs.<br>The Committee compiles a comprehensive report of its activities for the General Assembly each year in which the General Assembly convenes in regular session. The report addresses (1) status of membership, (2) funding status, including a comparison of the progress or lack of progress in the plan's funding process from year to year, (3) statutory and regulatory compliance, (4) statutory investment requirements, (5) federal issues impacting the systems, and (6) state issues. The Committee uses a computerized database to accumulate information regarding benefits levels, assets, liabilities, membership, investment allocation, advisors, custodial and broker fees. The systems under the jurisdiction of the Commission are required to complete survey questionnaires and file actuarial valuations and financial statements each year. The survey questionnaire is designed to be in compliance with the reporting requirements of GASB 25.<br>COMPOSITION: The Committee consists of six senators appointed by the President Pro Tem of the Senate and six members of the House of Representatives, appointed by the Speaker of the House. |
| Montana | Governor and Legislature | Retirement System and the Board of Investments are required by law to submit an annual report to the Governor and Legislature. The content of the reports is prescribed by law. The Retirement System report which details (1) the fiscal transactions for the two preceding fiscal years, (2) the amounts of accumulated cash and securities of the retirement system, and (3) the last fiscal year's balance sheet showing the system's assets and liabilities. The Investment Board report must disclose investment performance for the past fiscal year, summarize in-state investment activities, and provide public access to audited financial statements. |

[11] The Pension Commission staff is also available to assist other legislative committees and non-Commission legislators on pension-related topics and issues.
[12] Over 700 public employee pension plans.

| State Retirement Systems Oversight [1] | | |
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| **State** | **Oversight Entities** | **Role and Responsibilities of Entities and/or Information Required** |
| | Committee on Public Employees Retirement Systems (CPERS) - interim committee - repealed in 1999. | Established in 1993 for the purpose of adopting policy principles and report and make recommendations to the legislature to provide a framework whereby the Legislature could establish fair, consistent, and fiscally sound retirement policy |
| | State Administration, Public Retirement Systems, and Veterans' Affairs Interim Committee | Replaced CEPRS, charged with the responsibility for monitoring public retirement issues. Issued report November 2000 setting forth pre-session consideration of retirement plan proposals. |
| Nebraska | Governor, State Treasurer, and the Legislature (specifically the Appropriations Committee and the Nebraska Legislative Retirement Committee) | In addition to a fiscal note, an actuarial study is a prerequisite for any legislation that enhances benefits. Audit Reports conducted by the State's Auditor must be submitted to the Legislature. A periodic compliance audit must be conducted to determine compliance with state and federal laws. The State Investment Officer files very detailed monthly reports with the Governor and the State Treasurer. |
| Nevada | Governor, Legislature, Interim Retirement and Benefits Committee (when the Legislature is not in session) | Annual report filed with the Governor and Legislature. The annual report includes a description of the plans, the actuarial valuations for each plan, significant legislative changes, the investment policy for each plan, a statement of receipts, disbursements, material lease commitments and contingent liabilities. |
| New Hampshire | Secretary of State and the Legislature | Comprehensive annual financial report (which includes the audit and actuarial reports) is filed with the Secretary of State; a biennial report on the status of the retirement system is filed with the legislature. |
| New Jersey | Legislature, the Treasurer, and the Investment Council | The retirement systems prepare annual financial reports, annual actuarial reports, triennial experience studies, and undergo annual audit. The Division of Investments prepares a monthly report of all investment transactions, including commissions paid; the Division is also audited annually, and prepares an annual report. |
| New Mexico | Legislature (Legislative Finance Committee)[13] | Annual report, including fiscal transactions, accumulated costs, securities held, and the overall financial status of the retirement system is provided to the Legislature. |
| New York | Legislature and the Insurance Department | The retirement systems must issue an annual report setting forth schedules of assets, liabilities, litigation, and costs. The Insurance Department reviews and issues a report and makes recommendations regarding the retirement systems operations and has the authority to establish standards with respect to actuarial assumptions, accounting practices, administrative efficiency, investment policy, financial soundness, and fiduciary responsibilities. Legislation must contain a fiscal note setting forth the annual cost. |

[13] This year, the Governor vetoed legislation that would have created the "State Investment and Retirement Systems Oversight Committee" as a joint interim legislative committee. It would have included five voting members from each legislative house and five nonvoting members; one each from the State Investment Office, PERA, Secretary of Finance and Administration, State Treasurer's office and the Educational Retirement Board. The committee would have been responsible for creating a plan for oversight of the retirement fund activities of the organizations represented by the five nonvoting members, and analyzing the financial status of those funds and develop recommendations for improved investment practices to ensure the financial soundness of those funds. All future legislation affecting state investment practices, the permanent funds or the retirement funds would have to be presented to the committee for review and analysis prior to the session in which such legislation was introduced.

| State Retirement Systems Oversight [1] | | |
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| **State** | **Oversight Entities** | **Role and Responsibilities of Entities and/or Information Required** |
| North Carolina | Legislature | Actuarial notes are required for legislation with potential fiscal impact. An annual report is required that sets forth the fiscal transactions of the prior year and the amount of cash and securities, as well as an accounting of the financial condition of the retirement system. |
| North Dakota | Governor and Legislature | Annual report, including the annual audit and the actuarial valuation is submitted to the Governor. The Legislative Committee on Employee Benefits reviews the annual actuarial valuation and issues an actuarial cost report on any legislation that may affect a retirement system. The Legislative Audit and Fiscal Review Committee as well as the Legislative Budget Committee also has oversight authority over the retirement systems. |
| Oklahoma | The Oklahoma State Pension Commission | Responsible for oversight of the state's seven pension systems. Formed to provide guidance to public officials, legislators, and administrators in developing public retirement system objectives and principles, identifying problems and areas of abuse, projecting costs of existing systems and modifications to those systems, and recommending pension reform programs. No member of the governing body of a state retirement system is eligible for appointment to the Commission. In 2003 the requirement that the Commission's review retirement-related legislation was repealed.[14]<br>COSTS: The administrative support costs of the Commission are apportioned by the State Auditor and Inspector among the six statewide pension systems in proportion to their total assets for the preceding fiscal year. EXPERTISE: The Commission is directed by statute to hire one or more pension fund management consultants to assist the Commission in accomplishing its objectives. Statutes also direct that the State Auditor and Inspector provide the administrative support required by the Commission. |
| Oregon | Governor and Legislature | • The Retirement System must also provide for an annual audit of the retirement fund and an annual report to the Legislative Assembly and to all members of, retirees of, and all employers participating in, the system. The annual report must contain financial statements prepared in accordance with generally accepted accounting principles. The financial statements must include the report of any independent auditor. The report distributed to the employer and employee members of the system must also contain a summary of investments of moneys in the fund, investment earnings, significant legislative or administrative changes in the system and other pertinent information on the operation of the system for the preceding year.<br>• The Oregon Investment Council must report on the investment program to the Governor and to the Legislative Assembly. The Treasurer reports monthly to the Oregon Investment Council. |
| Pennsylvania | The Pennsylvania Public Employee Retirement Commission (created in 1981) | The Commission is responsible for<br>• issuing actuarial notes on proposed pension legislation and for studying public employee retirement system policy.; |

14 HB 1067

| State Retirement Systems Oversight [1] | | |
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| **State** | **Oversight Entities** | **Role and Responsibilities of Entities and/or Information Required** |
| | | • administering the actuarial valuation reporting program for municipal retirement systems, which entails monitoring and enforcing compliance with the statutorily mandated actuarial funding standard;<br>• Certifying annual municipal pension cost data used in allocating the General Municipal Pension System State Aid money of over $129 million; and<br>• administering the Financially Distressed Municipal Pension Recovery Program. |
| | Governor and the Legislature[15] | Comprehensive Annual Financial Report[16] must be provided to the Governor. Actuarial and fiscal notes are required for legislative consideration. |
| Rhode Island | Governor and General Assembly | An annual report must be submitted to the Governor for transmittal to the general assembly, on or about the first day of December in each year. The annual report must contain, among other things, a financial balance sheet, a statement of income and expenditures, a valuation balance sheet as prepared by the actuary, a detailed statement of investments acquired and disposed of during the year, and such other statistical data as are deemed necessary for a proper interpretation of the condition of the system and the results of its operations. A financial statement summarizing the results of the retirement system's operations for the year must be published for distribution among the members of the retirement system. |
| South Carolina | Governor and Legislature[17] | The retirement systems must file annual reports showing the fiscal transactions of the system for the preceding year, the amount of the accumulated cash and securities of the system and the last balance sheet showing the financial condition of the system by means of an actuarial valuation of the contingent assets and liabilities of the system. |
| South Dakota | Governor and Legislature, specifically the Retirement Laws Committee in the House and in the Senate (has oversight when the Legislature is not in session and reviews proposed legislation when the legislature is in session ) | The Standing Laws Committee is charged with (1) making continuing study of the pension and annuity benefits laws, (2) reviewing all proposed legislation affecting the retirement system and reporting to the Legislature. The retirement system files an annual financial report with the Governor, the State Auditor, and the Retirement Laws Committees. If investment performance is below average, a report must be provided to the Governor and the Legislature reviewing the performance and setting forth any changes necessary to improve the negative performance. |
| Tennessee | The Tennessee Council on Pensions and Insurance | Legislative oversight body, composed of 14 members – seven state representatives and seven state senators[18] plus, on an *ex officio* basis, the comptroller of the treasury, the state treasurer, the commissioners of Personnel and Finance and Administration, and the director of the retirement system. |

[15] The Appropriations Committee, the House Committee on State Government, the Senate Finance Committee
[16] GFOA awarded the Certificate of Achievement for Excellence in Financial Report to both Pennsylvania SERS and PSERS for the year ending December 31, 2004
[17] House Ways and Means and Senate Finance Committee
[18] The membership includes officers of the House and Senate Finance, Ways and Means Committees; three members appointed by the chairman from each finance committee; and two members, each appointed by the speaker of the respective houses.

| State Retirement Systems Oversight [1] | | |
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| State | Oversight Entities | Role and Responsibilities of Entities and/or Information Required |
| | | The Council is responsible for –<br>• developing and recommending standards and policy relating to pensions and insurance for the state and local governments within Tennessee;<br>• conducting surveys and studies;<br>• recommending changes in state law as deemed necessary; and<br>• Reviewing and recommending actions on legislation presented to the General Assembly that impacts pension and insurance matters. |
| Texas | The Texas State Pension Review Board (established in 1979) | The Board is responsible for –<br>• Conducting a continuing review of all public retirement systems within the state, compiling and comparing information about benefit structures, financing, and administration of systems;<br>• Conducting intensive studies of existing or potential problems that weaken the actuarial soundness of public retirement systems;<br>• Insuring the equitable distribution of promised benefits to member of public retirement systems while maximizing the efficient use of tax dollars;<br>• Providing information and technical assistance to public retirement systems, their members, the political entities which sponsor them, and the public;<br>• Recommending policies, practices, and legislation to public retirement systems and their sponsoring governments;<br>• Examining all legislation for potential effect on Texas' public retirement systems, overseeing the actuarial analysis process, and providing actuarial review when required by law;<br>• Administering the registration and reporting requirements under Chapter 802, Government Code; and<br>• Reporting Board activities to the Governor and Legislature in November of each even-numbered year.<br>Composition: Nine member Board – two members from the legislature (appointed by the Lieutenant Governor) and the remaining seven members are appointed by the Governor subject to the required qualifications experience. EXPERTISE: Tthree members of the nine member board are required to have experience in the fields of securities investment, pension administration, or pension law and may not be members or retirees of public retirement systems within the State of Texas, one actuary, one person with experience in governmental finance, and one active member (contributing to a public retirement system) and one retired (receiving benefits from a public retirement system). FUNDING COSTS: The Texas PRB costs are funded from the Texas General Fund rather than the pension funds subject to its purview or the Legislature. Previously the PRB was funded through voluntary contributions from the retirement systems. STAFF SIZE: Seven |

| State Retirement Systems Oversight [1] | | |
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| **State** | **Oversight Entities** | **Role and Responsibilities of Entities and/or Information Required** |
| Utah | Governor and Legislature (Retirement and Independent Entities Committee) | The board must report annually to the Governor, the Legislature, the contribution rates, premium rates, and any adjustments necessary to maintain the retirement systems on a financially and actuarially sound basis, and at least biennially the executive director must make an actuarial investigation into the mortality, service, and other experience of the members, participants, beneficiaries, and covered individuals of each retirement system and actuarially value the assets and liabilities of each retirement system. |
| Vermont | Governor and Legislature | The annual report must show the fiscal transactions conducted during the year and the financial condition of the system. A financial summary must also be provided to members of the system, including a statement of changes in the fund balance as well as a comparative balance sheet. Legislative oversight is subject to the Government Operations and the Appropriations Committee of both houses of the Legislature. |
| Virginia | The Virginia Joint Legislative Audit and Review Commission (JLARC) | JLARC is primarily responsible for policy oversight. JLARC publishes periodic status reports, investment performance reports, and a Legislator's Guide to the retirement system. COST: The Virginia Retirement System is responsible for paying reasonable and necessary expenses to the JLARC for the program |
| Washington | Joint Select Committee on Pension Policy | 20 member Committee is comprised of eight legislators, stakeholder representatives, employer representatives and the directors of the Department of Retirement Systems and the Office of Financial Management. The Select Committee will study pension issues, the retirement systems' funding status, and actuarial assumptions. Based on its findings, the Committee is responsible for then making recommendations to the Legislature.[19] |
| West Virginia | Governor and Legislature (House Pensions and Retirement Committee and the Senate Pension Committee) | Fiscal notes are required for any bill that affects the retirement systems. The Consolidated Board is required an annual report showing the condition of the plans and certifying the amount of accumulated cash. The report is distributed to the Governor and members of the Legislature. Actuarial valuations (of the defined benefits plans) are also required. |
| Wisconsin | Wisconsin Joint Survey Committee on Retirement Systems | The 10-member committee includes majority and minority party representation from each legislative house. The Committee makes recommendations on all legislation that affects retirement and pension plans for public officers and employees. Neither house of the Legislature may consider a pension bill until the Committee submits a written report that describes the proposal's purpose, probable costs, actuarial effect, and desirability as a matter of public policy. The staff of the Legislative Council is responsible for legal and research staff services for the Joint Survey Committee and must prepare fiscal estimates on bills referred to the Joint Survey Committee. The staff of the Legislative Council is also now[20] responsible for preparation of the comparative study of major public employee retirement systems in the country. |

[19] In 2003, this Committee replaced the Joint Committee on Pension Policy (Chapter 295, Law of 2003).
[20] As a result of Act 316 of the 2005 Session (SB 527), the functions of the office of retirement research director were transferred to the Legislative Council staff and the Retirement Research Committee was eliminated. The Legislative Council is a nonpartisan legislative service agency. The Council is composed of 22 members of the Legislature.

| State Retirement Systems Oversight [1] | | |
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| **State** | **Oversight Entities** | **Role and Responsibilities of Entities and/or Information Required** |
| | | STAFF: The staff of the Legislative Council consists of approximately 30 employees. |
| Wyoming | Governor and Legislature | The retirement system must file with the legislative service office (1) all actuarial reports, (2) an annual audit report showing the financial status of the retirement system, as part of the annual report, (3) a statement of any proposed benefit changes and the projected cost of the changes to the system. The retirement system's budget request to the Department of Administration and Information (DAI) shall be accompanied by a written, comprehensive report of the programs, objectives, activities and conditions covering the previous fiscal period. The report shall be in a format developed by DAI, in conjunction with the retirement system and the legislative service office. Notice of the format requirements shall be forwarded to retirement system no later than July 15 of each year. The report shall detail the fiscal affairs of the retirement system including receipts and expenditures and make recommendations for improving the retirement system's programs. The report shall include an annual performance report which provides a means of evaluation of the outcomes included in the retirement system's strategic plan. |