TENNESSEE CONSOLIDATED RETIREMENT SYSTEM
BOARD OF TRUSTEES MEETING
SEPTEMBER 30, 2011

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MINUTES OF THE
BOARD OF TRUSTEES MEETING
JUNE 24, 2011

The Board of Trustees of the Tennessee Consolidated Retirement System met on Friday, June 24, 2011 at 10:05 a.m. The meeting was held in Room 30 of the Legislative Plaza with Chairman David Lillard presiding.

Chairman Lillard asked Ms. Bachus to conduct an attendance roll call. The following members were present: Chairman David Lillard, State Treasurer; Mr. Tre Hargett, Secretary of State; Mr. Justin Wilson, Comptroller to the Treasury; Commissioner Rebecca Hunter, Department of Human Resources; Ms. Jill Bachus, Director of TCRS; Ms. Libby Sykes, Administrative Director of the Courts; Mr. Erick Huth, Mr. Greg Elliott, Mr. Sammy Jobe, Mr. Michael Barker, Mr. Al Laney, Mr. Ken Wilber, Mr. David Seivers, Mr. Tommie Pendergrass, and Ms. Traci Jefferson.

Approval of the March 25, 2011 Minutes of the Board of Trustees

On a motion by Mr. Elliott and seconded by Mr. Hargett, the minutes of the March 25, 2011 TCRS Board of Trustees meeting were unanimously approved.

Board of Trustees Committee Report

Chairman Lillard recognized Mr. Barker to provide the audit committee report. Mr. Barker introduced Mr. Brian Derrick as the new Director of Internal Audit. Next, Mr. Barker updated the members about additional staff changes to internal audit. Mr. Barker mentioned the committee discussed various activities for the upcoming year. No action was taken.

Chairman Lillard recognized Ms. Bachus to provide the administrative committee report. Ms. Bachus mentioned Mr. Fred Marshall provided the committee an update on the Concord system. In addition, the committee reviewed information related to five entities seeking participation in TCRS and recommended that the entities be approved for participation. Ms. Bachus also advised the Board that TCRS is receiving a large number of retirement applications.

Chairman Lillard reviewed the investment committee. Chairman Lillard mentioned the committee reviewed portfolios, the market and peer research. No action was taken.

Political Subdivisions Petitioning for Membership in TCRS

Ms. Bachus advised that the Administrative Committee had recommended approval of TCRS participation for the following entities: Chester County Emergency Communications District, Loudon County Emergency Communications District, Macon County Emergency Communications District, Scott County Emergency Communications District, and the City of Watuaga.

On a motion by Ms. Bachus and seconded by Mr. Seivers, the Board unanimously approved the requests for participation in TCRS.

Investment Report

Chairman Lillard introduced Mr. Michael Brakebill, Chief Investment Officer, to review the investment report.

Mr. Brakebill stated the portfolio closed at $33.1 billion as of March 31, 2011, which was an increase of $4.6 billion from the June 30, 2010 fiscal year end. The increase is gratifying because the fund paid out more in benefits payments than it received in contributions.

Mr. Brakebill discussed activities underway to improve the returns of the portfolio. He discussed staff research into peer pension funds and strategies they are using to improve portfolio performance. Strategic lending is one interesting strategy being investigated. Strategic lending is broad category encompassing high yield debt, bank loans, mezzanine debt and distressed debt.

Staff continues to implement the strategic changes approved in December 2010. The Canadian equity fund has largely reached its target allocation and currently has a market value of $1.5 billion. The fixed income team is completing their portfolio transition to the CitiGroup Large Pension Fund Index. Staff anticipates this transition will be complete on June 30, 2011 when the benchmark change also becomes effective. Securities lending is the final transition item being implemented. Investment staff is working closely with accounting, internal audit, and legal support to select and engage a securities lending agent.

Mr. Brakebill introduced Mr. Ken McDowell who will be working with the real estate portfolio and Mr. Albert Chang who will be working with Andy Palmer in the domestic fixed income portfolio.

Economic activity in the U.S. appears to be gradually improving. However, the ending of quantitative easing, Chinese inflation, the European debt crisis and oil prices are all headwinds impairing improved economic performance. Staff may neutralize the slight under-weight to stocks given weakness in equity markets.

Mr. Brakebill discussed the due diligence trip being made to London and Edinburg with Mr. Bill Abney and Mr. Lamar Villere. The purpose of the trip is to perform due diligence reviews on international private equity managers and also to meet with international public equity managers who are also engaged by TCRS. At present TCRS has almost $3 billion managed in the U.K.

Mr. Brakebill introduced Mr. Pete Keliuotis, from SIS to review the Executive Performance Summary. Mr. Keliuotis mentioned the slight over-weight to fixed income at about 5% relative to the target allocation. The quarter was tumultuous and included the Japanese earthquake and rising fears of the European sovereign debt crisis.

Mr. Keliuotis reviewed the performance summary for the first quarter and for the one year returns. The fund had slightly negative performance relative to the policy index for the first quarter. However, the underlying asset classes had strong performance. The two new portfolios, Small Cap and Canada, performed well for the past quarter and the International Equity managers have done quite well. Mr. Keliuotis mentioned the fixed income portfolio had strong relative returns and the real estate portfolio had performed well during the quarter.

Investment Advisory Council Appointment

Chairman Lillard stated that Ms. Susan Huffman's term on the Investment Advisory Council expires June 30, 2011. Ms. Huffman was nominated and has agreed to serve another term upon approval from the Board.

On a motion by Chairman Lillard and seconded by Mr. Jobe, the Board unanimously approved Ms. Huffman's reappointment to serve another term on the Investment Advisory Council.

Board of Trustee Appointments

Chairman Lillard announced Mr. David Seivers and Mr. Ken Wilber have been reappointed to the Board for another term.

Legislation Update

Ms. Bachus reviewed legislation that passed during the recent legislative session. Material was provided to the members for review.

Optional Retirement Program

Ms. Bachus gave the members a brief summary about the optional retirement program. Information was provided to the members for review.

Other Business

Chairman Lillard mentioned that TCRS was awarded the GFOA Certificate of Achievement for Excellence in Financial Reporting for the 24th consecutive year.

Adjournment

Chairman Lillard announced the completion of the business at hand and asked if there was any other business to come before the Board.

On a motion by Mr. Barker and seconded by Mr. Jobe, the Board unanimously approved the TCRS Board of Trustees meeting be adjourned.

With no other business, the Board of Trustees adjourned at 10:47 a.m. on June 24, 2011.

Respectfully Submitted,

Jill Bachus

Jill Bachus
Board of Trustees, TCRS

COMMITTEE MINUTES

Minutes of the Administrative Committee

The Administrative Committee of the Board of Trustees of the Tennessee Consolidated Retirement System met on Friday, June 24, 2011 at 9:00 a.m. The meeting was held in Room 29 of the Legislative Plaza with Director Jill Bachus presiding.

The following members were present: Jill Bachus, Director of TCRS, Ms. Libby Sykes, Mr. Sammy Jobe, Ms. Traci Jefferson, Mr. Alfred Laney, and Mr. Tommie Pendergrass.

New Employer Participation

Ms. Jill Bachus introduced Ms. Melissa Davis, Supervisor of Field Services, to present information regarding employers petitioning for membership in TCRS. Ms. Davis presented information regarding five entities: Chester County Emergency Communications District (ECD), Loudon County ECD, Macon County ECD, Scott County ECD, and City of Watauga. Ms. Davis indicated that the Comptroller of the Treasury's office had reviewed each of these entities' budgets and the budgets appear sufficient to fund the retirement costs. The administrative committee gave a unanimous recommendation to the Board that the entities be approved for participation in TCRS.

Concord Update

Ms. Bachus introduced Mr. Fred Marshall, Assistant Director of Concord, to provide an update on the Concord project. Mr. Marshall informed the committee that the project is currently in Phase 2, Requirements Confirmation. The Requirements Confirmation phase has mainly focused on Document Imaging and Retired Payroll. This phase is documenting the processes with flowcharts. Mr. Marshall indicated that all action items are entered into a project management tool to ensure that all action items are resolved. Next, Mr. Marshall discussed the employer communications being sent to TCRS employers. The purpose of this communication is to keep the employers informed about the project and to collect contact information on the employers.

Legislative Update

Ms. Bachus mentioned that three legislative bills passed this year affecting TCRS. Public Chapter 140 is the TCRS Omnibus legislation that provides clarification or technical corrections to existing laws. Ms. Bachus mentioned two items of interest in this legislation allows the local governments participating in TCRS to reverse the public safety benefit option and the 5% benefit improvement option. These changes only affect new employees, but provide tools the local government can use to help control their employer contribution rate. Public Chapter 336

increased the amount TCRS can pay to the spouse of a deceased active member without an estate up to $50,000. Public Chapter 280 changed the way teacher representatives and the retired teacher representative is appointed to the TCRS Board of Trustees. The representatives are now appointed by the Speakers of the respective houses of the General Assembly.

Briefing on Status of TCRS

Ms. Bachus introduced Mr. Jamie Wayman, Assistant Director of TCRS, to discuss retirement workload. Mr. Wayman informed the committee that TCRS was in the busy season for processing retirement applications. He indicated that we are on pace for a record number of retirements this year, expecting to process approximately 7,200 retirements. Mr. Wayman discussed that TCRS is diligently working the retirement applications, but that TCRS was behind in processing the applications.

Other Business

Ms. Bachus discussed with the committee plans for employer meetings in late summer or early fall. The Treasurer would be holding regional meetings with local governments around the state to discuss the status of TCRS, possibilities for changes to TCRS, and ideas from local governments.

Adjournment

With no other business, the Administrative Committee of the Board of Trustees adjourned at 9:55 a.m. on March 25, 2011.

Respectfully Submitted,

Jill Bachus

Jill Bachus
Administrative Committee Chair

AUDIT COMMITTEE MEETING MINUTES
OF TENNESSEE CONSOLIDATED RETIREMENT SYSTEM (TCRS)
June 24, 2011

The Audit Committee of the Board of the Tennessee Consolidated Retirement System met on Friday, June 24, 2011, at 8:00 a.m. The meeting was held in the Legislative Plaza, Room 30 with Chairman Michael Barker presiding.

The following members were present: Chairman Michael Barker, Mr. Ken Wilbur, Ms. Rebecca Hunter, Mr. Tre Hargett, and Mr. Erick Huth.

Others present were: Mr. David Lillard, Jr., Treasurer; Mr. Brian Derrick, Director of Internal Audit; Ms. Janice Cunningham, Chief of Staff; Ms. Jill Bachus, Director of TCRS; Ms. Stacey Jackson, Internal Auditor; and Ms. Suzanne Smotherman, Internal Auditor.

Introduction

Commissioner Rebecca Hunter was welcomed as a new member of the audit committee.

Approval of the March 25, 2011 Minutes of the Audit Committee

Chairman Barker asked if any changes needed to be made to the minutes. No changes to the minutes were noted. Mayor Wilbur motioned to accept the minutes and Secretary Hargett seconded the motion. The minutes of the March 25, 2011 Audit Committee meeting were unanimously approved.

Introduction of Internal Audit Staff and Staff Assignments

Chairman Barker introduced Mr. Brian Derrick as the new Director of Internal Auditor for the Treasury Department and informed the committee of Mr. Derrick's biography in the audit committee packet.

Mr. Derrick explained the objectives of the new Concord auditor and informed the Committee the main focus of Internal Audit regarding the Concord project is the presence of internal controls within the system. The second focus is to have an auditable system. The biggest challenges will be data conversion between the old legacy systems and the new Concord system as well as data security. The Concord project has a separate independent validation and verification vendor, North Highland, who serves as the quality control factor between TCRS and Deloitte, the vendor providing Concord.

Mr. Derrick introduced Suzanne Smotherman as the new Concord Auditor and Stacey Jackson as the back-up Concord Auditor.

Mayor Wilbur asked how the Concord project is progressing.

Ms. Bachus provided an update and indicated the Concord project is on schedule.

Mr. Derrick explained the Audit Committee Responsibility Calendar.

Draft Internal Audit Activities for TCRS

Mr. Derrick presented the list of TCRS-related audits currently in progress as well as proposed audits and reviews for fiscal year 2012. The list has not been approved and submitted to the Comptroller's office. Questions about the proposed Private Equity Investment Audit were addressed.

Review Treasury Policy on Internal Control and Fraud

Mr. Derrick presented the Committee with the Treasury Department's fraud and internal controls. He explained every Treasury employee signs the policy indicating they have read and understood the policy. Questions were addressed regarding the policy.

Other Business

Mr. Lillard reiterated the ongoing Concord Project including the "wall-to-wall" electronic audit capabilities and automating all processes.

Ms. Bachus added the additional security the Concord Project will provide.

Mr. Barker asked about the new voice over IP phone system. Mr. Lillard and Ms. Bachus indicated the new phone system has been a success so far and explained the new opportunities presented to Treasury staff due to the new phone system.

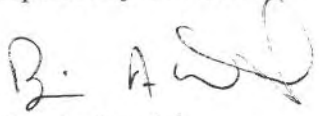
Mr. Lillard mentioned based on his presentation to the Finance Committee in February 2011, Treasury will be sending out letters to all local governments in Tennessee to invite them to regional meetings to go over the pension plan and future projections. The goal is for TCRS to offer more plans to local government TCRS participants. By the end of the year, local governments will be able to take part in Tennessee's Deferred Compensation program.

Mr. Lillard and Ms. Bachus fielded several other questions regarding different TCRS plans and local governments.

Adjournment

Chairman Barker indicated that if there were no additional items, the meeting could be adjourned. Mr. Huth motioned to adjourn the meeting and Commissioner Hunter seconded the motion. Chairman Barker thanked the members of the Audit Committee and adjourned the meeting.

Respectfully Submitted,



Brian A. Derrick,
Director of Internal Audit

Minutes of the Meeting of the Investment Committee of the TCRS Board of Trustees
June 24, 2011

The Investment Committee of the TCRS Board of Trustees ("Investment Committee") met at 9:00 a.m. on June 24, 2011 in Hearing Room 31 of Tennessee Legislative Plaza. Members of the Investment Committee participating were the Honorable David H. Lillard, Jr., State Treasurer; the Honorable Tre Hargett, Secretary of State; the Honorable Justin P. Wilson, Comptroller; Mr. David Seivers, and Mr. Greg Elliot. Also in attendance were Mr. Cody York with the Secretary of State Office, Mr. Richard Newton with Finance and Administration, Mr. Bill Abney, Assistant Treasurer, Mr. Michael Brakebill, Chief Investment Officer, Mr. Michael Keeler, Director of Equity, Mr. Tim McClure, Director of Cash Management, and Mr. Andrew Palmer, Deputy Chief Investment Officer. Mr. Peter Keliuotis, Strategic Investment Solutions and Mr. Ken McDowell, Senior Real Estate Portfolio Manager were also present.

Treasurer Lillard chaired the meeting and called the meeting to order.

The minutes of the May March 25 and May 6, 2011 Investment Committee meetings were presented for discussion and approval. Mr. Seivers moved for approval with Mr. Elliot as second. The motion passed unanimously by voice vote.

Mr. Brakebill led a discussion of the macro-economic indicators used by staff to assess the investment climate. He characterized the environment as one in which many of the macroeconomic variables, despite recent softness, show steady improvement since the financial crisis. Some areas of concern were the potential fallout from European sovereign debt issues, political upheaval in the Middle-East and a sharp slowdown in China. This outlook has contributed to the fund's modest underweight in equities in recent months. Additional equity weakness will likely induce staff to begin bringing the equity allocation toward the normal target.

Mr. Brakebill then presented information on his review of the investment strategies of Peer public funds. The review is, in part, the result of market conditions and return expectations placing continuing pressure on plans to find ways to improve their investment performance to ensure achieving their investment objective. Mr. Brakebill presented that TCRS has a very low cost plan relative to peers. A big driver of this cost differential is the low allocation to alternative investments (broadly viewed as private equity, real estate and hedge funds). Preliminary data show that the additional cost may be appropriate because plans with larger allocations to alternatives showed consistently higher returns over the last ten years than plans with low allocation to alternatives.

Mr. Brakebill noted that he along with the Treasurer and investment staff are continuing in a process to review the appropriate investment products and vehicles for the plan. The review includes expanding the list of eligible investments to include non-investment grade bonds and loans, emerging markets securities, hedge funds and more. Mr.

Kelioutis presented that in his firm's review of peers, allocations to alternative investments are in the 20% to 30% area. He observed that many public pension plans had begun to move toward asset allocation policies similar to large endowments after observing the strong returns achieved. The 2008-9 experience of endowments served to incent plans to consider the liquidity and volatility risk of alternatives when setting asset allocation. Mr. Keliuotis concluded by stating that TCRS is in the good position of being a low cost plan so that if the asset allocation review leads to a more costly investment portfolio, the plan would likely remain a low cost plan in relation to peers.

The Committee discussed the importance of achieving the best returns possible with plan assets in light of the large increase in funding costs facing the state in coming years.

Mr. Brakebill discussed other business which included the introduction of new hires: Kenneth McDowell, Senior Portfolio Manager in Real Estate and Albert Chang, Senior Analyst in Fixed Income. Further Mr. Brakebill reported that he, Assistant Treasurer Abney and Private Equity Director Villere would be traveling to London and Edinburgh next month to meet with 16 managers of private and public equity. These meetings are part of our ongoing diligence process for current and prospective managers. Lastly, Mr. Brakebill discussed a minor change in the purchase price of the Waltham Woods property to reflect TCRS's share of tenant improvement work.

APPROVED.

David H. Lillard, Jr., Chairman
TCRS Board of Trustees

INVESTMENT POLICY

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THE TENNESSEE CONSOLIDATED RETIREMENT SYSTEM INVESTMENT POLICY

ORGANIZATIONAL STRUCTURE AND GENERAL OVERVIEW

The Tennessee Consolidated Retirement System (TCRS) represents the pension plan for state employees, teachers, higher education employees, local government employees, and employees of other entities authorized to participate in TCRS. TCRS was established by state statute in 1972. The governing statute is found in Tennessee Code Annotated 8-34-101, et seq.

Final authority for investing and reinvesting the assets of the Tennessee Consolidated Retirement System (System) is subject to approval of the System's Board of Trustees (Board). T.C.A., Section 8-37-104(a). Implementation of investment policy established by the Board is hereby delegated to the State Treasurer (Treasurer) who shall put such policy into effect. T.C.A., Section 8-37-110. Assets shall be invested subject to all the terms, conditions, limitations, and restrictions imposed by the laws of the State of Tennessee upon domestic life insurance companies in the making and disposing of their investments or as otherwise provided by state law. T.C.A., Section 8-37-104(a). If the Board has issued other directions further limiting such investments, the assets shall be invested according to the criteria established by the Board.

Legal Counsel

The State Attorney General or an assistant designated by him shall represent the Board in all matters. In all cases where the interests of the System require additional counsel to the Attorney General, the Chairman of the Board, with approval of the Attorney General, is authorized to employ such additional counsel. T.C.A., Section 8-34-308.

Investment Committee

The Board of Trustees shall create an Investment Committee consisting of five members. Three of the members shall be the Treasurer, the Secretary of State and the Commissioner of Finance and Administration. The two remaining members shall be members of the Board of Trustees, who have demonstrable investment experience, business experience, educational background, or investment oversight experience, and will be elected by the Board of Trustees.

Investment Advisory Council

The Treasurer shall nominate, with the advice and consent of the Board, an Investment Advisory Council (IAC), consisting of up to seven persons who have experience as investment portfolio managers, economists, or investment advisors to work with the Treasurer's investment staff, T.C.A., Section 8-37-108, to advise the Board on investment policy, T.C.A., Section 8-37-109.

The Council will assist the Treasurer, Chief Investment Officer and Investment Staff by providing advice and recommendations on the most appropriate short, intermediate and long-term investment strategy. At each meeting of the Council, the previous meetings' recommendations will be reviewed and reinforced or changed as agreed upon by the Council Members.

Chief Investment Officer (CIO)

The Chief Investment Officer for the System's assets will assume the necessary authority to effectively manage the Investment Staff. The CIO shall report to and consult with the Council on investment matters in formal, scheduled meetings and informally as needed.

The Chief Investment Officer shall:

1. Have executive responsibility and authority, as delegated by the Treasurer, for the management of the assets of the System in keeping with such guidelines and policies as approved by the Board and such applicable laws of the State of Tennessee.

2. Prepare and submit reports, as required, to the Treasurer, the Council, and the Board to document investment activities.

3. Report to and consult with the Treasurer on administrative, organizational and investment activities.

4. Work with the Council on development and implementation of an appropriate investment strategy.

5. Work jointly with the Council to develop long-term economic and investment projections.

6. File with the Treasurer a disclosure statement as prescribed by the Treasurer each year in December.

Investment Staff

The CIO, subject to approval of the Treasurer, shall maintain an Investment Staff to effectively manage all assets of the System. The Treasurer may delegate to the Chief Investment Officer and staff the power to invest and reinvest the System's assets within criteria established by the Board. T.C.A., Section 8-37-105. Investment Staff will perform their duties in compliance with the Chartered Financial Analyst Institute's, Code of Ethics and Standards of Professional Conduct. Each member of the Investment Staff shall file with the Treasurer a disclosure statement as prescribed by the Treasurer each year in December.

Each member of the investment staff shall act with the same care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a similar capacity and familiar with those matters would use in the conduct of a similar enterprise with similar aims.

Reporting

Investment Staff shall provide a detailed written review of investment activity at Board and Council meetings. This shall include a review of the purchases and sales over the period under review, a portfolio summary, a review of current investment policy, and other reports as requested.

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Internal Controls

The CIO shall maintain a system of internal controls to safeguard the assets of the System. Such controls shall include, but not limited to, assurance that financial assets are held in trust at a third party custodial financial institution, and that an independent consultant or master custodial financial institution calculate investment performance independent from the internal records of TCRS.

The Treasury department's accounting, internal audit, and legal and compliance divisions shall report to an executive management employee other than the CIO.

Brokerage Firms

All brokerage firms (for stock and all other securities) shall be selected for use according to their financial standing, execution capabilities, underwriting capabilities, research capabilities, price and other services provided to the System.

Consultants

The CIO, in conjunction with the Treasurer, may engage the services of investment consultants as necessary to assist the Staff in managing TCRS assets and overseeing the External Managers and Advisors. The Board delegates to the Treasurer the responsibility to determine the duties and responsibilities of the consultant with such enumerated in a contractual agreement.

External Managers and Advisors

The CIO, in conjunction with the Treasurer, may engage the services of investment advisors to manage the portfolio after consultation with and authorization by the TCRS Board of Trustees. The Board delegates to the Treasurer the responsibility to determine the duties and responsibilities of investment advisors with such enumerated in a contractual agreement. The TCRS Board, Treasurer, and Staff will have specific responsibilities as stated below:

Roles of the Board

Reviews and, if appropriate, authorizes requests by the CIO and Treasurer to engage investment services. Delegates to Staff the authority to identify and retain qualified external investment managers, advisors, and consultants.

Reviews and approves the processes employed by Staff in the selection and engagement of investment managers, advisors, and consultants.

Reviews and monitors the investment performance of the investment advisors selected by Staff.

Roles of the Treasurer, CIO and Staff

Evaluates the needs of the Division to achieve its risk-adjusted return objectives and, if appropriate, presents recommendations to obtain authorization to the TCRS Board of Trustees to engage investment management services in order to achieve these objectives.

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Develops the processes for engaging investment management services, for approval by the TCRS Board of Trustees.

Selects, engages, and manages investment consulting and advisory relationships, consistent with the processes approved by the TCRS Board of Trustees.

Master Custodian Financial Institution

The Treasurer may engage the services of a master custodian financial institution to hold in trust the financial assets of TCRS and to process trade transactions. The Board delegates to the Treasurer the responsibility to determine the duties and responsibilities of the master custodian financial institution with such enumerated in contractual agreement. Engagement of the Custodian shall be subject to the Tennessee State procurement process which includes competitive and non-competitive procurement processes.

Proxy Voting

It is the general policy to vote proxies in a manner which will provide the best ultimate value to the shareholders of that entity. The Chief Investment Officer will develop and maintain a proxy voting policy, and review such policy annually with the Council. In voting all proxies, the investment staff will:

1. Analyze the economic consequences of the options presented to them as shareholders, and select the option most likely to protect and enhance the value of the System's assets.

2. Document the votes (and other actions and decisions) along with the reasons for taking the action chosen. This includes maintaining a record of all attempts to solicit proxies, from outside or inside the organization.

3. The Chief Investment Officer should consult with the Council on any particularly difficult proxy questions.

Commission Dollar Arrangements

The CIO is hereby given approval and is authorized to obtain investment research services permitted by Section 28(e) which amends the Securities and Exchange Laws of 1934 through use of commission dollars; provided, however, that best execution of all trades shall continue to be the overriding principle in determining the broker to be used in executing any transaction. The CIO shall annually disclose to the Board significant provisions of each commission dollar arrangement existing on June 30 of each year. The CIO shall, within a reasonable period of time, disclose to the Board any new commission dollar arrangement entered into as well as other information requested. Only those research goods and services which directly enhance the investment decision-making process or investment returns, and which do not have a non-investment capability shall be eligible for procurement through commission dollar arrangements. Goods and services specifically permitted include performance evaluation services, securities pricing services, quotation and trading information services and analytical databases as well as technical publications which directly enhance the investment decision-making process.

No good or service may be procured through commission dollar arrangements if such good or service benefits an employee in an individual capacity. Goods and services specifically prohibited from procurement through use of commission dollar arrangements include direct telephone lines to brokerage firms, personal computers or other office equipment, payment of travel related expenses and payment of cost of attending seminars, classes or other investment training activities. The CIO shall develop and implement a structured review and approval process to ensure that commission dollar arrangements entered into pursuant to this policy comply with the provisions stated herein. Any commission dollar arrangement in which commission commitment is made by the System shall be evidenced by a written agreement which specifies the nature and extent of the commission commitment as well as other significant provisions of the arrangement.

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INVESTMENT POLICY AND OBJECTIVES

Key Objective

Achieving superior risk adjusted returns is the primary objective for the Fund. Achieving the primary goal will provide the liquidity needed by the System to pay beneficiaries, preserve principal value over a long-term basis, and insure the actuarial soundness of the plan.

- Control risk by proper diversification of asset classes
- Exceed the actuarial assumption on a long-term basis
- Exceed the return of the composite benchmark of the target weighting of the asset classes

Investment Return

The System's assets should be managed actively to attain, within acceptable risk limitations, a return on assets that will meet beneficiary payments as required. Return shall include both current income and capital appreciation. The investments of the System shall be diversified so as to minimize the risk of large losses, unless under particular circumstances it is clearly prudent not to do so. The total return objective of the system shall be to exceed the returns as set out under the "Performance Measurement" section of this policy.

Liquidity for System Beneficiary Payment

Contributions and Investment income appear sufficient to meet beneficiary payments for the foreseeable future. Continual review of the System should be conducted to assure that investments providing income for liquidity needs are purchased as the System matures.

Asset Allocation

Allocation Range

The chief investment officer is permitted to make investments within the following ranges:

Asset Class	Minimum	Maximum
Domestic Stocks	25%	50%
Domestic Bonds	20%	60%
Inflation Indexed Bonds	0%	15%
Short-term Securities	0%	10%
International Bonds	0%	10%
International Stocks	5%	25%
Private Equity	0%	5%
Real Estate	0%	10%

Performance Measurement

To provide the Investment Staff and the Board with guidance as to investment performance expectations, the following performance measurement standards are established. These standards are to act as guides in determining whether the Fund and individual asset classes are achieving their long term goals, both in relationship to the System's peer group of other public funds and the marketplace in general. In recognition of the System's long-term perspective, these standards are to be measured through use of a five-year rolling average. This serves to reinforce the System's bias against investment decisions designed to show short-term gain at the expense of long term performance.

Total Fund Performance Measurement Standards

This set of standards is designed to measure the performance of the Fund in total, including the impact that state law, investment policy restrictions and asset allocation decisions may have on the performance of the Fund. Given the current state law, investment policy and asset allocation parameters, the following standards are considered reasonable expectations for the total Fund:

The Fund's overall annualized total return should exceed the return available from a policy of investing in an index fund of the following:

Asset Class	Index	Weight
Domestic Stocks	S&P 1500	35%
Canadian Stocks	S&P/TSX 60 Index	5%
International Stocks	MSCI EAFE Investable Market Index (IMI)	15%
Domestic Bonds	Citigroup Large Pension Fund Index*	26%
Inflation Indexed Bonds	Citigroup TIPS Index	8%
International Bonds	Citigroup Non-U.S. G-5 Govt. Bond Index	0%
Private Equity	S&P 500 + 3%	3%
Real Estate	NCREIF Property Index	7%
Short-term Securities	91-Day U.S. Treasury Bills	1%
	TOTAL	100%

*To facilitate the portfolio transition the Domestic Bond benchmark will change in increments. On December 31, 2010 the benchmark will be 100% Citigroup Broad Investment Grade. On March 31, 2011 the benchmark will be 50% Citigroup Broad Investment Grade and 50% Citigroup Large Pension Fund Index. Finally, on June 30, 2011 the benchmark will be 100% Citigroup Large Pension Fund Index.

To accurately compare portfolio performance when significant changes in allocations occur in illiquid asset classes, the total fund performance will be calculated on an "as-allocated" basis. The "as-allocated" calculation will use the actual percentages invested in the illiquid asset classes of real estate and private equity instead of the long-term target weights.

The Total Fund should rank in the upper 50 percentile compared to the results of other similarly managed public fund portfolios measured over rolling five-year periods.

Rebalancing

Should an asset class fall below the minimum percentage or exceed the maximum percentage, the CIO is expected to rebalance the portfolio to bring the asset class within the minimum / maximum range within 90 days.

The CIO will review market movements and the investment strategy employed and make specific portfolio re-balance recommendations to the Treasurer if an asset class moves more than 5% from its target weight for classes with a weight of at least 10%. For smaller asset classes such evaluations will be made when the difference is greater than 2%. During transition periods, this variation will be evaluated versus the "as-allocated" target percentages. To facilitate temporary strategic actions not to exceed 12 months, the TCRS Investment Committee may authorize bundling of all equity portfolios and permit a total additional underweight or overweight position not to exceed 5% of total system assets in aggregate of the combined equity portfolios. During these temporary actions, the equity

portfolios will be evaluated on a combined basis and individual minimum and maximum ranges will apply to the bundling of all equity portfolios and the individual portfolio restrictions will not apply.

Asset Class Performance Measurement Standards

Each asset class is currently actively managed by the System. Since an alternative to active management exists in the form of index funds, it is proper to measure the System's performance against the most appropriate index for each asset class to determine the "value added" over time by active management. As asset classes change, indices should be reviewed to ensure that proper comparisons are being made. The above indices provide for appropriate comparison to the System's current asset classes.

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INVESTMENT CRITERIA

Both the Board and the Investment Staff are aware of the desirability of investing within the State of Tennessee whenever quality, risk, diversification and potential return are equal to or greater than that available on like investments outside the state. The Investment Staff should encourage and be receptive to Tennessee financial proposals. However, both the Board and the Investment Staff are aware of the fiduciary responsibility of investing pension assets and should not make any investment based solely on its location in Tennessee when quality, risk, diversification, or potential return are sacrificed. See T.C.A., Section 35-3-117(b). Further, the Board will not approve, and staff is not authorized to engage, in investment proposals designed to benefit special political, social, or economic subgroups within or external to the System's beneficiaries unless they clearly meet all fiduciary standards of investing.

In determining compliance with the percentage limitations of this policy, the assets of the System shall be valued at their market value. Accordingly, an investment may be made on any given day provided such investment does not cause any applicable limitation prescribed in this policy to be exceeded on such day. T.C.A., Section 8-37-104(b).

Common, Preferred Stock and Convertible Bonds

Growth is important to the System to attain a return that will allow for greater participant benefits and/or lower employer funding requirements. Equity investments will be used to seek this growth through potential dividend and capital appreciation. The System will limit its investment in common and preferred stock to 75% of the System's total assets. T.C.A., Section 8-37-104(a)(1). Convertible bonds, equity exchange traded funds, stock options, and stock index futures will also be counted as an equity investment and included in this limitation. The System's stock portfolio shall be managed by the Investment Staff to obtain a superior return. The stock of smaller, emerging companies, including new issues, should be an integral part of the total portfolio. Not more than 4.99% of the outstanding shares of any one issuer shall be purchased. Any stock purchase which does not meet the statutory definition for domestic life insurance companies shall be considered purchased under the basket clause as permitted by statute.

Notes, Bonds, and Mortgages

Public issues of notes and bonds shall make up the majority of fixed income investments. It will be necessary to actively manage this sector of the portfolio in times of volatile interest rate swings to either shorten the average maturity to protect principal value or lengthen maturities to lock up a long-term stream of income. The only issues subject for purchase are investment grade bonds (four highest ratings) as rated by one of the recognized rating agencies. Issues of any agency of the federal government or any entity with the express or implied backing of the U. S. Treasury shall be considered as holding the highest possible rating. The total sum invested in notes and bonds and other fixed income securities exceeding one (1) year shall not exceed 75% of the total funds of the System. Government Bond futures, Federal Funds futures, Eurodollar futures, interest rate swaps, credit default and credit default index swaps will also be counted as a Fixed Income investment and included in this limitation. T.C.A., Section 8-37-104(a)(2).

Private Placements

Any debt issues purchased which do not have an active secondary market shall be thoroughly researched from a credit standpoint and shall be determined by the Investment Staff as having credit quality that conforms to the limits placed on public issues. Not more than 15% of the total fixed income portfolio shall be placed in private placements. Private placements may be considered for purchase when they yield a return over equivalent quality public issues that are sufficient to compensate for their lack of marketability. Except in the case of notes purchased by the System pursuant to standby note purchase agreements wherein the System receives a market rate of return, tax exempt securities of any state are not considered a prudent investment for the System.

Exchange Traded Funds (ETFs)

Equity ETFs may be included in the equity portfolio and bond ETFs in the bond portfolio and shall be subject to the limitations of those portfolios.

Stock Options

Call options may be written on stock positions owned by the System. Options should not be written on more than 10% of the total stock portfolio. Options may not be purchased but positions can be closed out. Rules and Regulations of the State of Tennessee, Chapter 0780-1-32.

Fixed Income Financial Instruments

Investment Staff may purchase or sell Government Bond futures, Federal Funds futures, Eurodollar futures, interest rate swaps, credit default and credit default index swaps for the purpose of making asset allocation changes, modifying credit risk, adjusting interest rate risk, and improving liquidity. In addition, options on those instruments may be employed. Activity in interest rates futures, swaps, and their respective options will be subject to the following terms and conditions:

1. Gross exposure to approved fixed income financial instruments will be limited to 10% of the market value of the System's total assets for risk mitigating positions and 10% for risk positions. Position sizes will be measured by notional amounts. Options will be measured in their notional equivalents.

2. The sum total of the fixed income portfolios, together with the value of any fixed income index futures contract obligations should be within the asset allocation range for the fixed income portfolio. While fixed income index futures contracts are outstanding, the Investment Staff shall maintain a comparison of the System's fixed income asset allocation against its invested position including futures contracts.

3. The System may use cash and obligations of the U.S. government or any of its agencies to meet the variation margin requirement.

4. Investment Staff may purchase or sell Government Bond futures, Federal Funds Futures, Eurodollar futures, interest rate swaps, credit default and credit default index swaps.

5. Transactions will be conducted through only a few of the highest quality domestic money center banks and domestic brokerage firms. The criteria to be used in selecting such banks and brokerage firms should include, but should not be limited to, their experience and expertise in the financial futures market.

6. A transaction record shall be maintained which contains the following:

   a) The amount of contracts purchased and the reason therefor.
   b) The amount of contracts sold and the reason therefor.

7. Investment Staff shall submit a quarterly report to the Board specifying the transactions during the previous quarter. The report shall summarize the strategies employed, the investment performance of those strategies, and potential strategies for the present quarter. Each report shall list the banks and brokerage firms authorized to conduct financial futures transactions with the System. T.C.A., Section 8-37-104(a)(7).

Equity Futures

Investment Staff may purchase or sell stock index futures contracts for the purpose of making asset allocation changes in a more efficient and cost effective manner, and to improve liquidity. In addition, options on those instruments may be employed to achieve risk management objectives.

Such futures contracts shall be subject to the following terms and conditions:

1. The Investment Staff will not enter into equity futures transactions for the purpose of speculative leveraging.

2. The total notional amount of the System's equity financial futures contract obligations should not exceed 10% of the market value of the System's total assets. Position sizes will be measured by notional amounts. Options will be measured in their notional equivalents.

3. The sum total of the domestic and international equity portfolios, together with the value of any stock index futures contract obligations should be within the asset allocation range for each of domestic and international equity securities, respectively. While stock index futures contracts are outstanding, the Investment Staff shall maintain a comparison of the System's equity asset allocation against its invested position including futures contracts.

4. The System may use cash and obligations of the U.S. government or any of its agencies to meet the variation margin requirement.

5. Financial futures contracts may be utilized given the contracts are appropriate for the required portfolio management result. Indications of appropriateness include correlation with the underlying market, similar market coverage and similar sector coverage.

6. Transactions will be conducted through only a few of the highest quality domestic money center banks and domestic brokerage firms. The criteria to be used in selecting such banks and brokerage firms should include, but should not be limited to, their experience and expertise in the financial futures market.

7. A transaction record shall be maintained which contains the following:

   a) The amount of stock index futures contracts purchased and the reason therefor.
   b) The amount of stock index futures contracts sold and the reason therefor.

8. Investment Staff shall submit a quarterly report to the Board specifying the transactions during the previous quarter. The report shall summarize the strategies employed, the investment performance of those strategies, and potential strategies for the present quarter. Each report shall list the banks and brokerage firms authorized to conduct financial futures transactions with the System. T.C.A., Section 8-37-104(a)(7).

Short-term Investments

All monies waiting to be placed in a more permanent investment should be actively managed to obtain the best return available. These investments can include both publicly and privately negotiated short-term borrowing agreements. Commercial paper should be rated in the highest tier by all rating agencies which rate the paper. Rating modifiers (+, -) should not be considered when determining the highest rated tier. A minimum of two ratings is required. Commercial paper cannot be purchased if a rating agency has the commercial paper on a negative credit watch. Commercial paper cannot have a remaining maturity of more than 180 days from the date of purchase. The maximum amount of a specific corporation's commercial paper that can be purchased is $100 million, but commercial paper maturing on the next business day shall not apply to this limit. A credit analysis report shall be prepared on a corporation before the corporation's commercial paper can be acquired. A credit analysis report should include a company profile, business description, financial profile, rating information, strengths and opportunities, weaknesses and threats, and an outlook and recommendation.

Securities Lending

Both debt and equity securities may be loaned for a fee to a select few of the highest quality securities firms and banks as determined by the CIO in consultation with the IAC. Loans shall be limited so that the total amount of the securities lent does not exceed 30% of the market value of the total assets in the System's portfolio. Eligible collateral shall be required for each loan. For purposes of this provision, eligible collateral means:

1. Bonds, notes, and treasury bills of the United States or other obligations guaranteed as to principal and interest by the United States or any of its agencies;

2. Obligations guaranteed as to principal and interest by the Federal Home Loan Mortgage Corporation, Federal National Mortgage Association, Student Loan Marketing Association and other United States government sponsored corporations or enterprises; and

3. Cash.

Deleted:

Securities received as collateral shall have a market value of at least 102% of the market value of the security loaned. Cash received as collateral shall have a value of at least 100% of the market value of the security loaned. Collateral should be closely monitored. Securities collateral should be marked to market each business day so that the aggregate market value of the collateral allocated to all then outstanding loans to a single security firm or bank equals 102% of the market value of such loans and the interest accrued thereon. If at any time the aggregate market value of the securities collateral allocated to all then outstanding loans to a single security firm or bank is less than 100% of the market value of such loans, more collateral should be requested. Cash received as collateral may be invested by or on behalf of the System in any investment instrument in which the System's assets may be directly invested. Such cash may also be invested in short-term investment funds provided the portfolio of such funds contains only those investment instruments in which the System's assets may be directly invested. The Treasurer, through securities lending agreements, may further restrict the collateral requirement outlined in this policy. T.C.A., Section 8-37-104(a)(6).

Securities lending agreements entered into shall be reviewed, commented upon, and approved as to form and legality by the Attorney General and Reporter.

Standby Note Purchase Agreement

The System may enter into contracts to serve as a standby note purchaser for the Tennessee State School Bond Authority, the Tennessee State Funding Board and the Tennessee Local Development Authority provided said contracts contain the following provisions:

1. The System receives an annual commission, representing a fair market value fee, for serving as the standby note purchaser.

2. Fees established for providing the standby note purchasing service will be reviewed annually and adjusted as appropriate.

3. If called upon to purchase such notes, the System receives a market rate of return exceeding the prime rate.

T.C.A., Section 8-37-104(a)(8).

International Investments

An amount not to exceed 25% of the System's total assets may be invested in the international markets of those countries included in the Morgan Stanley Capital International (MSCI) EAFE IMI index for developed markets excluding any emerging market countries. Such securities must be actively traded in a public market and be of the same kinds, classes and investment grades otherwise eligible for investment. T.C.A., Section 8-37-104(a)(3).

Foreign Currency Hedging

The System may engage in forward contracts to hedge the foreign currency exposure of the fund under the following guidelines:

1. The overall strategy will be a tactical defense designed to reduce risk and protect the System's international portfolio from an appreciating dollar relative to other currency exposures.

2. The foreign currency exposure will be hedged by selling and purchasing currency using only forward contracts.

3. The allowable currencies for hedging purposes are limited to the currencies of those countries authorized pursuant to this policy.

4. Portfolio currencies may be hedged no more than 80% of international portfolio exposure for any given currency based on market value.

5. Portfolio currencies may be sold for U.S. dollars only and not for another portfolio currency.

6. Hedging will be conducted through the System's custodial bank and a few of the highest quality money center banks and brokerage firms. T.C.A., Section 8-37-104(a)(5).

Canadian Investments

The System may purchase Canadian securities which are actively traded in a public market provided they are substantially of the same kinds, classes and investment grades as those otherwise eligible for investment. Such investments shall not be subject to the restriction imposed on international investments.

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Real Estate

An amount not to exceed 10% of the market value of the total TCRS portfolio may be invested in real estate. The real estate investment portfolio of TCRS may include investments in direct real estate investments, commingled funds, group trusts, real estate operating companies ("REOCs"), partnerships, corporations, limited liability companies ("LLCs") or other collective investment vehicles or pooled investments as well as REITs (private or public). At the time of acquisition, the minimum investment size for an individual property is $5.0 million, unless the investment is part of an accumulation strategy of multiple properties in a given market or sub-market. The maximum investment size in any one property shall be limited to one-half of one percent (0.5%) of the market value of TCRS's total assets.

TCRS shall invest primarily in substantially leased (i.e., 80% or greater leased at time of acquisition) institutional quality, well-located assets in the traditional property types: office, apartment, retail, and industrial. To avoid concentrations within certain property types and to ensure prudent diversification over the longer time periods, no investment may be made which would cause, at the time of acquisition, the market value of TCRS holdings in any single traditional property type to exceed 40% of the market value of the greater of TCRS's real estate target allocation or the total value of real estate invested.

Deleted: Real Estate portfolio

TCRS shall limit real estate investments such that at the time of acquisition, no more than 2% of the market value of TCRS's total assets shall be invested in any single Standard Metropolitan Statistical Area ("SMSA"). All investments shall be limited to properties located in the United States excluding de-minimis positions held within comingled funds. In any event, TCRS cannot acquire real estate located in the State of Tennessee unless such acquisition is in the shares or interests of a regulated investment company, mutual fund, common trust fund, real estate investment trust, or similar organizations or vehicles which are commingled and investment determinations as to which real estate assets to purchase or acquire are made by the investment sponsor or investment manager, or persons other than TCRS.

Real estate investment advisors are to be utilized by TCRS to locate, evaluate, acquire, manage and dispose of separate account direct real estate investments. TCRS shall limit its exposure to any single Advisor to mitigate potential advisor or firm specific risk. No Advisor, at the time of an acquisition, shall be permitted to manage more than 40% of the market value of the greater of TCRS's real estate target allocation or the total value of real estate invested.

TCRS may own such investments in its own name or, to the extent permitted by law, through title holding entities, and may transfer real estate properties from direct ownership to a title holding entity, or from a title holding entity to direct ownership, during the course of the holding period of the investment.

The Director of Real Estate shall develop comprehensive real estate investment guidelines (Real Estate Guidelines) that shall be approved by the Chief Investment Officer and the Treasurer.

Transactions to acquire and dispose of direct real estate properties are subject to approval of the Investment Committee of the Board of Trustees. The Investment Committee will not consider any acquisitions or dispositions until the Investment Advisory Council has reviewed the transaction and submitted its advice. Transactions involving a market value of less than $30

million may be approved by the CIO and Treasurer after notification of the Investment Committee. T.C.A, Section 8-37-104(a)(9).

Private Equity

No investment may be acquired that would, at the time of the acquisition, cause the book value of all the retirement system's holdings and investments in private equity to exceed more than five percent (5%) of the market value of the total assets of the retirement system. This limitation is intended to limit the actual value of assets invested and is not intended to limit commitments which will typically be larger than the actual invested value, particularly during the initial development stages of the private equity investment program.

1. Roles and Responsibilities

   a. Roles of the Board and Investment Committee

      Approve Private Equity investment policy.

      Monitor private equity asset allocation and portfolio construction by reviewing the investment performance.

   b. Roles of the Treasurer, CIO and Staff

      Develop Private Equity investment policy and guidelines, with approval of the policy by the Council on Pensions and Insurance, Board, and Investment Committee, and with the approval of the guidelines by the Treasurer and CIO.

      Select, engage, and monitor investment management and advisory relationships in the manner approved by the Board.

      Evaluate prospective investments and their prepared offering materials on an as-needed basis.

      Coordinate the investment approval process.

      Conduct due diligence on individual investment opportunities and negotiates terms and conditions.

      Report the status of all investment activities to the Investment Advisory Council and the Investment Committee.

   c. Roles of the Consultant(s)

      The Consultant(s) provides a key oversight and monitoring role.

      In conjunction with Staff, reviews the process for the selection and engagement of Managers for approval by the Board.

Assist Staff with developing the investment strategy, policies, and procedures to implement the private equity investment program.

Prepare investment performance reports.

Provide the Board and Staff with relevant, reliable, and timely research and information.

Provide objective advice to Staff, the Investment Advisory Council, the Investment Committee and the Board.

Provide non-exclusive investment sourcing and servicing role for individual investments.

Source and evaluate prospective investments and their prepared offering materials on an as-needed basis.

Assist the Staff in conducting due diligence on prospective investments and in negotiating terms and conditions.

d. Roles of the Investment Advisory Committee

Review investment activities and advise the Board on investment policy as it relates to private equity.

2. Risk Control: The private equity investment program will be structured to avoid concentration risk. The portfolio will tend to be less diversified during the growth phase than would be the case for a seasoned portfolio and the risk control measures noted below apply to a fully seasoned portfolio.

a. Vintage Year Risk: Limited partnership returns in a given year tend to be more highly correlated than across a full economic cycle. Vintage year risks will be mitigated by controlling the annual deployment of funds. Another method that may be employed is the use of private equity secondary issues that would give the fund access to multiple vintage years. Vintage year concentration will be avoided by seeking to have less than 25% of the fund's private equity program fair market value in a given vintage year.

b. General Partner/Manager Concentration Risk: General Partner/Manager concentration risk is the risk of being over-exposed to a single General Partner/Manager which might incur operational, business, or investment issues. General Partner/Manager concentration risk will be controlled by having less than 20% of the private equity program allocation invested with a given General Partner/Manager.

c. Stage, Style, and Strategy Concentration Risk: Strategy concentration risk is the risk of being over-exposed to a particular private equity stage, style, or strategy such as buy-out funds or venture capital funds. Stage, style, and strategy concentration risk will be controlled by closely monitoring the range of investment strategies available in the private equity universe. The distribution of the stages, styles, and strategies employed by the fund will be monitored and reported.

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d. Industry Concentration Risk: The risk of having investments concentrated in a given industry. For example, this could mean having a large exposure to personal computer software companies across multiple partnerships. This risk will be mitigated by monitoring the underlying portfolio investments by industry.

e. Geographic Concentration Risk: The risk of having investments concentrated in a given geography (individual states, countries or regions). For example, this could mean having a large exposure to funds seeking investment opportunities in the eastern United States. This risk will be mitigated by monitoring the underlying portfolio investments by geography. It is anticipated that TCRS will employ a global approach to private equity investing, with a substantial portion of investments domiciled or operating outside the US.

3. Process for Selecting, Managing and Disposing of Investments:

a. Staff will utilize the Consultants(s) to develop strategy, calculate investment performance, assist with legal review, determine that a proposed investment complies with TCRS standards, and prepare quarterly investment reports.

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b. The Consultants(s) will also assist in the sourcing and selection of funds and negotiation of terms and conditions. Investments will only be made after recommendations of Consultant(s) and Staff, and will be consistent with the policies of the Board.

c. Types of private equity investments: Private Equity investments shall be limited to domestic and international venture capital; buyouts; mezzanine and distressed debt; special situations; secondary opportunities; and co-investments. Private equity investment vehicles may include, but are not limited to, limited partnerships, private placements, co-investments, funds-of-funds, and commingled funds.

d. The Director of Private Equity shall develop comprehensive Private Equity investment policies, procedures, and guidelines that shall be approved by the Chief Investment Officer and the Treasurer.

e. Commitments and transactions to acquire and dispose of private equity are subject to approval of the Investment Committee of the Board. Commitments and transactions involving a market value of less than $30 million may be approved by the CIO and Treasurer after notification of the Investment Committee.

4. Disclosure process: A disclosure process will document the names of any persons or entities who bring specific private equity investment proposals to any Retirement System employee or Board member who has a role in determining whether Retirement System assets should be invested in the private equity investment.

For the purposes of this investment policy, "...bringing a specific private equity investment proposal..." does not include casual meetings or telephone calls of a general nature. "Bringing a specific private equity proposal..." for the purposes of this disclosure process means direct personal contact by someone intending to solicit funding for a specific private equity investment fund or transaction. This direct contact will typically include a discussion about a

Effective September 30, 2011

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particular investment, the merits of that investment, and will include specific documentation supporting the investment case of the particular investment.

5. Records: Records of the Retirement System relating to the identity of the name of the private equity investment vehicle used, such as the name of any limited partnership, the name of the funds-of-funds manager and title of the fund, the amount invested in the vehicle, or the present value of such investment shall be open to public inspection pursuant to T.C.A Section 8-37-104(a)(10)(C).

THE BOARD OF TRUSTEES OF THE TENNESSEE CONSOLIDATED RETIREMENT SYSTEM ADOPTED THIS REVISED POLICY AT ITS BOARD MEETING ON SEPTEMBER 30, 2011.

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DAVID H. LILLARD, JR, CHAIRMAN _____ DATE
BOARD OF TRUSTEES
TENNESSEE CONSOLIDATED RETIREMENT SYSTEM

Effective September 30, 2011

POLITICAL SUBDIVISION REPORT

Political Subdivisions Beginning Participation in the Tennessee Consolidated Retirement System October 1, 2011

Political Subdivision	Amount of Service Purchased Employer	Amount of Service Purchased Employee	Employer Rate		Accrued Liability	Cost of Living	Number of Employees
Town of White Bluff							
	0	0	Normal	4.76 %	$0.00	Exclude	13
			Accrued	0.00 %			
			Adm. Cost	.20 %			
			TOTAL	4.96 %			

Meetings:

February, 2011	Explained results of actuarial study and participation procedures to the governing body.
October, 2011	Upon approval by TCRS Board of Trustees, will explain laws, policies and benefit provisions to employees of the district.
October, 2011	Upon approval by TCRS Board of Trustees, will explain reporting procedures to payroll officer.

STATE OF TENNESSEE
COMPTROLLER OF THE TREASURY
OFFICE OF STATE AND LOCAL FINANCE
SUITE 1600 JAMES K. POLK STATE OFFICE BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402
PHONE (615) 401-7872
FAX (615) 741-5986

MEMORADUM

TO: Melissa L. Davis, Field Services

FROM: Mary-Margaret Collier, Director Mary Margaret Collier

DATE: August 24, 2011

SUBJECT: Town of White Bluff

The fiscal year 2012 annual budget submitted by the Town of White Bluff appears sufficient to fund the $19,401 first year retirement costs for the fiscal year ending June 30, 2012.

Town of White Bluff
Condensed Budget
Fiscal Year 2012 Budget

General Fund		**State Street Aid Fund**	
Beginning Fund Balance	$ 145,000.00	Beginning Fund Balance	$ 94,525.00
Estimated Revenues	1,082,629.00	Estimated Revenues	88,000.00
Available Funds	$ 1,227,629.00	Available Funds	$ 182,525.00
Less: Appropriations	1,077,023.00	Less: Appropriations	80,000.00
Ending Fund Balance	$ 150,606.00	Ending Fund Balance	$ 102,525.00

Note 1: Includes retirement contribution of $19,041 in General Government Function

Sewer Fund	
Beginning Fund Balance	$ 225,000.00
Estimated Revenues	960,000.00
Available Funds	$ 1,185,000.00
Less: Appropriations	958,700.00
Ending Fund Balance	$ 226,300.00

Note 2: Sewer Fund Budget on Cash Basis rather than Accrual Basis.

The financial information received by this Office with the request for the review of the Town's fiscal year 2012 annual budget represents the Town's assertions of its financial condition that may or may not reflect the current or future financial condition of the Town.

If you need additional information, please do not hesitate to contact me.

STATE OF TENNESSEE
TENNESSEE CONSOLIDATED RETIREMENT SYSTEM
10th FLOOR ANDREW JACKSON BUILDING
502 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-0201

DAVID H. LILLARD, JR.
STATE TREASURER

JILL BACHUS
DIRECTOR

MEMORANDUM

TO: Mary Margaret Collier, Division of Local Finance

FROM: Karen Curtis, TCRS Field Services

SUBJECT: Participation in Tennessee Consolidated Retirement System

DATE: July 11, 2011

The Town of White Bluff will begin participation in the Tennessee Consolidated Retirement System effective 10/1/2011.

The Board of Trustees of the TCRS requires a political subdivision to appropriate the necessary funds in their annual budget for retirement costs. The total first year cost for the entity is $19,041. One-Hundred Percent (100%) of this figure is required to be budgeted for the 2012 budgeted year ending June 30, 2012.

Enclosed is the 2011-2012 budget for this entity. Please let me know if this information is sufficient and accurately reflects adequate funding for retirement costs for this entity.

If you have any questions, please call me at (615) 741-1971.

Enclosure

A. SUMMARY OF REPORT

An actuarial valuation was performed as of April 1, 2011, to examine the cost of any benefits provided by the Tennessee Consolidated Retirement System as it would apply to employees of the Town of White Bluff if the group joined the System on that date.

Costs and benefits were calculated on three bases. First, it was assumed that no prior service would be purchased. Second, it was assumed that the employer would not purchase prior service, but would accept its share of the liability if an employee elected to establish all years of prior service. Third, it was assumed that the employer would purchase all years of prior service.

Each political subdivision participating in the TCRS can include or exclude cost of living benefits in its retirement plan. If cost of living benefits are included, they must be "advance funded" in the same manner as other retirement benefits. Since the group now has this option, costs have been developed both "with" and "without" cost of living benefits.

The annual funding requirements (employer contributions only) of each approach for the three bases, for the plan year beginning on the valuation date, are shown in the following table. In all cases, it has been assumed that all employees having additional prior service will elect to purchase it.

	WITHOUT C.O.L.		WITH C.O.L.	
	Basis 1			
	Amount	% of Payroll*	Amount	% of Payroll*
Initial Accrued Liability **	$0	---	$0	---
Employer Contributions				
Normal Cost	$18,261	4.76%	$26,164	6.82%
Accrued Liability	0	0.00	0	0.00
Administrative Expense***	780	0.20	780	0.20
Total	$19,041	4.96%	$26,944	7.02%

	WITHOUT C.O.L.		WITH C.O.L.	
	Basis 2			
	Amount	% of Payroll*	Amount	% of Payroll*
Initial Accrued Liability **	$469,771	---	$631,644	---
Employer Contributions				
Normal Cost	$10,473	2.73%	$17,033	4.44%
Accrued Liability	44,474	11.59	59,799	15.59
Administrative Expense***	780	0.20	780	0.20
Total	$55,727	14.52%	$77,612	20.23%

	WITHOUT C.O.L.		WITH C.O.L.	
	Basis 3			
	Amount	% of Payroll*	Amount	% of Payroll*
Initial Accrued Liability **	$741,299	---	$903,149	---
Employer Contributions				
Normal Cost	$9,974	2.60%	$16,496	4.30%
Accrued Liability	70,180	18.29	85,503	22.29
Administrative Expense***	780	0.20	780	0.20
Total	$80,934	21.09%	$102,779	26.79%

* Total annual payroll of employees, excluding those eligible to retire, was determined to be $383,631.

** Amortized over 20 years by payment of the "accrued liability" contribution shown in the table.

***Administrative expense equals $60.00 per year per active participant.

Each of the figures in the above table assumes an amortization of the initial accrued liability over a 20-year period. It is important to note that the percentage of payroll requirement, rather than the actual dollar amount, represents expected future level annual funding for the plan; for example, except for variations due to departures of actual from assumed experience, the plan would require a total level contribution by the employer of current and future payroll of 26.79% if the initial accrued liability for the "employer purchases all years of prior service" plan with C.O.L. is to be amortized over the next 20 years.

Details of the development of these cost levels are set out in Table 3 of the Appendix. The Appendix also summarizes the group's payroll and demographic information.

The actuarial valuation underlying this report has been made utilizing employee data furnished by the employer and the actuarial assumptions summarized in Table 5 of the Appendix.

TABLE 1

DISTRIBUTION OF ACTIVE PARTICIPANTS' EARNINGS

BY AGE

Age Group	Male			Female			Total		
		Earnings			Earnings			Earnings	
	No	Total	Average	No	Total	Average	No	Total	Average
1-20	0	0	0	0	0	0	0	0	0
21-25	0	0	0	0	0	0	0	0	0
26-30	1	21,840	21,840	0	0	0	1	21,840	21,840
31-35	1	20,800	20,800	0	0	0	1	20,800	20,800
36-40	1	20,800	20,800	1	18,720	18,720	2	39,520	19,760
41-45	1	28,080	28,080	0	0	0	1	28,080	28,080
46-50	2	58,960	29,480	0	0	0	2	58,960	29,480
51-55	1	35,890	35,890	1	34,350	34,350	2	70,240	35,120
56-60	0	0	0	0	0	0	0	0	0
61-65	1	34,566	34,566	1	30,036	30,036	2	64,602	32,301
66-70	1	56,750	56,750	0	0	0	1	56,750	56,750
71-75	1	22,839	22,839	0	0	0	1	22,839	22,839
76-80	0	0	0	0	0	0	0	0	0
81-85	0	0	0	0	0	0	0	0	0
86-90	0	0	0	0	0	0	0	0	0
TOTAL	10	300,525	30,052	3	83,106	27,702	13	383,631	29,510

TABLE 2

DISTRIBUTION OF ACTIVE PARTICIPANTS' EARNINGS

BY LENGTH OF SERVICE

Service Group	Male			Female			Total		
		Earnings			Earnings			Earnings	
	No	Total	Average	No	Total	Average	No	Total	Average
0	0	0	0	0	0	0	0	0	0
1	5	107,965	21,593	0	0	0	5	107,965	21,593
2	0	0	0	0	0	0	0	0	0
3	0	0	0	1	18,720	18,720	1	18,720	18,720
4	0	0	0	0	0	0	0	0	0
0- 4	5	107,965	21,593	1	18,720	18,720	6	126,685	21,114
5- 9	2	58,729	29,364	0	0	0	2	58,729	29,364
10-14	1	42,515	42,515	0	0	0	1	42,515	42,515
15-19	0	0	0	0	0	0	0	0	0
20-24	0	0	0	2	64,386	32,193	2	64,386	32,193
25-29	0	0	0	0	0	0	0	0	0
30-34	2	91,316	45,658	0	0	0	2	91,316	45,658
35-39	0	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0	0
TOTAL	10	300,525	30,052	3	83,106	27,702	13	383,631	29,510

TABLE 3
CALCULATION OF FUNDING LEVELS

The April 1, 2011 funding levels were determined as follows:

		Without C.O.L		
		Basis 1	Basis 2	Basis 3
(1)	Present Value of Benefits	271,182	904,917	901,106
(2)	Past Service Liability	0	742,421	741,299
(3)	Present Value of Future Employee Contributions	141,397	106,421	106,421
(4)	Present Value of Future Normal Costs (1) - (2) - (3)	129,785	56,075	53,386
(5)	Present Value of Future Salaries	2,827,947	2,128,416	2,128,416
(6)	Normal Cost Rate ((4)/(5)) x 1.0375	4.76%	2.73%	2.60%
(7)	Current Payroll	383,631	383,631	383,631
(8)	Normal Cost (6) x (7)	18,261	10,473	9,974
(9)	Employee Past Service Contribution	0	272,650	0
(10)	Accrued Liability (2) - (9)	0	469,771	741,299
(11)	Accrued Liability Contribution (10) x .09125 x 1.0375	0	44,474	70,180
(12)	Accrued Liability Contribution Rate (11)/(7)	0.00%	11.59%	18.29%

TABLE 3 (Continued)
CALCULATION OF FUNDING LEVELS

The April 1, 2011 funding levels were determined as follows:

		With C.O.L		
		Basis 1	Basis 2	Basis 3
(1)	Present Value of Benefits	327,158	1,101,757	1,097,811
(2)	Past Service Liability	0	904,294	903,149
(3)	Present Value of Future Employee Contributions	141,397	106,421	106,421
(4)	Present Value of Future Normal Costs (1) - (2) - (3)	185,761	91,042	88,241
(5)	Present Value of Future Salaries	2,827,947	2,128,416	2,128,416
(6)	Normal Cost Rate ((4)/(5)) x 1.0375	6.82%	4.44%	4.30%
(7)	Current Payroll	383,631	383,631	383,631
(8)	Normal Cost (6) x (7)	26,164	17,033	16,496
(9)	Employee Past Service Contribution	0	272,650	0
(10)	Accrued Liability (2) - (9)	0	631,644	903,149
(11)	Accrued Liability Contribution (10) x .09125 x 1.0375	0	59,799	85,503
(12)	Accrued Liability Contribution Rate (11)/(7)	0.00%	15.59%	22.29%

TABLE 4
PROJECTED SCHEDULE OF BENEFIT PAYMENTS

(With Full Past Service Credit)

Calendar Year	Number Retiring	Emerging Benefits	Emerging Liability	Total Payout	Total Liability
2011	4	54,111	608,278	45,562	608,278
2012	0	0	0	52,976	586,512
2013	0	0	0	52,148	564,092
2014	0	0	0	51,266	541,024
2015	1	15,890	218,207	58,231	735,533
2016	0	0	0	65,002	706,872
2017	0	0	0	63,754	677,502
2018	0	0	0	62,399	647,491
2019	1	12,510	157,705	67,162	774,631
2020	0	0	0	71,688	739,434
2021	0	0	0	69,863	703,730
2022	1	21,348	269,110	85,609	936,747
2023	0	0	0	86,819	893,290
2024	1	6,390	80,550	88,038	930,055
2025	0	0	0	87,999	883,990
2026	0	0	0	85,193	837,854
2027	0	0	0	82,289	791,795
2028	1	18,166	229,002	86,848	974,943
2029	0	0	0	94,159	923,345
2030	1	14,609	200,609	104,164	1,072,577

The above table sets forth an estimate of normal retirement benefit payout, assuming:

a) no deaths or terminations will occur before normal retirement,

b) emerging benefits are based on the salary scale used for actuarial costing, and

c) there are no early, disability or delayed retirements.

Tennessee Consolidated Retirement System

RESOLUTION #11-11

A RESOLUTION to authorize a political subdivision's participation in the Tennessee Consolidated Retirement System in accordance with Title 8, Chapters 34 through 37 of the Tennessee Code Annotated.

WHEREAS, Tennessee Code Annotated, Title 8, Chapter 35, Part 2 allows a political subdivision to participate in the Tennessee Consolidated Retirement System subject to the approval by the Board of Trustees; and

WHEREAS, the TOWN OF WHITE BLUFF, TENNESSEE desires to participate in the Tennessee Consolidated Retirement System under the provisions of state law and the following terms and conditions:

(Name of Political Subdivision)

1. PRIOR SERVICE:
   a. The political subdivision will assume NO liability (both employer and employee) for Ø year(s) of prior service for each person employed on the date of participation,
   b. The political subdivision will assume the employer liability only for NO year(s) of prior service for each person employed on the date of participation;

   The maximum allowable number of years of prior service any employee may establish is the sum of the number of years in a. and b. above.
2. COST-OF-LIVING: The political subdivision has the option of providing cost-of-living increases to its retirees and hereby chooses to (provide, exclude) EXCLUDE cost-of-living increases for retirees.
3. PART-TIME EMPLOYEES. The political subdivisions has the option of providing retirement coverage to part-time employees and hereby chooses to (provide, exclude) EXCLUDE this coverage.

WHEREAS, the liability for participation and costs of administration shall be the sole responsibility of the political subdivision and not the State of Tennessee; and

WHEREAS, the political subdivision has passed a budget amendment appropriating the funds necessary to meet such liability and the same is attached hereto; and

WHEREAS, the effective date of participation shall be on a date as determined by the Board of Trustees of the Tennessee Consolidated Retirement System, and the initial employer contribution rate shall be 4.96 % which is based on the estimated lump sum accrued liability of $ Ø ; and

WHEREAS, the funds necessary to provide for the retirement costs during the 2011-2012 fiscal year have been appropriated to the proper departmental budgets in the following amounts:

employee benefits	$
GENERAL FUND	$ 19,041.00
	$
	$

THEREFORE, BE IT RESOLVED That the Town Council of
(Name of Governing Body)
Town of White Bluff, TN hereby authorizes all its employees in all its departments or
(Name of Political Subdivision)
instrumentalities to become eligible to participate in the Tennessee Consolidated Retirement System subject to approval by the Board of Trustees pursuant to Tennessee Code Annotated Title 8, Chapter 35, Part 2. It is further understood that pursuant to Tennessee Code Annotated, Section 8-35-111, no employee of said political subdivision covered by this resolution shall have multiple memberships in any retirement program or programs financed from public funds whereby such employee obtains or accrues pensions or retirement benefits based upon the same compensation and for the same years of service to said political subdivision.

STATE OF TENNESSEE
COUNTY OF Dickson

I, Melody Lewis, clerk of the Board of
Town of White Bluff (Name of Governing Body) White Bluff, TN (County, City Town, etc.)

Tennessee, do hereby certify that this is a true and exact copy of the foregoing Resolution that was approved and adopted at a meeting held on the 5th day of July, 2011, the original of which is on file in this office. I further certify that 4 members voted in favor of the Resolution and that 4 members of the governing body were present and voting.

IN WITNESS WHEREOF, I have hereunto set my hand, and the seal of the Town of White Bluff
(Name of County, City, Town, etc.)

Melody Lewis
As Clerk of the Board, as aforesaid

Seal

R0545307

Linda Hayes
MAYOR

TCRS BOARD OF TRUSTEE APPOINTMENTS

COUNTY OFFICIALS ASSOCIATION OF TENNESSEE

July 27, 2011

Ms. Jill Bachus
Director, TN Consolidated Retirement System
10th Floor - Andrew Jackson Building
Nashville, TN 37243

Dear Ms. Bachus:

This is to confirm that the County Officials Association of Tennessee would like to reappoint Mr. Bill Kemp to the TN Consolidated Retirement System Board for the term of July 1, 2011 through June 30, 2013.

If you have any questions or require any additional information please feel free to contact me.

Respectfully,

Jay West
Executive Director

cc: Charles Cardwell
Bill Kemp

226 Capitol Boulevard, Suite 210, Nashville, Tennessee 37219 Phone: (615) 253-6700, Fax: (615) 253-4840
Email: coat.west@bellsouth.net Website: www.coatn.org

NATIONAL INSTITUTE ON RETIREMENT SECURITY (NIRS) REPORT

LESSONS FROM WELL-FUNDED PUBLIC PENSIONS

FACT SHEET

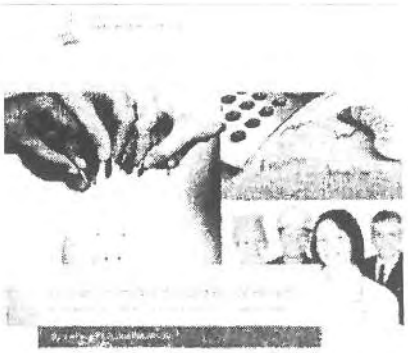
NATIONAL INSTITUTE ON Retirement Security

Lessons from Well-Funded Public Pensions: An Analysis of Six Plans that Weathered the Financial Storm

Overview

The National Institute on Retirement Security has released a research report entitled *Lessons from Well-Funded Public Pensions: An Analysis of Six Plans that Weathered the Financial Storm.* The report examines selected statewide defined benefit public pension plans to identify common elements of plans that remained well funded despite two severe economic downturns.

The study was conducted via a comprehensive analysis of the funding policy, benefit design and economic assumptions for the following six public pension plans:



- Delaware State Employees Pension Plan
- Idaho Public Employee Retirement Fund
- Illinois Municipal Retirement Fund
- New York State Teachers' Retirement System
- North Carolina Teachers & State Employees Retirement System
- Teacher Retirement System of Texas

Key Findings

The study identifies six features that enabled plans examined to remain sustainable and affordable:

- Employer pension contributions that pay the full amount of the annual required contribution, and that maintain stability in the contribution rate over time;
- Employee contributions to help share in the cost of the plan;
- Benefit improvements, such as multiplier increases, that are actuarially valued before adoption and properly funded upon adoption;
- Cost of living adjustments (COLAs) that are granted responsibly, for example through an ad hoc COLA that is amortized quickly, or an automatic COLA that is capped at a modest level;
- "Anti-spiking" measures that ensure actuarial integrity and transparency in pension benefit determination; and
- Economic actuarial assumptions, including both the discount rate and inflation rate, that can reasonably be expected to be achieved over the long term.

Why This Study

The financial crisis presented challenges to public pensions and funding levels. All investors saw a decline in assets and funded status - it wasn't exclusive to pensions. Today, plans are recovering as the market rebounds and are continuing to keep their retirement promises. Simultaneously, states and localities around the country are examining and enacting reform measures to ensure the continued sustainability of their pension plans.

Against this backdrop, there is much attention on the funded status of public pensions. Yet, much of the attention fails to focus on plans that actually weathered the financial storm. Instead, the spotlight shines on the minority of plans that weren't well funded going into crisis, and now have deeper financial issues in the wake of the Great Recession.

This report fills a research gap by focusing on public pension plans that remained well funded since 2000 despite two severe economic downturns. By examining key elements of funding policy, benefit design, and economic assumptions, the study provides "lessons learned" as policymakers implement changes moving forward to ensure the continued sustainability of public pension plans.

Authors

Dr. Jun Peng is an Associate Professor in public administration at the University of Arizona School of Government and Public Policy. His research focuses primarily focuses on U.S. state and local government financial management, and also involved in research on budgetary transparency in China. His is the author the book, "State and Local Pension Fund Management" that was published in 2008. Dr. Peng earned his Ph.D from the State University of New York at Albany.

Ilana Boivie is an economist and NIRS Director of Programs. She is involved with directing virtually all NIRS research and programming. She was the lead author on NIRS groundbreaking *Pensionomics* report, which was the first comprehensive analysis of the national economic footprint of public pension plans. She earned her M.A. in Economics at New Mexico State University, where she studied applied econometrics and experimental statistics.

NATIONAL INSTITUTE ON
Retirement Security
Reliable Research. Sensible Solutions

SENSIBLE SOLUTIONS

Lessons from Well-Funded Public Pensions:

An Analysis of Six Plans that Weathered the Financial Storm

By Jun Peng, Ph.D., and Ilana Boivie

June 2011

ABOUT THE AUTHORS

Dr. Jun Peng

Dr. Jun Peng is an Associate Professor at the School of Government and Public Policy, University of Arizona, Tucson, Arizona. His research interests primarily focus on state and local government financial management, including budgeting, debt management, and pension management. His recent book *State and Local Pension Fund Management* was published by Taylor and Francis in 2008. He earned his Ph.D. from the State University of New York at Albany. He can be reached at junpeng@arizona.edu.

Ilana Boivie

Ilana Boivie is the Director of Programs for the National Institute on Retirement Security, where she assists with the overall strategic direction of NIRS' programming and conducts original research and analysis regarding U.S. retirement issues. She was the lead author of *Pensionomics: The Economic Impact of State and Local Pension Plans*, and has been instrumental in NIRS' research and educational programs. Boivie holds an M.A. in Economics from New Mexico State University.

ACKNOWLEDGEMENTS

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EXECUTIVE SUMMARY

Defined benefit (DB) pension plans provide American employees in the public and private sectors with secure, regular retirement income following a lifetime of work. In the public sector, although the average monthly benefit is somewhat modest, these benefits go a long way in ensuring the financial security of nearly 27 million Americans.[1] For governmental employers, traditional pensions remain an attractive recruitment and retention tool,[2] particularly given that public sector workers typically receive lower wages than their private sector counterparts.[3] For taxpayers, the pooled nature of DB plans make them a cost-effective way to provide retirement benefits—nearly half the cost of defined contribution (DC) accounts.[4]

The financial crisis of 2008-2009 presented financial challenges to investors, including state and local pension plans. Because public pensions are invested in equity markets, like most investors, their assets fell because of the unprecedented stock market crash. In addition, the entire decade saw historically low returns in the equity markets. This led to a short-term drop in plans' funded ratios, and an increase in plans' unfunded pension liabilities and costs.

While the financial crisis lowered the funded levels of most public pension plans, several plans were nonetheless able to maintain a well-funded status. Alternatively, a number of plans were not well-funded going into the financial crisis, which only served to further deteriorate their funded status.

In this study, we analyze six well-funded public pension plans to learn what practices in terms of pension funding policy, benefit design, and economic assumptions have resulted in a better financial condition for these plans. This serves to provide a platform for further discussion on pension benefit reform in the public sector.

While each of these plans experienced less than expected investment gains over the 10-year study period beginning in 2000, each remained well-funded despite two economic downturns. This suggests that the funding policies they used are strong, and worthy of examination by other public pension systems. Through this analysis, we have identified the following features of plan design and process that helped these six plans remain affordable and sustainable over the long term, and can inform the debates on public pension reform:

1. Employer pension contributions that pay the full amount of the annual required contribution (ARC), and that maintain stability in the contribution rate over time, that is, at least equal the normal cost;
2. Employee contributions to help share in the cost of the plan;
3. Benefit improvements such as multiplier increases that are actuarially valued before adoption, and properly funded upon adoption;
4. Cost of living adjustments (COLAs) that are granted responsibly, for example through an ad hoc COLA that is amortized quickly, or an automatic COLA that is capped at a modest level;
5. Anti-spiking measures that ensure actuarial integrity and transparency in pension benefit determination;
6. Economic actuarial assumptions, including both the discount rate and inflation rate, that can reasonably be expected to be achieved over the long term.

INTRODUCTION

The financial crisis of 2008 and 2009 brought about one of the sharpest declines in stock market value worldwide, resulting in a substantial drop in the value of investment assets held by investors, including public pension plans. This in turn caused a short-term drop in public pension plans' funded ratios and an increase in unfunded pension liabilities. As of the end of fiscal year 2009, public pension plans were in aggregate 80% funded, meaning that they had enough assets on hand to pay 80% of all current and future pension liabilities,[5] a funding level that most retirement experts consider adequate in the public sector.[6]

In the wake of the financial crisis, however, media attention on public pensions has increased significantly. The reporting often focuses on the plan's current funded status and on systems that were not well-funded before the crisis. The reporting also focuses on a handful of public employees retiring with pensions that are significantly higher than average. This negative attention has led to calls for public pension reform, ranging from modest reforms, such as curbing pension spiking, to quite drastic measures, such as replacing the traditional defined benefit (DB) plan with defined contribution (DC) accounts.

In the current discussion on unfunded liabilities and pension reform, what is often missing is an understanding of the considerable variation in the financial health of public pension plans. While it is true that some state and local pension plans are not well-funded, and a few are severely underfunded, there are still many public pension plans that are consistently well-funded, even in the wake of the Great Recession. The existence of such well-funded pension plans illustrates that public pensions can be designed to be affordable and sustainable, even through one of the most substantial economic downturns. This research is aimed at finding the practices utilized by these well-funded plans—in terms of funding policy, benefit design, and economic assumptions—that resulted in their better financial condition.

Now is a particularly good time to do this research. Since 2000, the financial market experienced significant volatility, resulting in minimal investment returns over a 10-year period. As these pension plans remained well-funded despite these minimal investment gains, certain measures they have practiced may provide guidance for public pension reforms going forward.

Only state-level plans were considered for selection for this study. The primary reason is that surveys of state level pension plans are available (such as the NASRA/NCTR Public Fund Survey[7] and that of the Wisconsin Legislative Council), making it easier to find appropriate plans for study. There is currently no comprehensive survey of local pension plans, most likely due to the large number and small size of many local pension plans.[8]

Six pension plans were selected for this study, listed here in alphabetical order:[9]

1. Delaware Public Employees Retirement Systems' State Employees Pension Plan (hereafter referred to as Delaware SEPP),
2. Idaho Public Employee Retirement Systems' Public Employee Retirement Fund Base Plan (hereafter referred to as Idaho PERF),
3. Illinois Municipal Retirement Fund (hereafter referred to as Illinois MRF),[10]
4. New York State Teachers' Retirement System (hereafter referred to as New York STRS),
5. North Carolina's Teachers and State Employees' Retirement System (hereafter referred to as North Carolina), and
6. Teacher Retirement System of Texas (hereafter referred to as Texas TRS).[11]

(The Technical Appendix provides a brief discussion of each of these pension plans, the criteria used in selecting these plans, as well as detailed descriptions of these plans' funding policies, benefit designs, and economic assumptions.)

These six plans represent a fairly diverse group of pension plans, in terms of size, which ranges from very large to relatively small, and of the employees they represent, from state employees only, to state and local employees, teachers only, and local employees only. They are also located in states that are traditionally considered both conservative (such as Idaho) and liberal (such as New York) in terms of their approach towards government finance. At the end of 2010, the total market value of assets held in state and local pension funds was $2.93 trillion.[12] The market value of assets held in these six plans at about the same time was approximately $300 billion, or about 10% of total public pension assets.[13] The six plans cover about 2.7 million active and inactive members and retired beneficiaries in 2009; these plans accounted for about 10% of the 26.8 million members and retirees covered by all state and local pension plans in 2008, the latest year for which such data are available from the Census Bureau. See Table 1.

Figure 1 shows the overall funded ratio of these six plans over the ten-year period. Five of the six plans, using the actuarial value of assets[1] (AVA) in arriving at the funded ratio, had a funded ratio over 80% from 2000 to 2009. The exception is Idaho PERF, which uses only the market value of assets (MVA) in arriving at the funded ratio. As all other five pension plans' AVA was higher than their MVA in June 2009, Idaho PERF's funded ratio would most likely surpass 80% if it used an AVA. For all plans, the funded ratio based on MVA was above 70% throughout 2000 to 2009, with the exception of Texas TRS, which was just slightly below that threshold in 2009.

Since a pension plan's funded ratio is based on its pension liabilities and pension assets, this study focuses both on plan asset management and liability management practices. Pension liability levels are determined in part by the benefit design, and the level of pension assets is determined by pension contributions (which in turn are determined by funding policy) and investment returns. In this study, we examine these six plans' management of assets in terms of funding policy, benefit design, and economic assumptions. For each topic, we tease out common elements and draw lessons learned.

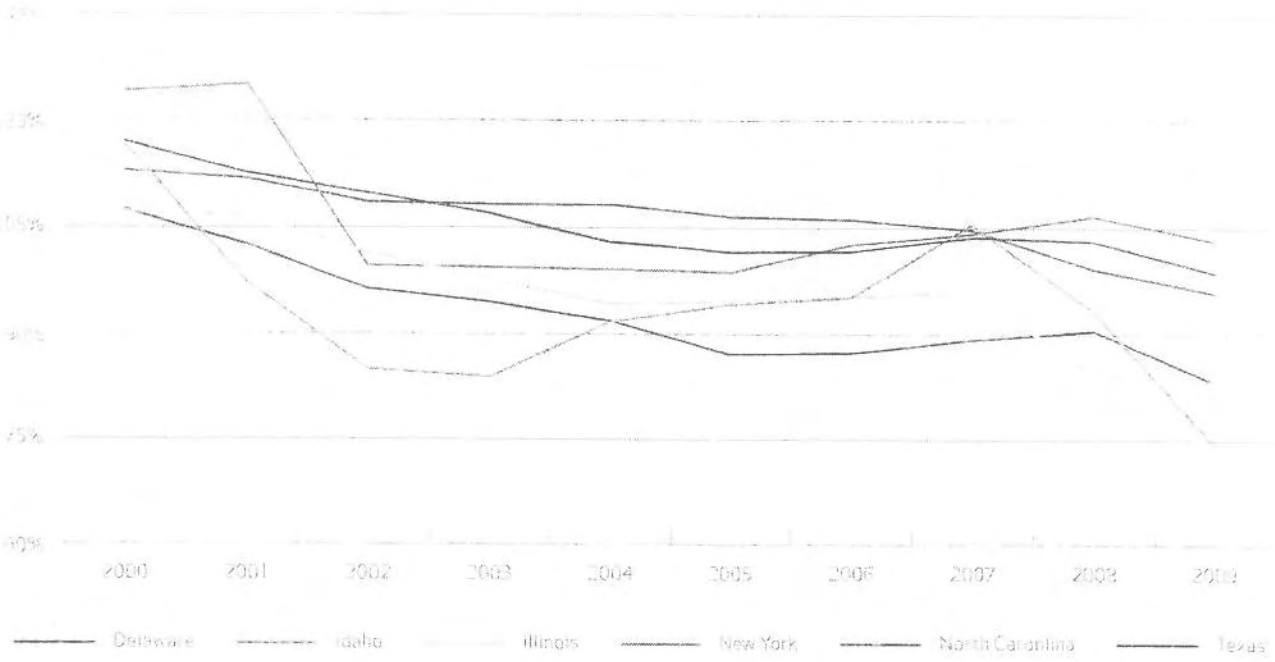
Table 1. **Snapshot of Six Study Pension Systems (as of 2009)**

	Delaware SEPP	Idaho PERF	Illinois MRF	New York STRS	North Carolina	Texas TRS
Total No. of Members	58,000	123,000	375,000	419,000	578,000	1,300,000
Total Assets under Management	$5.8 billion	$8.7 billion	$22.3 billion	$72.4 billion	$60.4 billion	$88.7 billion
Benefit Formula	2% for years prior to 1997 and 1.85% after that	1.67%: up to 9/30/92; 1.75%: 10/1/92 -9/30/93; 1.83%:10/1/93 -9/30/94; 1.92%: 10/1/94 - 6/30/00; 2%: after 7/1/00	1.67% of FAS for the first 15 years and 2% after	Tier 4 (83-'10) 1.67% for less than 20 years; 2% for first 30 years and 1.5% for years after; Tier 5: after 2010. 1.67% for less than 25 years; 2% for first 30 years and 1.5% for years after	1.82%	2.3%
Employee Contribution Rate	3% of salary over $6,000	60% of employer rate	4.5%	Tier 4: 3% for the first 10 years. Tier 5: 3.5%	6%	6.4%
Employer Contribution rate	5.50%	10.44%	9.27%	7.63%	3.36%*	6.58%
Social Security Coverage	Yes	Yes	Yes	Yes	Yes	No
Replacement Rate**	55.5%	60%	55%	60%	54.0%	59%

* North Carolina's employer contribution rate will be 3.44% as of July 1, 2011.

** Replacement rate includes just the DB pension benefit, and not any Social Security benefits. It is for someone hired now and retires after 30 years of service.

Figure 1: Actuarial Funded Level of Six Study Plans, 1999-2009



PENSION FUNDING POLICY

Pension benefits are funded through contributions and investment income over the working career of employees. In most public pension plans, contributions come from both employers and employees. (This is in contrast to private-sector pension plans, where contributions are almost always made solely by the employer.) As an employee's contribution rate is typically fixed, a pension plan's funding policy usually refers to how the employer's annual contribution rate is determined.

Employer contributions

An actuarially determined employer contribution rate consists of two parts, the normal cost and the amortization cost. The normal cost is the portion of the present value of benefits that is attributable to the current year under the actuarial cost method. The amortization cost is the current year's portion of the unfunded accrued actuarial liability (UAAL),[15] amortized over a certain period of time. In other words, if the pension plan is fully funded with no unfunded liability, then the employee and employer contribution rates equal the total normal cost for that year. Since the employee contribution rate is typically fixed, the normal cost rate is associated with the employer contribution rate. If the pension plan has an unfunded liability, then the employer's normal cost plus amortization cost constitute the employer's annual required contribution (ARC) for that year.

Under Governmental Accounting Standards Board's (GASB) Statement 25, for financial reporting purposes, the maximum time period allowed to amortize an unfunded actuarial accrued pension liability is 30 years,[16] either open or closed.[17] GASB is currently considering adopting an amortization period of the "future working lifetime" of active members, which for most plans will mean somewhere between 10 and 15 years. For the purposes of funding, however, the pension system or its sponsor (i.e., state and local governments) can set an amortization period that is different from GASB's requirement. Some systems choose to use a shorter amortization period than 30 years, either as a Board policy or mandated by state statute, in order to pay off the UAAL more quickly. (North Carolina, for example, uses an amortization period of just nine years.) The shorter the amortization period, the greater the annual amortization cost, and the sooner the unfunded liability will be paid off. The employer's actuarially determined contribution is calculated by subtracting employee contributions from total contributions.

If the employer contributes its full actuarially determined contribution each year, the pension plan will make progress toward full-funding (assuming it is not already fully funded). If contributions are less than the full actuarially determined contribution, the unfunded liability of the plan is likely to grow. If this occurs repeatedly, the problem is likely to worsen over time—the funded status of the plan will continue to deteriorate and each year the contribution rate will escalate. In other words, failure to pay the full annual required contribution each year only shifts costs into the future.

Lessons

The most fundamental principle in ensuring a plan achieves a 100% funding ratio is ensuring that the plan sponsors pay the entire amount of the annual required contribution (ARC) each year, because anything short of a full ARC payment will have a negative impact on the plan's funding ratio in the long run.

National Institute on Retirement Security

Several policy options are available to ensure that employers consistently pay the entire amount of their actuarially determined contribution each year. One way, as practiced by Texas TRS, is mandating payment through the state constitution. Statutes can also be implemented that would require either the local municipalities to pay (as in Illinois MRF) or the state to pay (as in Idaho PERF). Having strong legislation essentially takes the contribution requirement out of the budget appropriation process and thus out of the political process. This, however, generally only works with local governments that contribute to a state-level pension plan; it can be much more difficult to apply to the state government in a state-level pension plan. The difficulty arises because the state legislature can rewrite the law at any time to decrease the pension contribution. This can be avoided by writing the pension contribution into the state's constitution.

While meeting the actuarially determined contribution is of paramount importance, government funding policy may also emphasize a second goal of stability and predictability. Pension contributions tend to be pro-cyclical—burdens are lowest when the economy is at a cyclical peak, and burdens are greatest at the economy's nadir. If contribution rates are determined using a process that quickly and directly transmits the ups and downs of the stock market into decreases and increases in contribution requirements, they become volatile and unpredictable, which can introduce substantial volatility into government budgets.

Policies can be put in place to ensure that the contribution rate remains more stable over a long period of time. When a plan becomes overfunded due to a large pension surplus, the required contribution rate is reduced. Eventually, when the pension surplus disappears, the required contribution rate rises. Policies and legislation can be put in place to make sure that the contribution rate will remain adequate and stable in the future. The pension plans in this study have demonstrated several ways of meeting this goal.

One method, used by Idaho PERF, requires that the employer contribution rate can never be lower than the normal cost rate. As the normal cost rate tends to remain fairly stable over a long period of time, this promotes long-term stability in the employer contribution rate. It also makes sure that when the pension plan is overfunded, no surplus is amortized to reduce the normal cost rate. This is done in recognition that any surplus due to greater than expected investment gain is temporary and will eventually even out.

A slight variation of this method is the policy of Illinois MRF, only when the funding ratio is substantially above 100%, say 120%, can the overfunded amount above the 120% be used to reduce the normal cost rate. An advantage of this type of policy is that it prevents benefits from being improved without a complementary increase in contributions. If an increase in benefits increases the normal cost, this policy automatically requires the plan sponsors to begin paying these additional costs within the first year.

Another method, practiced by Texas TRS, is to set into law a requirement that the employer contribution rate cannot fall below a certain level. This way, when the pension is overfunded and the ARC falls below this set rate, the additional contributions are paid nonetheless. Then, if the plan becomes underfunded and the employer has difficulty meeting the increased contributions, those additional contributions that were previously made help to ensure that the employer can at least pay this minimum amount.

A third method, used by New York STRS, delays the recognition of as much of the unexpected investment gains as possible into the next four years, so that the contribution rate will not decline as much, and there is more surplus left over to offset any potential deficit in the future.

Employee contributions

The employee contribution is typically set by state statute and does not change, unlike the employer contribution rate. The five states in this study excluding Idaho PERF follow this practice; over the study period, the employee contribution rate did not change. (See Table 1.) All plans differ, however, on the employee contribution level. Texas TRS has the highest contribution rate, which is not surprising, as its benefit multiplier is the highest of the six. (Texas TRS is also the only plan in this study that does not participate in Social Security, which explains its higher benefit multiplier.)[14] North Carolina's employee contribution rate is twice that of Delaware SEPP's, even though their benefit levels are comparable in terms of the multiplier. In Idaho PERF, the employee contribution rate is set at 60% of the employer rate, meaning that when the employer rate changes, the employee rate changes as well.

Lessons

Because most employee contribution rates are fixed and typically account for less than half of the total annual pension contribution, any increase in pension contributions—due to investment underperformance or longevity increases, for example—is usually born by the employer. Moving forward through the Great Recession, many states are currently looking to increase employee contribution rates. As states consider such changes, they may look to structure the employee contribution rate so that any cost volatility is shared between employees and employers. The studied plans point to two ways that such a rate can be structured.

One is to implement an adjustable employee contribution rate. If the unfunded accrued liability grows, resulting in an increase in the overall contribution rate, then the employee contribution rate will increase along with the employer contribution. On the flip side, if the overall contribution decreases, then the employee will reap the benefit of a reduction in their contribution rate. Of the six plans in this study, Idaho PERF is the only one that has an adjustable employee contribution rate, although there are plans in other states outside this study group that have an adjustable rate, such as plans in Arizona and Iowa. A similar adjustable mechanism (called an "automatic contribution stabilizer") was recently passed in Minnesota as well, but has yet to be implemented; the law is designed to increase employer and employee contribution rates evenly, if needed.

However, an adjustable employee contribution rate will bring more uncertainty to employees' take-home salary every year. Another method that would mitigate such uncertainty, while still allowing employees to share in the cost volatility, would be to have a relatively fixed employee rate that pays for a specific portion of the long-term expected pension cost—for example, half. This fixed rate includes two components: a set portion of the normal cost, plus an additional rate for potential cost volatility that can lead to an increase in the unfunded accrued liability. (In a sense, this is very similar to how Idaho PERF arrives at its total contribution rate, which is equal to the normal cost rate plus an additional rate for investment return volatility.) Even if this fixed rate will not change from year to year, it can still be subject to change if the underlying normal cost rate changes in the case of a benefit enhancement. For Texas TRS and North Carolina, the fixed employee contribution rate is fairly similar to the employer normal cost rate, and the Illinois MRF employer normal cost rate of 4.67% for the new tier of pension benefits is also similar to the employee contribution rate of 4.5%.

The main goal in benefit design is generally to provide an adequate pension benefit that will maintain one's living standard in retirement when all sources of retirement income are included. Benefit adequacy is commonly measured by the "replacement ratio," which is defined as the percentage of pre-retirement income replaced by all forms of post-retirement income.[19] Generally, there are three main sources of income in retirement: Social Security benefits, personal savings (including DC plans), and employer-provided pension benefits. Many experts believe a replacement ratio of between 77% to 90%, depending upon household income, to be adequate.[20] A public sector pension benefit, in combination with additional personal savings and Social Security,[21] would preferably satisfy this replacement ratio.

Also, employers' needs and priorities may evolve over time, along with changes in the overall labor market, increased longevity, and other factors. As a result, employers may find that periodically updating benefit design is consistent with achieving their human resource management objectives and/or budgetary constraints. But for such changes to be consistent with the long-term health of the pension system, the cost (or savings) associated with such changes must be integrated with the plan's funding policy. The Government Finance Officers Association, for example, recommends that all benefit enhancements be actuarially valued before they are adopted in order to ensure that stakeholders have a complete understanding of their long-term financial impacts.[22] In addition, it is prudent for benefit improvements such as multiplier increases to be properly funded upon adoption, so as to avoid creating large unfunded liabilities.

Beyond the pension multiplier and any benefit increases, two design issues can substantially affect benefit levels. First, cost of living adjustments (COLAs) are critical in ensuring the long-term adequacy of pension benefit. Second, the practice of pension spiking can undermine the transparency and fairness of pension benefits. This section on pension benefit design addresses each of these factors in turn.

COLAs

Even if a pension benefit seems adequate at the time of retirement, its value can erode over time without adjustments for inflation. Because of the damaging effects of inflation, most public retirement systems provide COLAs. Especially for the 30% of state and local employees who are not covered by the Social Security[23]—which provides CPI-indexed benefits to all covered Americans—having a COLA in the pension benefit is all the more important. Yet COLAs do cost money. The COLA can thus be designed to maintain balance between providing inflation protection to retirees and keeping the cost affordable.

One key design feature of a COLA is whether it is automatic or ad hoc in nature. An automatic COLA means the retiree's benefit increases automatically every year by certain percentage. An ad hoc COLA is granted at the discretion of the plan sponsor, usually when the fund is in a well-funded position and investment gains have exceeded expectation.

Another design element of the COLA is whether it is simple or compound. Under a simple COLA, the adjustment each year is calculated based on the employee's original benefit.

This is in contrast to a compounded COLA, which includes past benefit increases in each new COLA calculation.

Lessons

All six plans in this study demonstrate various levels of restraint in keeping a balance between the two goals of adequacy in the value of the pension benefit and keeping the cost affordable. None of the six plans in this study has a particularly high automatic COLA. Delaware SEPP, North Carolina, and Texas TRS have ad hoc COLAs; Idaho PERF has a hybrid (a 1% guarantee and the rest up to CPI discretionary); New York STRS has an automatic compound COLA of half of CPI applied to the first $18,000; and Illinois MRF currently has a simple 3% COLA. For new members first hired on or after January 1, 2011 the COLA is a simple 3% or half of CPI, whichever is less.

Based on these plans' experiences, a prudent COLA benefit can be structured in at least two ways. Ad hoc COLAs can be granted in a sensible and responsible manner—for example, the COLA is only granted when the pension plan is well-funded and the COLA will not increase the overall annual employer contribution rate in any significant way. Since an ad hoc COLA creates an immediate unfunded liability, it can be amortized quickly—as practiced by Delaware SEPP and North Carolina—rather than over the traditional 30-year period. Since the granting of an ad hoc COLA typically is based on the funded condition of the pension plan, amortizing it as quickly as possible will help to make sure that it is granted prudently, without adding to the long-term cost of the pension system.

Table 2. Summary of COLA/Anti-Spiking Policies, Funding Policy, and Economic Assumptions of Six Study Plans

	COLA and Anti-Spiking Policies	Funding policy	Economic assumptions
Delaware SEPP	Discretionary COLA; Anti-spiking	Amortization period not longer than 20 years; discretionary COLA amortized over 5 years	Rate of return of 8%, inflation of 3.75%, real rate of 4.25%
Idaho PERF	Discretionary COLA; Anti-spiking	Statute requires that employer contribution rate be no lower than the normal cost rate; amortization period is no longer than 25 years; employees share the increase in the contribution rate	Rate of return of 7.75% (7.25% net of fees); inflation of 4%; real rate of 3.25%
Illinois MRF	Simple COLA;* Anti-spiking	Meet the ARC; Board has the legal authority to collect contribution from local governments.	Rate of return of 7.5%; inflation of 4%; real rate of 3.5%
New York STRS	Very modest COLA; Anti-spiking	Amortization period equal to remaining career, which is roughly 14 years; conservative asset valuation to reduce volatility in the contribution rate	Average rate of return of 8%, inflation of 3%; real rate of 5%
North Carolina	Discretionary COLA; Review of large pension benefits	Amortization period no longer than 9 years; discretionary COLA amortized over 9 years	Rate of return of 7.25%, inflation of 3.75%, real rate of 3.5%
Texas TRS	Discretionary COLA; Anti-spiking	Amortization period no longer than 31 years; Constitutional requirement of 5% to 10% employer contribution rate; statutory requirement of 6.4% employee contribution rate.	Average rate of return of 8%, inflation of 3%, real rate of 5%

*Under a simple COLA, the adjustment each year is calculated based on the employee's original benefit. This is in contrast to a compounded COLA, which includes past benefit increases in each new COLA calculation.

Automatic COLAs can be provided at a modest level, for example, half of CPI. Such a COLA gives retirees some certainty in the amount of benefit increase, while also keeping the cost affordable. It is prudent to prefund any automatic COLAs.

"Pension Spiking"

A public pension benefit is generally a function of an employee's years of service, pay at the end of his/her career (also referred to as "final average salary," or FAS), and a fixed multiplier determined by the plan. "Pension spiking" refers to an increase in a pension benefit by substantially increasing the FAS beyond what is expected from normal salary increases. This can happen when the FAS includes unusually large overtime payments, unused sick leave or vacation time added to the FAS, or a larger-than-normal salary increase in the final years of employment. Although pension spiking is not all that common[21]—even just a few isolated cases can create the impression of widespread abuse.

To the extent it occurs, pension spiking can be harmful to the financial health of the pension plan, because the prefunding of pension benefits assumes certain levels of salary growth over the course of employees' working lives. An unusual increase in FAS above these assumptions will immediately create an unfunded liability, which is detrimental to the pension plan and unfair to other plan participants as well as taxpayers.

One method to ensure against pension spiking is increasing the number of years over which salaries are averaged to arrive at the FAS, as well as not including overtime pay or unused sick or vacation pay. The greater the number of years, the more diluted the effect of a large one-time payment. While a three year FAS is fairly standard, some pension plans use more than three years (five years has become more common recently), and some have additional specific measures to counter spiking.

Lessons

It is interesting that all pension plans in this study have put measures in place to prevent pension spiking. Based on the practices of these plans, beyond averaging the salaries over an appropriate number of years, spiking can be minimized in one of three ways. First, the FAS that determines the pension benefit cannot include a one-time payment at the time of termination. Second, the growth rate in total salary in the final year or two, including any overtime payments, cannot exceed a certain percentage, such as the average salary growth for the entire government, or a preset percentage (for example, 10%). Third, the FAS that is used to determine pension benefits can be capped. See the Technical Appendix for a detailed review of the six study plans' anti-spiking practices.

ECONOMIC ASSUMPTIONS

Funding policies and investment policies are necessarily intertwined, because contributions are invested in financial markets, and the corresponding investment earnings help finance the benefits that will ultimately be paid. Accurately assessing expected returns is important, because if contribution rates are based on an interest rate that is either above or below the rate that is most likely to be earned on investments, in the future there is likely to be a mismatch between the size of the plan's assets and its liabilities.

In terms of asset allocation, most public pension plans maintain a balanced portfolio of equities (such as domestic and international stocks), corporate and Treasury bonds, alternative investments (such as hedge funds or real estate), and cash.[25] In doing so, plans are following the general tenets of modern portfolio theory, which holds that an investor can reduce risk and enhance return by diversifying assets across the entire portfolio, rather than focusing on the risk and return of any individual stock or asset.[26]

It should be noted that one major investment advantage inherent in public pension plans is a very long investment horizon. Because of this, funds can withstand short- to medium-term investment losses, and stick to an asset allocation strategy in a disciplined way through different phases of an investment cycle. This allows pensions to achieve an investment return that is better than individual investors can achieve on their own, on average, over the long term.[27] In addition, unlike an individual who ages and should adopt a more conservative investment strategy over time, pension funds do not age, and are able to take advantage of the enhanced investment returns that come from a balanced portfolio.[28]

In general, asset allocation for these six plans is in line with their rate of return assumptions, at least in terms of the allocation to fixed income securities. North Carolina has the most allocation to bonds (about 40%), and also has the lowest assumed rate of return, at 7.25%. Illinois MRF, with a 7.5% return assumption, has a target of 29% for bonds and 1% for cash. The other plans, with an expected return at or close to 8%, typically allocate between 25 to 30% to fixed income and cash. The rest is divided between public equity (accounting for 50 to 70% for these six systems), real estate, and alternative investments (such as private equity funds and hedge funds). All systems invest the vast majority of their assets (80 to 90%) in publicly traded securities.[29]

On an annual basis, five of the plans' overall annual returns were fairly similar to each other. While some differences are certainly expected, the difference was not very large. The plan with returns consistently different from the others is North Carolina. Its return was not quite as high in years when equity markets was doing well, and not quite as low in years when equity markets did poorly. This is not surprising, as North Carolina has the most conservative asset allocation strategy. The difference is even smaller for the ten-year annualized return. As of June 30, 2008, the ten-year annualized return was in the 6% range for all five plans. By the end of 2010, all of these plans had already recouped a significant portion of the assets lost in 2008 and 2009. For example, by September 30, 2010, Texas TRS's net asset value stood at $100.3 billion, an increase of $11.7 billion from June 30, 2009; most of the plan's deferred losses from 2008 and 2009 have been eliminated.[30] By December 30, 2010, Idaho PERF's asset value stood at $11.5 billion, an increase of $2.9 billion from June 30, 2009.[31] Table 3 (next page) shows the annual and average ten-year returns for the six study plans.

Despite the difference in allocation between public equity and fixed income, the overall traditional asset allocation of the six systems allows them to achieve a fairly similar rate of return over a long stretch of time,[21] although plans with a larger allocation to fixed-income securities experienced less volatility over time. As shown in Table 3 and Figure 2, these plans have historically achieved relatively high rates of return, with five plans' average rate of return exceeding 9% during the last 25 year period.

Economic assumptions related to investments can affect the pension contribution levels, cost estimates of benefit elements (e.g., FAS), and proposed benefit improvements. While the design of the pension benefit will largely determine the future pension liability, economic assumptions will determine the present value of the future liability, and thus how much needs to be set aside now. Two significant economic assumptions are the rate of return assumption, which is used as the discount rate, and the inflation rate assumption. The inflation rate assumption is a component of the individual salary increase assumption,[22] and is critical in determining the FAS and thus future pension liability. The inflation rate is also a component of the rate of return assumption, and the difference between the two is the real rate of return for the pension system. The smaller the real rate of return assumption, the more conservative the economic assumptions are, in general. If the inflation rate is held constant and the discount rate is lowered, the present value of the pension liability will increase and contribution rates will be higher. Pension liabilities and contribution rates will also increase if the rate of return is held constant and the inflation rate is increased.

Table 3. Investment Returns of Six Study Plans (Fiscal Year Ending June 30*)

Year	Delaware SEPP	Idaho PERF	North Carolina	New York STRS	Texas TRS	Illinois MRF
2000	15.8%	13.2%	9.0%	6.9%	7.9%	1.9%
2001	-5.1%	-6.1%	-2.0%	-5.7%	-5.0%	-6.1%
2002	-6.3%	-7.1%	-4.0%	-6.8%	-6.4%	-8.7%
2003	3.4%	3.7%	7.6%	4.0%	4.7%	22.6%
2004	16.3%	18.1%	12.0%	16.1%	15.7%	12.4%
2005	10.0%	10.9%	9.9%	10.6%	9.5%	8.7%
2006	12.4%	12.3%	7.2%	11.8%	10.4%	13.9%
2007	15.9%	20.0%	14.8%	19.3%	17.5%	8.5%
2008	-1.3%	-4.2%	-2.1%	-6.4%	-2.1%	-24.8%
2009	-15.8%	-16.0%	-14.2%	-20.5%	-21.9%	24.5%
Ten-year average, 2009	6.1%	6.8%	6.1%	5.0%	6.1%	3.6%
Ten-year average, 2005	4.2%	3.8%	3.4%	2.2%	2.4%	4.2%
Twenty-five year average, 2005	9.3%**	9.2%	N/A***	9.8%	9.2%	9.4%

*Illinois MRF's return numbers are quite different from those of the other five systems, primarily because its fiscal year ends on the last day of the month rather than on June 30, making it difficult to compare to other funds. Although the pension systems of North Carolina and Texas TRS end their fiscal years on June 30, they also calculate the investment returns as of June 30 of each fiscal year.

**Average 20 years return.

***Data from North Carolina is not available as the system only publishes its 10-year returns. Also, North Carolina has changed its asset allocation substantially over this period, making the return less comparable to the other systems.

Much media attention has focused on the discount rate assumption. Several voices have recently advocated for public plans to discount pension liabilities using a risk-free rate of return. However, rules set by the Governmental Accounting Standards Board (GASB), the body charged with setting accounting standards for public pension plans, do not support this position. Therefore, for the purposes of this paper, current GASB rules are considered the standard. Beyond following GASB rules, there may be other reasons that valuing pension liabilities at a risk-free rate would be inappropriate for public plans.[34]

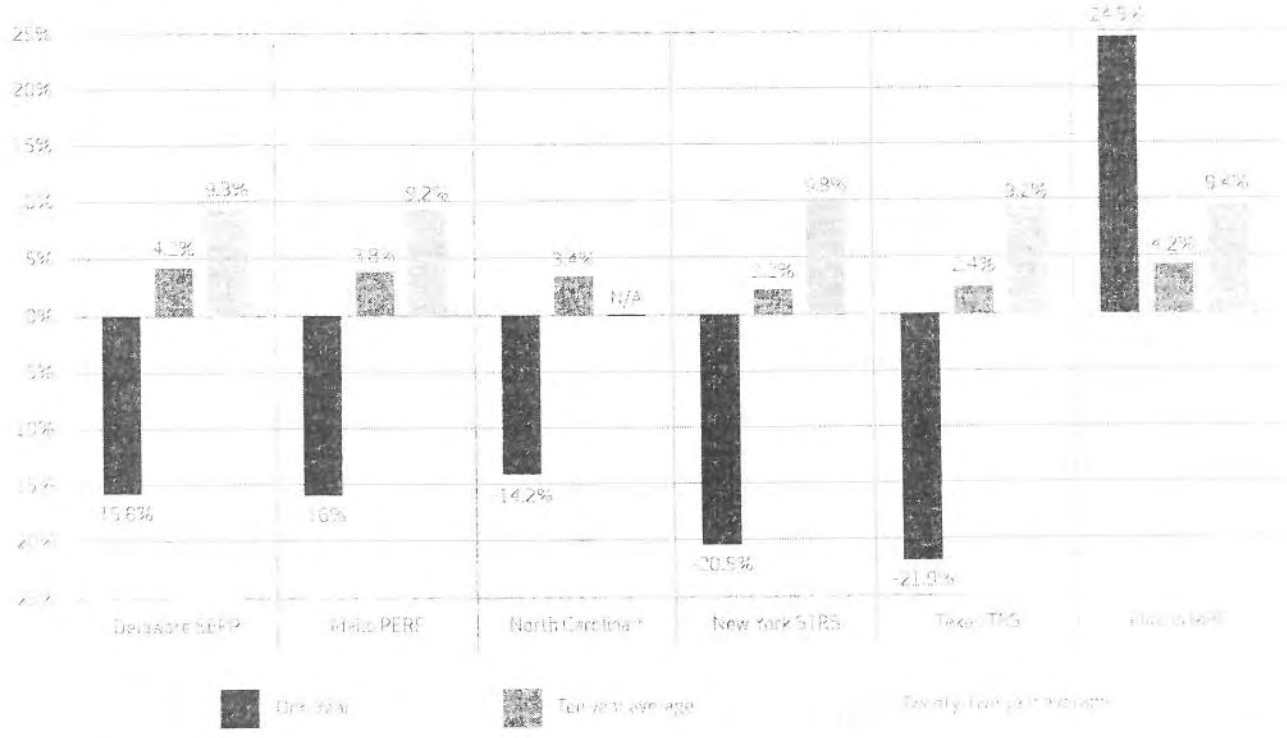
Less focus has been given to the inflation rate and real rate of return assumptions. However, these assumptions can be quite significant, as two systems with the same discount rate can have very different real rate of return assumptions. A Wisconsin survey of 87 large pension funds in 2008 found that the real return assumption varied from 3.25% to 5%.[35] Yet among plans with an assumed return of 8%, the real rate of return assumption can still vary from 3.5% to 5%.

Lessons

Of the six plans in this study group, only New York STRS and Texas TRS use a discount rate of 8% and an inflation rate of 3%. The other four use either a lower discount rate, inflation rate, or both, resulting in a real return expectation close to or well below 4%.

When it comes to economic assumptions, we should not only look at the overall discount rate, but also look at the inflation rate and the real rate of return, which is the difference between these two. The experience of these six systems shows that it is important for these assumptions to be appropriate and achievable over the long term.

Figure 2. One Year, Ten-Year Average, and Twenty-Five Year Average Returns for Six Plans (Fiscal Year Ending June 30*)



Illinois SERS's return numbers are quite different from those of the other five systems, primarily because its fiscal year ends on the last day of the calendar year rather than June 30, making it difficult to compare to other funds.

Twenty-five year average data for North Carolina is not available as the system only publishes its 10-year returns. Also, North Carolina has changed its asset allocation substantially over this period, making the return less comparable to the other systems.

CONCLUSIONS

This research attempts to uncover common sense funding practices to ensure the long-term affordability and sustainability of public sector pension plans. State and local pension plans remain critically important to ensuring the financial security of millions of middle class Americans in retirement after a lifetime of work. For governmental employers, traditional pensions remain an attractive recruitment and retention tool, and the pooled nature of DB plans makes them a cost-effective way to provide retirement benefits. In addition, a large public pension fund can achieve strong investment performance over a very long period of time at a much lower overall cost as compared to a DC account.

Thus, a well-funded and well-managed pension plan continues to make sense for governmental employers. The research shows that no two systems are alike, and all six study systems have adopted different funding policies, benefit designs, and economic assumptions. Despite the differences, this analysis identifies similar practices in these policies that, taken together, increase the likelihood of maintaining a well-funded pension plan at an affordable cost.

This research finds that—despite the unpredictability of financial markets—the following features helped the six study plans remain affordable and sustainable over the long term:

- Employer pension contributions that pay the full amount of the annual required contribution (ARC), and that maintain stability in the contribution rate over time, that is, at least equal the normal cost;
- Employees contributions to help share in the cost of the plan;
- Benefit improvements such as multiplier increases that are actuarially valued before adoption, and properly funded upon adoption;
- Cost of living adjustments (COLAs) that are granted responsibly;
- Anti-spiking measures that ensure actuarial integrity and transparency; and
- Economic assumptions that can reasonably be expected to be achieved over the long term.

DB pension plans have a track record of simultaneously meeting the goals of employers, employees, and taxpayers. While the Great Recession has presented some funding challenges to public pensions, when the economy recovers, government entities will have to compete for talent with private sector employers—who may be able to offer higher salaries, stock options, or profit sharing programs. Providing an adequate and affordable pension benefit is one way to help attract a quality workforce. This paper shows that even in the wake of the Great Recession, public pension plans can utilize common sense practices to ensure their long-term affordability and sustainability.

TECHNICAL APPENDIX

Pension Plan Section[36]

The selection of public pension plans for this study is based on the following six criteria.

1. **Funded ratio above 80% based on the actuarial value of assets as of the end of fiscal year (FY) 2009.** While a 100% funded ratio at any given time is certainly ideal for a pension plan, it is not absolutely necessary for a pension plan to have 100% funded ratio in order to be considered well-funded. As a matter of fact, a conventional standard of 80% is typically used as a threshold for an adequate funded ratio.[37] In this research, we also use 80% funded ratio as the criterion in determining whether a pension plan is well-funded. For most state plans, FY 2009 ended on June 30, 2009, only a few months after the stock market low, reached in March of that year.

2. **Funded ratio above 70% based on the market value of assets.** We also require that the funded ratio based on market value should be 70% (or very close to it) at the end of FY 2009. This is to avoid the situation in which there is a substantial gap between the actuarial value and market value of assets.

3. **The funded ratio decline from 2000 is steady and moderate.** All pension plans saw a drop in their funded ratio in the ten years after 2000, due to the minimal return in financial markets. Thus, a well-managed plan should have a moderate (defined by less than 25%) and steady drop in its funded ratio over this ten-year period.

4. **Only one plan is selected from any state.** As a state can have many different pension plans, in order to have a more diversified pool of plans for this study, only one plan is selected from each state.

5. **Entry age normal (EAN) should be used to determine the actuarial value of liabilities.** Because EAN is by far the most common actuarial cost method used by public pension plans, this criterion makes for consistent comparisons. Also, of all actuarial cost methods approved by GASB, EAN seems to be preferred, since GASB requires that systems using the aggregate cost method also calculate a funding ratio based on the EAN.[38] EAN also provides a more even distribution of pension costs over the life of employees, and thus can be a more prudent approach to pension funding.

6. **Financial information for FY 2009 was available at the time of study.** This also makes for consistent comparisons.

Chosen Pension Systems

1. State Employees' Pension Plan (SEPP) of Delaware provides pension benefits to the employees of Delaware state government. As of 2009, it has 58,000 members and net assets of $5.8 billion. It is managed by the Delaware Public Employees' Retirement System, which was established in 1970 after incorporating several pension plans. The System is governed by a board of seven members, and manages a total of nine pension plans with 68,000 members, as of 2009.

2. Public Employee Retirement Fund Base Plan of Idaho (PERSI Base Plan) provides pension benefits to state and

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local government employees of Idaho, including teachers. It covers 724 public employers in Idaho with 123,000 members, and held a net asset value of $8.7 billion in 2009. It is managed by the Public Employee Retirement System of Idaho, which was established in 1963 and is governed by a five-member board. In addition to the Base Plan, the System also manages the Firefighters' Retirement Fund.

3. Illinois Municipal Retirement Fund (IMRF) is the administrator of an agent multiple-employer public employee retirement system. It was established in 1939 to provide benefits to employees of local units of government in Illinois, and is governed by an eight member board. IMRF now serves 2,950 different local employers with 275,000 members, and held net assets of $22 billion in 2009.

4. New York State Teachers' Retirement System (NYSTRS) was established in 1921 and provides pension benefits to most New York State public school teachers and administrators. The System is governed by a ten member board of trustees, which sets policy and oversees operations. NYSTRS serves 825 employers, including public school districts, BOCES, institutions of higher education, and charter schools that choose to participate in this System. NYSTRS has more than 419,000 active and retired members as of 2009, and its net asset value stood at $72.4 billion in 2009.

5. Established in 1941, the Teachers' and State Employees' Retirement System of North Carolina provides retirement benefits to teachers and state employees. It covers 578,000 members and held a net asset value of $50 billion at the end of 2009. It is managed by the Retirement System Division of the Department of State Treasurer, who serves as the System's sole trustee.

6. Teachers Retirement System of Texas provides retirement benefits to employees of the public state-supported educational institutions of Texas, including school districts and institutions of higher education. It is governed by a nine member board. It covers nearly 1.3 members, and held net assets of $88.7 billion in 2009.

Details on Employer Contribution Policies

Delaware SEPP

Delaware SEPP has adopted a fairly straightforward policy for paying the actuarially determined contribution rate. Prior to 2007, any increase in the UAAL due to benefit increases after 2000 was amortized over a closed 30-year period, and any cumulative gain or loss was amortized over a rolling 15-year period. As of 2007, the portion of any unfunded liability not paid from a transfer from COLA funds is amortized over a rolling 20-year period. The purpose of this change is to smooth out the contribution rate, as it would slow down the amortization of the remaining pension surplus after 2007. This is more conservative than the traditional 30-year amortization period. Delaware SEPP has paid the full ARC during the entire period, over which the normal cost rate was stable at 6.85%. Since the pension plan was overfunded most of this time, the actual contribution rate was lower than the normal cost rate, as the amortization of the pension surplus offset part of the normal cost. By 2002, when the contribution rate reached a low of 1.35%, Delaware SEPP decided to put a floor of 2% underneath the contribution rate, and if the required rate is lower than 2%, the difference will go towards payment for health care benefits for retirees.[40]

Idaho PERF

Beginning in 1994, Idaho PERF's asset valuation has been based on the market value of assets rather than the AVA.[41] As the market value introduces more volatility into the funding ratio and thus employer contribution rate,

Table A1. Funding of Delaware SEPP (millions of dollars)

Date	AVA	AAL	UAAL	AVA Funded Ratio	MVA	MVA Funded Ratio	ARC Rate	COLA Rate	Total Rate	ARC Paid
6/30/2000	4,409	3,769	(639)	117.0%	5,428	144.0%	3.85%	3.00%	6.85%	100%
6/30/2001	4,759	4,232	(526)	112.4%	5,057	119.5%	1.67%	3.19%	4.86%	100%
6/30/2002	4,956	4,521	(434)	109.6%	4,635	102.5%	1.35%	2.40%	3.75%	100%
6/30/2003	5,125	4,794	(330)	106.9%	4,649	97.0%	2.99%	1.93%	4.92%	100%
6/30/2004	5,387	5,229	(157)	103.0%	5,248	100.4%	4.20%	2.05%	6.25%	100%
6/30/2005	5,660	5,572	(87)	101.6%	5,608	100.6%	4.90%	2.40%	7.30%	100%
6/30/2006	5,998	5,901	(97)	101.7%	6,133	103.9%	6.10%	2.62%	8.72%	100%
6/30/2007	6,437	6,208	(229)	103.7%	6,920	111.5%	5.90%	2.62%	8.52%	100%
6/30/2008	6,751	6,549	(202)	103.1%	6,643	101.4%	6.10%	2.52%	8.62%	100%
6/30/2009	6,744	6,827	82	98.8%	5,392	79.0%	5.50%	2.20%	7.70%	100%

AVA: actuarial value of assets
AAL: accrued actuarial liability
UAAL: unfunded accrued actuarial liability
MVA: market value of assets
ARC rate: annual required contribution rate; contribution as a percentage of total payroll
COLA rate: the payment for COLA as a percentage of payroll
Paid: the percentage of ARC paid by the employer

strong legislation and a conservative funding policy are needed to help to mitigate that volatility. Idaho Code 59-1322 provides that the board cannot establish a contribution rate below the normal cost, as calculated by the actuary, plus the minimum amortization payment required to fund the Unfunded Actuarial Liability (UAL) within 25 years. Since only unfunded liabilities can be amortized, but not funding surpluses, the employer contribution rate can never fall below the normal cost. This legal protection eliminates the amortization of funding surplus when the plan is overfunded as a source of volatility in the employer contribution rate.

In addition to the statute, the pension system's board has also designed a thoughtful funding policy in order to maintain stability in pension contributions. This is done by maintaining a contribution rate above the normal cost rate. The reasoning is as follows:

> Under common future capital market assumptions, it is expected (statistical projection) that once every six years the PERSI fund could experience losses of one standard deviation or greater. If contribution rates are to be stable, then some excess contribution above the normal cost rate must be

> maintained within the total contribution rate level if it is reasonably likely that adverse market moves would drop the Funded Ratio below 100% in the near future. Therefore, permanent contribution rates should be maintained at a level, within a range of safety, which is reasonably likely to prevent usual and expected market volatility from triggering increases in permanent contribution rates. For purposes of these funding guidelines, the Board considers an adverse market move of within one standard deviation of the expected return of the fund to be "reasonably likely." Therefore, in order to maintain stable rates, the permanent total contribution rate should not be dropped to the normal cost rate unless it is reasonably likely that future adverse market movements or likely changes in actuarial assumptions would not cause the funded ratio to drop below 100%.[42]

The board considers the additional contribution rate required to fund the potential UAL, as well as the assets above the 100% funded ratio, to be maintained to provide the needed range of safety as a "Rate Stabilization Reserve." This reserve is not considered as available for benefit improvements or contribution relief. Idaho PERF's contribution history, as shown in Table A1, shows this funding policy at work. When examining the actual contribution rate versus the ARC, it is clear that the actual contribution is always higher than the ARC, the difference being the Rate Stabilization Reserve. The actual contribution rate also remained stable over the study period, with only one change in 2004. In FY 2002, when the amortization period was 39.3 years as a result of investment losses, the board approved three 1% contribution rate increases to take effect on July 1, 2004, 2005, and 2006, which would bring the amortization period to 19.4 years.[43] As the employee contribution rate is 60% of the employer rate, for each 1% increase in the contribution rate, the actual employer contribution rate would increase by only 0.63%. While the first 1% rate increase was implemented, the next two increases were postponed and then permanently eliminated in 2007, due to the improving investment performance and funding ratio.

As of July 1, 2009, there was an unfunded actuarial liability of over $3 billion, resulting in an amortization period greater than 25 years based on the then contribution rate. In December 2009, the board proposed a rate increase to be phased in over a three-year period, a 1.5% increase on July 1, 2011, followed by a 1.5% increase on July 1, 2012, and a 2.31% increase on July 1, 2013. The scheduled contribution rates should be sufficient to amortize the UAAL in 17.5 years. At its December 2010 meeting, the board announced its decision to postpone the rate increase scheduled for July 1, 2011 for one year, due to the investment gain and improved funded ratio of 2010.

Another factor in Idaho PERF's solid contribution management is that the state statute gives the board the authority to collect contributions from local governments. In case of delinquency, the board may certify to the state controller the fact of such failure or refusal and the amount of the delinquent contribution, and the state controller may deduct the amount, together with interest charges, from any funds payable then or in the future to the delinquent employer, and pay the amount to the retirement fund.

Because of this provision, all required contributions have been paid in full every year without exception.

Illinois MRF

Illinois MRF follows a funding policy that requires local employers to pay the actuarially determined contribution rate. Beginning in 2010, IMRF offered employers the option to pay less than the ARC rate to soften the impact of the 2008 investment losses; rates are limited to a 10% increase until the ARC is achieved. As Illinois MRF experienced no benefit changes during the study period, its normal cost remained fairly stable at around 7.5%. The change in the total contribution rate is therefore mostly due to changes in the amortization cost rate.

Table A2. **Funding of Idaho PERF (millions of dollars)**

Date	MVA	AAL	UAAL	MVA Funded Ratio*	ARC Rate	Actual Rate	ARC Paid
7/1/2000	7,032	6,105	(998)	115.5%	8.37%	9.80%	117.5%
7/1/2001	6,492	6,751	186	97.2%	7.48%	9.80%	130.0%
7/1/2002	6,062	7,209	1,075	84.9%	7.34%	9.80%	132.5%
7/1/2003	6,297	7,578	1,214	83.8%	8.91%	9.80%	110.0%
7/1/2004	7,420	8,154	671	91.7%	10.09%	9.80%	97.0%
7/1/2005	8,208	8,778	508	94.2%	10.45%	10.43%	100.0%
7/1/2006	9,177	9,699	461	95.2%	9.89%	10.43%	105.0%
7/1/2007	10,945	10,431	(573)	105.5%	9.45%	10.44%	110.9%
7/1/2008	10,402	11,211	748	93.3%	9.59%	10.44%	109.0%
7/1/2009	8,646	11,732	3,026	74.1%	8.48%	10.44%	123.0%

Actual rate: the actual contribution rate paid by the employer

**Idaho PERF uses only the market value of assets (MVA) in arriving at the funded ratio, and not the actuarial value of assets (AVA).*

Illinois MRF's funding policy with regard to amortization period went through several changes. Initially, IMRF's policy was to amortize the unfunded liability over a 40-year rolling period. In 1990, the board changed the 40-year rolling period to a 40-year closed period, until the remaining period is 10 years, after which time the remaining period will be a rolling 10 years. By 2007, the amortization period was 23 years (the original 40 years minus the 17 years between 1990 and 2007). In 2008, due to the substantial investment loss and the increase in unfunded liability, the Board changed its funding policy with regard to amortization: if an employer's plan is less than 120% funded on a market basis, the amortization period is a 30-year rolling period. If the employer's plan is over 120% funded on a market basis, the employer has an option to amortize any overfunding over 120% over a 5-year period, and employers with 50 or more employees have the option to adopt a minimum contribution rate until the overfunding is reduced to 120%. The IMRF board also offered employers an optional phase-in plan, which limited the increase in contribution rates from 2009 to 2010 to 10%. This option was available for future years until such time as the phase-in rate equals the ARC.

Illinois MRF's asset valuation method is somewhat unique. While it uses a five-year smoothing technique, similar to many other plans, it adds a twist: in any year in which the actuarial value minus the market value of assets switches from a positive value to a negative value, or vice-versa, any prior gain/loss bases are wiped out, and the smoothing mechanism restarts. The purpose of this change is to keep the contribution rate more predictable and also to better reflect the underlying funding ratio. Table A3 shows that the difference between AVA and MVA is much smaller for Illinois MRF than for other plans, and also that its contribution rate has remained fairly stable since 2004.

Another important factor that contributes to Illinois MRF's strong contribution management is that the state statute governing employer contributions gives the board of trustees broad authority, similar to the one given to the Idaho PERF board. The statute empowers the board to sue in civil courts to collect delinquent payments from local employers. The statute also allows the board to certify to the state comptroller the amounts of such delinquent payments, and the comptroller may then deduct the amounts so certified from any grants of state funds to the municipality and pay the amount deducted to the pension fund. It may certify the fact of such delinquent payment to the county treasurer where the municipality is located, who will then remit the amount collected from the tax levied by the municipality directly to the fund. Due to this strong legislation, all required contributions were paid in full every year in the study period without exception. This stands in stark contrast to the five Illinois state pension systems, whose required contributions are chronically underfunded by the state government, and is the main reason that IMRF is much better funded than the other Illinois state pension systems.

New York STRS

New York STRS also follows a funding policy of paying the actuarially determined contribution rate. What is unique about New York STRS is that it uses the aggregate cost actuarial valuation method rather than the individual entry-age normal method. Under this method, no unfunded pension liability is calculated. Each year a normal rate percentage is developed as a level percentage of total member compensation. Actuarial gains and losses that result from the difference between actual experience and the actuarial assumptions are automatically amortized as part of the normal cost, over the expected future working lifetime of active members. This turns out to be a more conservative approach than the traditional valuation method. For New York STRS, the average working lifetime

Table A3. **Funding of Illinois MRF (millions of dollars)**

Date	AVA	AAL	UAAL	AVA Funded Ratio	MVA	MVA Funded Ratio	ARC Rate	ARC Paid
12/31/2000	15,169	14,153	(1,016)	107.2%	16,064	113.5%	8.16%	100%
12/31/2001	16,305	15,318	(986)	106.4%	14,966	97.7%	6.64%	100%
12/31/2002	16,800	16,559	(240)	101.5%	13,501	81.5%	5.87%	100%
12/31/2003	17,529	17,966	436	97.6%	16,356	91.0%	6.32%	100%
12/31/2004	18,315	19,424	1,108	94.3%	18,299	94.2%	7.82%	100%
12/31/2005	19,690	20,806	1,116	94.6%	19,873	95.5%	9.25%	100%
12/31/2006	21,427	22,468	1,041	95.4%	22,507	100.1%	10.04%	100%
12/31/2007	23,278	24,221	947	96.1%	24,223	100.0%	9.72%	100%
12/31/2008	25,601	26,611	1,010	84.3%	18,022	70.4%	9.47%	100%
12/31/2009	22,754	27,345	4,590	83.2%	22,303	81.6%	9.27%	100%

Table A4. **Funding of New York STRS (millions of dollars)**

Date	AVA	AAL	UAAL	AVA Funded Ratio	MVA	MVA Funded Ratio	ARC Rate	ARC Paid
6/30/2000	83,421	67,201	(16,220)	124.1%	89,347	132.8%	1.43%	100%
6/30/2001	87,295	69,817	(17,478)	125.0%	81,664	117.0%	0.43%	100%
6/30/2002	71,374	71,693	319	99.6%	73,041	101.9%	0.36%	100%
6/30/2003	71,780	72,209	429	99.4%	72,391	100.3%	0.36%	100%
6/30/2004	72,044	72,604	560	99.2%	80,276	110.6%	2.52%	100%
6/30/2005	74,074	74,961	887	98.8%	84,908	113.3%	5.63%	100%
6/30/2006	78,335	76,353	(1,983)	102.6%	91,492	119.8%	7.37%	100%
6/30/2007	82,858	79,537	(3,322)	104.2%	104,912	131.9%	8.60%	100%
6/30/2008	88,254	82,777	(5,477)	106.6%	95,769	115.7%	8.73%	100%
6/30/2009	88,805	86,062	(2,744)	103.2%	72,471	84.2%	7.63%	100%

Note: Prior to 2006, the AVA funded ratio was based on aggregate cost method, which is not comparable to an AVA funded ratio based on entry age normal cost method, and they are listed here for information only. GASB Statement 50 requires that a pension plan which uses the aggregate cost method also needs to calculate the funded ratio based on the entry age normal method for system comparison. The funded ratio after 2005 is calculated using the entry age normal cost method and thus is comparable to the funded ratios of other plans in this study.

comes out to about 14 years, meaning that when the plan is underfunded, the unfunded liability is amortized over 14 years, rather than over the traditional 30 years.

As can be seen from Table A4, over this period the actuarially determined normal cost exhibits volatility, especially in the early 2000s, when the System was overfunded by a big margin and the contribution rate dropped nearly to zero. Since then, the System implemented two strategies to lessen future contribution rate volatility. First, in FY 2002, a separate reserve, a "Provision for Adverse Market Deviation," was created in order to decrease the volatility of the employer contribution rate as a result of capital market fluctuations. Second, in 2007, the pension system made changes to its valuation in terms of smoothing. Instead of recognizing 20% of the difference between the actual return and the expected return of 8% each year, it now recognizes 20% of the difference between the actual return and 3%. This is a more conservative approach. Under this rule, when the actual return is above 8%, more of the positive return will be pushed into the future, thus providing a future cushion and lessening the decrease in the contribution rate when investment gains are high. On the flip side, when the actual return is below 8%, then more of the losses will be recognized immediately in the current year.[41] As a result of this fairly conservative funding approach, the contribution rate has remained stable since 2005, and the actuarial funded ratio was above 100% in 2009.

North Carolina

In North Carolina, statute requires a full ARC payment, although it is subject to legislative appropriation. Since the mid-1970s, North Carolina has taken a very conservative approach to its funding policy, mostly in terms of the amortization period, which is set by Board, but can be overridden by the state legislature.

In 1974, the amortization period was set at 27 years and the funded ratio was 68%. Since then, the legislature gradually shortened the amortization period, to nine years by 1992, when the funded ratio was 97%. The nine-year amortization period has remained intact since then. The effects of shortening the amortization period while the funded ratio was improving are twofold. First, it led to a much faster and earlier payoff of the unfunded liability, and thus a healthier pension system. Second, it led to a more stable contribution rate. When the funded ratio was improving in the 1980s and early 1990s due to above average investment returns, the unfunded liability was shrinking. This would lead to a lower amortization cost and thus a lower overall contribution rate, assuming the normal cost remains the same. However, by shortening the amortization period and thus increasing the amount to be amortized, the amortization cost rate would remain more or less unchanged. As a result of this conservative management practice, from 1974 to 1998, a year before it reached full funded status, the employer contribution rate varied within a fairly narrow range, from about 8% to 10%, even though the funded status improved substantially. The contribution rate moved towards 8% in the late 1990s only because the unfunded liability was almost paid off, and the amortization cost rate was gradually reduced to zero.

Table A5. **Funding of North Carolina (millions of dollars)**

Date	AVA	AAL	UAAL	AVA Funded Ratio	MVA	MVA Funded Ratio	ARC Rate	ARC Paid
12/31/2000	39,774	35,249	(4,525)	112.8%	45,942	130.3%	8.15%	100%
12/31/2001	42,104	37,714	(4,390)	111.6%	44,082	116.9%	5.35%	76%
12/31/2002	43,227	39,864	(3,363)	108.4%	40,584	101.8%	1.97%	100%
12/31/2003	45,118	41,734	(3,384)	108.1%	46,350	111.1%	6.00%	–
12/31/2004	47,344	43,800	(3,556)	108.1%	49,711	113.4%	6.22%	58%
12/31/2005	49,670	46,625	(3,046)	106.5%	51,558	110.6%	2.17%	100%
12/31/2006	52,421	49,392	(3,029)	106.1%	55,739	112.8%	2.34%	100%
12/31/2007	55,283	52,815	(2,468)	104.7%	58,619	111.0%	2.66%	100%
12/31/2008	55,128	55,519	391	99.3%	45,629	82.2%	3.05%	100%
12/31/2009	55,818	58,178	2,360	95.9%	50,382	86.6%	3.36%	100%

Table A6. Funding of Texas TRS (millions of dollars)

Date	AVA	AAL	UAAL	AVA Funded Ratio	MVA	MVA Funded Ratio	ARC Rate	Actual Rate	ARC Paid
8/31/2000	79,328	73,882	(5,446)	107.4%	89,987	121.8%	4.92%	6.00%	122%
8/31/2001	86,352	84,217	(2,135)	102.5%	79,427	94.3%	4.12%	6.00%	146%
8/31/2002	86,035	89,322	3,287	96.3%	71,695	80.3%	5.70%	6.00%	105%
8/31/2003	89,033	94,263	5,230	94.5%	77,550	82.3%	7.15%	6.00%	84%
8/31/2004	88,784	96,737	7,953	91.8%	84,202	87.0%	7.39%	6.00%	81%
8/31/2005	89,299	102,495	13,196	87.1%	93,707	91.4%	7.31%	6.00%	82%
8/31/2006	94,218	107,911	13,694	87.3%	100,238	92.9%	7.19%	6.00%	83%
8/31/2007	103,419	115,964	12,545	89.2%	112,128	96.7%	7.02%	6.00%	85%
8/31/2008	110,233	121,756	11,523	90.5%	104,910	86.2%	6.47%	6.58%	102%
8/31/2009	106,384	128,030	21,646	83.1%	88,652	69.2%	6.10%	6.58%	108%

This short amortization period also led to a faster amortization of the funding surplus when the plan was overfunded. As a result, by 2003 the employer contribution rate was reduced to zero, and stayed low until 2007.[45] After the 2008 market downturn, when the System's funded ratio finally fell below 100%, the employer contribution rate increased steadily. The ARC rate will increase to 6.71% in 2011 and 7.94% in 2012. For the first time, the legislature did not appropriate the entire contribution amount in 2011.[46] It should be noted that this rate is based on an amortization period of nine years, and would have been lower had it been 30 years, as is more common among pension systems. It should also be noted that even after such an increase, the 2012 rate is still below the rate the state paid just before it reached full funding. Had the employer contribution rate not been reduced, or reduced by a smaller amount during the time of the funding surplus, it would have made it easier for the legislature to pay the current contribution rate. Overall, the conservative management practice since the 1980s has rendered North Carolina one of the best funded pension systems in the country, and its employer contribution rate remains at a modest level throughout this period and beyond.

Texas TRS

Texas TRS has a unique funding policy in that the employer and employee contribution rates are written into the state constitution. The constitution requires the legislature to establish a member contribution rate of not less than 6% of the member's annual compensation, and a state contribution rate of not less than 6% and not more than 10% of the aggregate annual compensation of all members of the System during that fiscal year. The member contribution rate is set by state statute at 6.4%. In 2007, the legislature passed a law saying that the employer contribution should be at least equal to the employee contribution of 6.4%.

This state constitutional requirement of no less than 6% has kept the state contribution stable throughout the study period, as can be seen in Table A6. The impact of this was particularly evident in the late 1990s and early 2000s when the plan was overfunded. Instead of amortizing the surplus, which would have resulted in a lower contribution rate, the state "over-contributed" the full 6% through 2002. This allowed it to under-contribute to some extent in 2003 and 2004. In 2005, while the employer contribution was not increased to the ARC, the state decreased pension benefits for new employees in order to reduce future pension liabilities and ARCs. In 2007, the state increased the employer contribution rate to 6.58%, which led again to a slight overfunding in 2007 and 2008. Due to the strong constitutional protection, the employer contribution has remained remarkably stable during this entire period, between 6% and 6.58%. The relatively higher employee contribution also keeps the employer contribution in check. As the employee contribution has been slightly higher or equal to the employer contribution over this entire period, the pension benefit cost is basically shared equally between the state and employees.

Details on COLAs

Delaware SEPP: The COLA is ad hoc. Over the study period, a COLA was not granted in 2002, 2007, 2008, or 2009 due to investment losses, even though the plan's funded ratio was over 100% in some of these years.

In terms of funding its COLA, as Delaware's COLA is discretionary, any COLA granted is unfunded and thus creates an immediate unfunded liability. In the early 1990s, when Delaware SEPP started granting COLAs, it created a Post-Retirement Reserve Fund (PRF) with seed money, and it requires that each discretionary COLA be paid off in five years. Every year, funds equal to the five-year amortization cost of the COLA granted are deposited into the PRF, and the required amount is then transferred to the pension fund. This short amortization period ensures that any COLA will not add to the future unfunded liability and also makes the cost of the COLA more visible to the employer. Due to the drop in its funded ratio, a COLA has not been granted since 2006, which also slowed down the growth in pension liability in 2008 and 2009. The total contribution rate, including that for the COLA, remained relatively stable and fairly modest over this period, as can be seen in Table A1. This serves in Delaware SEPP's favor, because when the amortization rate for unfunded liabilities increases, it is offset by a decrease in the amortization cost for the COLA, as no COLA has been granted since 2006. This leaves the combined contribution rate little changed. Even though Delaware SEPP's contribution rate will increase from 6.1% in 2006 to 8.37% in 2012, its COLA contribution rate decreased to 0.81% of payroll in 2011 from 2.62% in 2006, and it will drop to zero in 2012, as all the COLAs granted prior to 2007 will have been paid off.

Idaho PERF: The COLA is ad hoc with a 1% guarantee if inflation is 1% or higher. The Idaho PERF statute stipulates the board may authorize additional discretionary adjustments based on the CPI increase (up to a total maximum annual COLA of 6% or the CPI rate, whichever is lower) if it determines that the system can do so and still maintain an appropriately funded position as required by statute. The board's policy is to maintain the purchasing power of retiree benefits by granting annual discretionary COLAs and/or through the award of retroactive COLAs, with the goal of keeping the COLA at the historical CPI rate over time. The history of COLAs granted reflects this policy and statute. Over this period, Idaho PERF granted the full amount of CPI every year except 2003 and 2009. In FY 2003, the COLA authorized and implemented was 1.0%; a discretionary COLA of 0.8% was not awarded due to the funding situation of the plan. This 0.8% COLA was retroactively granted in 2005. In 2009, a 1.0% COLA was granted, but a discretionary 4.4% was not. Part of that discretionary COLA—2.48%—was granted in 2010, when the funding situation of the pension plan improved.

Illinois MRF: The Illinois MRF COLA is a simple 3% a year. In 1993, a 13th payment was implemented, which is funded by an employer payroll contribution of 0.62%. Once a retiree receives benefits for twelve months, s/he is eligible for a 13th payment in July. The amount of the payment is the ratio of the June benefit payment to all annuities paid that month. Because retirement payments are currently increasing faster than employer payrolls, the value of the benefit has decreased from 90% of the June payment in 1993 to 52% in 2010.[47] For employees hired in 2010 and later, the COLA rate of 3% has been reduced to 3% or half of CPI, whichever is lower.

New York STRS: Although New York STRS provides an automatic COLA indexed to CPI, it is set at 50% of CPI, and only applies to the first $18,000 of the pension benefit. As the average retirement benefit for all retirees as of 2010 was about $37,000, a COLA at half of CPI applies to less than half of the retirement benefit on average. For those who retire with 35 years of service, it applies to less than a third of their benefit.

North Carolina: The COLA is ad hoc. A COLA was not granted in 2009, because the plan's funded ratio fell below 100%.

North Carolina's previously described shortened amortization period also affects the COLA. Since the COLA is discretionary, any COLA granted creates an immediate unfunded liability. In North Carolina, this unfunded liability must be amortized over a nine-year period. Similar to the Delaware SEPP practice, this has the effect of recognizing the cost of the COLA more immediately. Another major consideration when granting a COLA is how large of a COLA can be given while keeping the employer contribution stable. In some years, particularly in the early 2000s, the legislature approved a slight increase in the employer contribution in order to grant a COLA, because otherwise the pension benefits would have fallen significantly below inflation.

Texas TRS: The COLA is ad hoc. The current statutes provide that the legislature cannot grant any benefit increases, including COLAs, if the current amortization period is above 31 years, or if the increases would cause the unfunded liability to go beyond 31 years. Over the study period, the state legislature only once granted a COLA—of 6% in 2001—because its funded ratio fell below 100% after 2001, and its amortization period has exceeded 31 years in most of the years since then.[48]

Details on Anti-Spiking Policies

Delaware SEPP: The FAS is the average of salaries over the final three years. In addition, in May 2011 the governor signed into law a bill eliminating overtime from pension creditable compensation for all employees hired on or after January 1, 2012.

Idaho PERF: The FAS is the average of salaries over each employee's highest-earning consecutive 42 months. In addition, the state has two rules. First, for employees hired after July 1, 1996, any salary in excess of the compensation limitations set forth in section 401(a)(17) of the Internal Revenue Code is disregarded. For 2011, the limit is $245,000, which is indexed for inflation. Second, lump sum payments inconsistent with usual compensation patterns made upon termination from service—including, but not limited to: vacation payoffs, sick leave payoffs, early retirement incentive payments, and bonuses—are excluded from FAS.

Illinois MRF: The FAS is the average of salaries over the highest consecutive four years (48 months) in the last ten years of participation for those hired before 2011. For these members, Illinois MRF also has a provision, known as

the 125% Rule, which limits the amount of compensation recognized for pension calculation purposes. It provides that if the salary paid within the last three months exceeds the highest monthly salary in the previous 45 months, then only 125% of that high salary can be used in calculating the retirement benefit.[9] For those hired after 2010, the FAS is the average of the highest total earnings during any consecutive eight years (96 months) within the last 10 years of service. The FAS will also be capped at $106,800 in 2011, which will increase annually by the lesser of 3% or one-half of the increase of the CPI.

New York STRS: The FAS is the average of highest three consecutive years of salary. Many forms of compensation are excluded from the FAS, such as bonuses, payments of unused leave, and payments made outside contract terms and on the eve of retirement. Also excluded from FAS are yearly increases in regular salary exceeding 10% of the average of the previous two years' salaries, for members who joined after July 26, 1976—a group which now represents the vast majority of New York STRS' current active membership. Although New York STRS still has some long-time active members who are subject to the prior rules, the issue of salary spikes was addressed by several legislative changes over the years. Members who joined before June 17, 1971 may also use a five-year FAS which may contain termination pay and other one-time payments, subject to certain restrictions. Members who joined before July 1, 1973 can also have a three-year FAS in which the salary limitation is 20% over the prior year's salary. Members who joined on or after July 1, 1973 and before July 27, 1976 can have a three-year FAS, in which the salary limitation is 20% over the average of the prior two years' salaries. The Internal Revenue Code income limit for calculating pension benefits also applies in New York, as well as to all qualified governmental retirement plans.

North Carolina: The FAS is the average of salaries over a four-year period. Also, the System reviews any benefit calculations that involve a large average pay to verify that the reported compensation meets the definition in the state statute. For example, if a school superintendent is retiring with a $250,000 FAS, a breakdown of salary components would be requested. If it is found that some of the salary are not considered "compensation" under state statute (for example, a car allowance or contract buyout), then it would be excluded from the pension calculation.

Texas TRS: For employees hired after 2005, the FAS is the average of salaries over a five-year period. For those hired before 2005, the FAS is the average of salaries over a three-year period. Texas TRS also has a rule that the salary cannot increase by more than $10,000 or 10% a year for the final three or five years of service. The Internal Revenue Code income limit also applies.

Details on Plans' Economic Assumptions

Delaware SEPP reduced its rate of return assumption to 8% from 8.5% in 2004, and the underlying inflation rate assumption was also reduced from 4.25% to 3.75%, resulting in a real rate of return of 4.25%. The salary increase attributable to merit and productivity ranges from 0.5 to 6.14%. The actual average salary increase for the five-year period ending 2010 was less than 2%, which served to reduce the actuarial liability.

Idaho PERF reduced its rate of return assumption from 8% (gross of fees) to 7.75% (7.25% net of fees) in 2004, and the inflation rate was reduced to 4.5% from 5%, resulting in a real return assumption of 3.25%. By 2010, the inflation rate was reduced to 4%, mostly due to the much-reduced expectation of future inflation. The average salary growth in the five-year period ending in 2010 was 2.75%. The effect of the high inflation assumption embedded in the rate of return can best be seen in the following example. For FY 2010, due to low inflation, the actual salary gain was much less than predicted. As a result, the pension liability was reduced by $260 million. This has the same effect of earning

an investment return of the same amount. With $8.6 billion in assets in 2009, this is equivalent to an additional investment return of 3%. In 2009, Idaho PERF also realized a reduction in pension liability of about $100 million due to slower salary gain.

For Illinois MRF, the discount rate assumption for the entire period has been 7.5%, and the inflation rate embedded in that assumption is 4%, resulting in a real return of 3.5%. This compares favorably with the actual salary increase of 3% over the five-year period ending in 2009.

For New York STRS, the discount rate assumption for the entire period was 8%, and the inflation rate embedded in that assumption was 3%, resulting in a real return of 5%, about the average for the universe of state-level pension systems.

In North Carolina, the assumed rate of return throughout the study period has been 7.25%, although it was reduced from 7.5% in 1998. The inflation assumption was 3.75% until 2008, and revised down to 3.5% in 2009, resulting in a real return of 3.3% until 2008 and 3.75% afterwards. This also compares favorably with the actual salary increase due to inflation. For the five-year period ending in 2010, the across-the-board increase was 2.75% for state employees.

For Texas TRS, the discount rate assumption for the entire period was 8%, and the inflation rate embedded in that assumption was 3%, resulting in a real return of 5%, about the average for the universe of state-level pension systems.

ENDNOTES

1 The average public pension benefit was about $1,900 per month in 2008. Source: U.S. Census Bureau. 2010. *State and Local Government-Employee Retirement Systems.* Washington, DC: U.S. Census Bureau.

2 Almeida, B., and Boivie, I. 2009. The staying power of pensions in the public sector. *CPER Journal*, No. 195.

3 Bender, K., and Heywood, J. 2010. *Out of Balance? Comparing Public and Private Sector Compensation Over 20 Years.* Washington, DC: Center for State and Local Government Excellence and the National Institute on Retirement Security.

4 Almeida, B., and Fornia, W. 2008. *A Better Bang for the Buck: The Economic Efficiencies of Defined Benefit Plans.* Washington, DC: National Institute on Retirement Security.

5 Brainard, K. 2010. *Public Fund Survey: Summary of Findings for FY 2009.* Washington, DC: National Association of State Retirement Administrators and National Council on Teacher Retirement. See also Pew Center on the States. 2011. *The Widening Gap: The Great Recession's Impact on State Pension and Retiree Health Care Costs.* Washington, DC: Pew Center on the States.

6 U.S. Government Accountability Office. 2008. *State and Local Government Retiree Benefits: Current Funded Status of Pension and Health Benefits.* Washington, DC: U.S. GAO.

7 The membership and assets of systems included in the Public Fund Survey comprise approximately 85 percent of the entire state and local government retirement system community.

8 According to the Census Bureau, there are a little over 200 state-level pension systems whereas there are over 2,000 local pension systems.

9 Unless otherwise noted, all data with regard to these six systems in this study come from their comprehensive annual financial reports (CAFR) and the actuarial valuation reports of these plans over the period between 2000 and 2009. The only exception is North Carolina, which does not publish a separate CAFR for its pension systems. The data for North Carolina are collected from the following sources: North Carolina State Treasurer's Annual Report, North Carolina State's CAFR, the actuarial valuation report, and information supplied to the author by the North Carolina General Assembly's Fiscal Research Division.

10 Illinois Municipal Retirement Fund is distinct from the other five state-level pension systems in Illinois, whose combined funded ratio is the lowest among large state pension plans. These five pension systems are frequently the target of negative media reports.

11 The unit of analysis for this study is pension plan rather than pension system, primarily for the sake of simplicity in analysis. Some states offer several pension plans for different categories of employees. They can be managed by one pension system or by different pension systems. If a pension system only manages one pension plan, then the pension system is synonymous with pension plan. For the purposes of this study, when a pension plan selected is one of several pension plans managed by a pension system and the other plans are equally well-funded, the one selected is the largest.

12 Board of Governors, Federal Reserve System. 2010. Flow of Funds Accounts of the United States. Washington, DC: Board of Governors.

13 Brainard, K. 2010. *Public Fund Survey: Summary of Findings for FY 2009.* Washington, DC: National Association of State Retirement Administrators and National Council on Teacher Retirement.

14 The actuarial value of assets is a valuation that is calculated using an asset smoothing technique where investment gains and losses are partially recognized in the year they are incurred, with the remainder recognized in subsequent years. This method helps to minimize volatility in the employer contribution.

15 The unfunded accrued actuarial liability refers to the portion of the accrued actuarial liability which exceeds the actuarial value of assets. The accrued actuarial liability is the estimated current value of total benefits that will be paid to all beneficiaries, including current employees, vested inactive employees, and current benefit recipients.

16 GASB's requirement is for reporting purposes only.

17 An open amortization period means that every year the amortization is reset for a fixed period of years, whereas a closed amortization means that with each passing year, the amortization period is reduced by one year.

18 In order to make up for their lack of Social Security coverage, public employees who do not receive Social Security benefits tend to receive higher pension benefits.

19 Pension benefit design includes many factors, such as the benefit multiplier, early and normal retirement ages, cost of living adjustments (COLAs), final average salary (FAS) design, and vesting periods. To study each of these design elements in detail is beyond the scope of this study.

20 Aon Consulting. 2008. *Aon Consulting's 2008 Replacement Ratio Study.* Aon Consulting.

21 It should be noted that as many as 30% of public-sector employees do not participate in Social Security. (See U.S. Government Accountability Office. 2007. *State and Local Government Retiree Benefits: Current Status of Benefit Structures, Protections, and Fiscal Outlook for Funding Future Costs.* Washington, DC: GAO.) For these employees, public pension benefits are generally somewhat higher to compensate for the lack of Social Security income.

22 Government Finance Officers Association, Committee on Retirement and Benefits Administration. 2008. *Essential Design Elements of Defined Benefit Retirement Plans.* GFOA Recommended Practice. February.

23 U.S. Government Accountability Office. 2007. *State and Local Government Retiree Benefits: Current Status of Benefit Structures, Protections, and Fiscal Outlook for Funding Future Costs.* Washington, DC: GAO.

24 For example, of the 87 largest public pension plans, 55 use a three-year average to calculate the FAS and an additional 18 plans use a five-year average. One of the main goals of using multiple years in the FAS is to curb spiking. Source: Wisconsin Legislative Council. December 2009. *2008 Comparative Study of Major Public Employee Retirement Systems.* Wisconsin Legislative Council.

25 Board of Governors, Federal Reserve System. 2010. *Flow of Funds Accounts of the United States.* Washington, DC: Board of Governors.

26 Markowitz, H. 1952. Portfolio selection. *Journal of Finance,* 7(1), 77–91.

27 See Dalbar, Inc. 2010. *Quantitative Analysis of Investor Behavior 2010.* Dalbar, Inc.

28 Almeida, B., and Fornia, W. 2008. *A Better Bang for the Buck: The Economic Efficiencies of Defined Benefit Plans.* Washington, DC: National Institute on Retirement Security.

29 Idaho has adopted an investment policy of 100% public securities and real estate with no allocation to other types of alternative investments.

30 Teachers Retirement System of Texas. 2010. *Quarterly Portfolio Performance Review.* December.

31 Public Employees Retirement Systems of Idaho. 2010. *PERSI Investment Report.* December 31.

32 The past ten years was a very unusual period in terms of investment returns. Over longer periods, such as 30 years, a larger deviation in returns between states with higher fixed income allocations and states with lower fixed income allocations may be seen.

33 This assumption also affects the growth rate for total payroll, the base which is used to amortize unfunded liabilities. The other components of the individual salary increase assumption include real wage growth (also known as productivity) and career scale. It should be noted that salary inflation and price inflation are not necessarily the same; however, public pension plans generally use these rates interchangeably.

34 Issues of taxpayer fairness can arise should plans become over-funded as a result of assuming too low a rate of return. Political challenges may also develop, should taxpayers or legislators become confused by the change in assumptions. For further discussion, see Lav, I. 2011. *Proposed Public Employee Pension Reporting Requirements are Unnecessary: Rules Would Create Confusion and Could Roil Markets.* Washington, DC: Center on Budget and Policy Priorities; and Zorn, P. 2011. *Research Memorandum: The Public Employee Pension Transparency Act.* Dallas, TX: Gabriel, Roeder, Smith, and Company.

35 Wisconsin Legislative Council. December 2009. *2008 Comparative Study of Major Public Employee Retirement Systems.* Wisconsin Legislative Council.

36 The Wisconsin Legislative Council's survey of mostly large state pension systems that cover a large number of state employees was used as a basis for selection. Of the pension systems included in the Wisconsin survey, only seven met all six of the selection criteria as described in the Technical Appendix. Other plans that met the full selection criteria but were not included in the study were the New York State and Local Retirement Fund, Texas County and District Retirement System, and Texas Employee Retirement System. These plans were not included simply so as not to have two systems from the same state.

37 Pew Center on the States. 2011. *The Widening Gap: The Great Recession's Impact on State Pension and Retiree Health Care Costs.* Washington, DC: Pew Center on the States.

38 "Entry age normal" is an actuarial cost method designed to fund an employee's total plan benefit over the course of the career. It is designed to produce stable employer contributions in amounts that increase at the same rate as the employer's payroll (i.e., level percent of payroll).

39 New York STRS is an example of a system that uses the aggregate cost method, but also reports the EAN calculations, in compliance with GASB.

40 This policy was never tested as the contribution rate since then moved higher and above 2%.

41 Interviews with Idaho pension officials noted that the reason for this switch is that since the main purpose of asset smoothing is to create stability in the pension contribution rate, this can be achieved with a more conservative funding policy and with other statutory provisions in the Idaho laws. The added benefit of this switch is that the use of market value brings more transparency to the funding situation of the pension system.

42 Excerpt from "PERSI Funding Guidelines" adopted by the Board of Trustees of the Public Employee Retirement System of Idaho on September 28, 1998.

43 By law, Idaho may postpone an increase for up to two periods of one year each during any four consecutive years.

44 A simple example will make this clear. Suppose the investment return is 10%. Under the 8% rule, then 80% of the difference of 2%, or 1.6% of the actuarial gain, is pushed into the future. Under the 5% rule, then 80% of the difference of 7%, or 5.6% of the actuarial gain, is pushed into the future. If the actual return is minus 10%, under the 8% rule, 80% of the difference of 18%, or 14.4% of actuarial loss, is pushed into the future, whereas under the 3% rule, 80% of the difference of 13%, or 10.4% of the actuarial loss, is pushed into the future.

45 There was discussion within the state legislature to increase the amortization period to 20 years so as to slow down the amortization of the funding surplus and thus have a more gradual decrease in the employer contribution, but no such legislation was adopted.

46 Over this period, it failed to pay the full contribution amount just once, in 2001 in the depth of a budget crisis, to the tune of $127 million. This was mostly paid back in the following years over several installments when the budget situation improved.

47 See "Supplemental Benefit Payment (13th Payment)" at http://www.imrf.org/pubs/tax_letters/TL19.pdf.

48 The Texas state legislature convenes every other year, and thus the 6% COLA covered a two-year period.

49 For example, an employee makes a $1,000 a month in months 1-45. In his last three months, he is paid $2,000 per month. When calculating the pension, only $1,250 will be recognized for months 46-48.

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Mission

The National Institute on Retirement Security is a non-profit research and education organization established to contribute to informed policymaking by fostering a deep understanding of the value of retirement security to employees, employers, and the economy as a whole.

Vision

Through our activities, NIRS seeks to encourage the development of public policies that enhance retirement security in America. Our vision is one of a retirement system that simultaneously meets the needs of employers, employees, and the public interest. That is, one where:

- Employers can offer affordable, high quality retirement benefits that help achieve human resources goals;
- Employees can count on a secure source of retirement income to maintain a decent living standard after a lifetime of work;
- The public interest is well served by retirement systems that are managed in ways that promote fiscal responsibility, economic growth, and responsible stewardship of retirement assets.

Approach

High-quality research that informs the public debate on retirement policy. Our research program focuses on the role and value of defined benefit pension plans for employers, employees, and the public at large. We also conduct research on policy approaches and other innovative strategies to expand broad based retirement security.

Education programs that disseminate our research findings broadly. We share our research findings with the public, policy makers, and the media by distributing reports, conducting briefings, and participating in conferences and other public forums.

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STATISTICAL REPORTS

ANALYSIS OF MEMBERS ACTIVELY CONTRIBUTING

	6/30/2008	6/30/2009	6/30/2010	9/30/2010	12/31/2010	3/31/2011	6/30/2011
Group I Members:							
(State & Higher Ed.)	62,987	58,940	58,601	58,167	58,160	57,720	57,592
Teachers	76,926	78,550	78,593	79,283	79,404	79,441	79,583
General Employees of Polisubs	80,079	80,376	81,601	80,789	80,805	81,427	81,751
General Assembly	124	122	126	128	124	127	127
County Officials	3	3	3	2	2	2	2
PSC							
County Judges	1	1	1	1	1	1	1
Attorneys General	634	635	639	630	634	634	635
Total Group I	220,936	218,809	219,564	219,000	219,130	219,352	219,691
Group II & Prior Class:							
Wildlife Officers	10	9	6	6	4	3	3
Highway Patrol	25	11	8	8	7	7	6
Firemen & Policemen-Political Subdivisions	45	36	34	26	25	23	21
Total Group II & Prior Class	80	56	48	40	36	33	30
Group III and Prior Class:							
State Judges	2	2	2	2	2	2	2
County Judges	-	-					
Attorneys General	5	6	5	5	5	5	5
County Officials	12	10	9	5	5	5	5
Total Group III & Prior Class	19	18	16	12	12	12	12
Group IV							
State Judges	182	182	182	183	183	181	181
Total Membership Contributing to TCRS	221,035	218,883	219,810	219,235	219,361	219,578	219,914
Teachers Contributing to ORP	11,501	11,388	11,506	11,540	11,580	11,568	11,562
Grand Totals	232,536	230,271	231,316	230,775	230,941	231,146	231,476

RETIRED PAYROLL
July 1, 2010
THROUGH
30-Jun-11

	AMOUNT	# OF RETIREES
STATE EMPLOYEES	482,119,696.61	38,391
STATE PAID JUDGES	10,107,710.43	166
COUNTY PAID JUDGES	4,624,454.92	124
ATTORNEY GENERALS	8,907,469.49	275
COUNTY OFFICIALS	5,168,751.42	244
PUBLIC SERVICE COMMISSIONERS	98,369.52	5
POLITICAL SUBDIVISIONS	236,000,550.05	31,783
TEACHERS	854,036,614.59	39,960
LOCAL TEACHERS	45,167,467.36	2,252
GOVERNORS AND WIDOWS	365,835.52	5
AGED STATE EMPLOYEES	1,528.20	1
AGED TEACHERS	48,508.93	24
TOTAL	**$1,646,646,957.04**	**113,230**

NOTE: NINETY-FIVE PERCENT (95%) OF THE RETIREES ARE ON DIRECT DEPOSIT.

RETIRED PAYROLL STATISTICS 30-Jun-11

	AMOUNT	# OF RETIREES
STATE EMPLOYEES	40,807,416.42	38391
STATE PAID JUDGES	838,372.37	166
COUNTY PAID JUDGES	377,760.86	124
ATTORNEY GENERALS	736,768.16	275
COUNTY OFFICIALS	420,866.79	244
PUBLIC SERVICE COMMISSIONERS	8,197.46	5
POLITICAL SUBDIVISIONS	20,072,764.05	31783
TEACHERS	72,774,872.16	39960
LOCAL TEACHERS	3,709,902.13	2252
GOVERNORS AND WIDOWS	28,390.00	5
AGED STATE EMPLOYEES	127.35	1
AGED TEACHERS	3,225.48	24
TOTAL	**$139,778,663.23**	**113,230**

REFUND EXPENDITURES
2010-11 FISCAL YEAR

MONTH	MEMBER'S CONTRIBUTIONS	414(H) CONTRIBUTIONS	MEMBER'S INTEREST	EMPLOYER CONTRIBUTIONS	DEATH PAYMENTS	TOTAL
July	108,610.45	2,940,927.94	1,122,968.59	176,910.15	796,126.22	$5,145,543.35
August	86,564.24	2,243,866.53	870,768.62	84,074.45	491,598.24	$3,776,872.08
September	50,942.67	2,755,585.65	762,280.58	81,345.16	375,192.12	$4,025,346.18
October	114,128.91	2,067,333.77	704,711.37	97,951.59	405,392.54	$3,389,518.18
November	78,895.55	1,742,461.50	596,107.03	51,724.73	341,127.28	$2,810,316.09
December	30,895.39	1,351,269.94	400,946.28	48,714.26	124,269.67	$1,956,095.54
January	52,970.10	1,924,128.49	819,928.89	186,997.60	345,019.71	$3,329,044.79
February	78,837.01	1,715,473.35	770,071.87	113,258.65	580,763.36	$3,258,404.24
March	44,757.18	1,790,021.26	580,665.34	36,391.07	380,334.48	$2,832,169.33
April	39,166.79	1,642,947.62	525,393.39	59,310.97	408,467.78	$2,675,286.55
May	85,524.99	2,067,392.03	792,239.39	55,195.45	108,861.96	$3,109,213.82
June	99,483.07	2,317,399.30	1,061,394.16	106,291.43	994,506.53	$4,579,074.49
TOTAL	870,776.35	24,558,807.38	9,007,475.51	1,098,165.51	5,351,659.89	$40,886,884.64

NUMBER OF MEMBERS REFUNDED

Month	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
July	532	829	507	1,149	450	894	499
August	397	544	481	675	308	612	406
September	702	515	546	566	316	494	431
October	390	424	454	609	411	369	379
November	373	316	440	492	353	320	293
December	278	320	318	234	257	256	276
January	401	305	408	450	332	257	307
February	339	389	333	308	310	242	265
March	360	329	342	316	291	278	299
April	287	823	365	308	311	687	277
May	291	694	323	619	217	385	662
June	374	428	313	843	340	360	406
TOTAL	4,724	5,916	4,830	6,569	3,896	5,154	4,500

PRIOR SERVICE ACTIVITY
April 1, 2011 through June 30, 2011

State:

Type of Service	No of Members	Years of Service		Amount
Backpayment	27	20	$	141,272
Military	23	46		-
Redeposit	17	71		133,527
Totals	67	137	$	274,799

Teachers:

Type of Service	No of Members	Years of Service		Amount
Backpayment	16	9	$	141,262
Military	12	19		-
Redeposit	28	76		233,727
Totals	56	104	$	374,989

Higher Education:

Type of Service	No of Members	Years of Service		Amount
Backpayment	45	37	$	107,038
Military	8	15		-
Redeposit	1	21		-
Totals	54	73	$	107,038

Political Subdivisions:

Type of Service	No of Members	Years of Service		Amount
Backpayment	157	127	$	98,297
Military	23	38		497
Redeposit	14	52		78,400
Totals	194	217	$	177,193

Grand Totals:

Type of Service	No of Members	Years of Service		Amount
Backpayment	245	193	$	487,868
Military	66	118		497
Redeposit	60	220		445,654
Totals	371	531	$	934,019

DISABILITY RETIREMENT REPORT

Disability Statistical Report

Fourth Quarter 10-11

Disability Applications Received	April		31
	May		29
	June		34
		TOTAL	94
Initial Claims Approved	April		25
	May		20
	June		30
		TOTAL	75
Initial Claims Disapproved	April		06
	May		03
	June		06
		TOTAL	15

Initial Claims Approved after Reconsideration	4
Initial Claims Disapproved after Reconsideration	8
Re-Evaluation Claims Approved	55
Re-Evaluation claims Disapproved	1
Cases Referred to Vocational Rehabilitation	0

APPROVED FOR DISABILITY
FOURTH QUARTER
2010-2011

Type	Re-E	Re-C	Age	Employer	Position	Svc	AFC	Opt.	Mo. Ben.	Disability Summary
ORD.	YES	NO	44	STATE	PROGRAM COORDINATOR	9	$48,401	A	$1,143	LUMBAR SPINAL STENOSIS, FAILED SURGERY SYNDROME, CHRONIC PAIN
ORD.	NO	NO	57	STATE	SUPERVISOR	13	$29,162	A	$571	LUMBAR SPINAL STENOSIS, OBESITY
SS-ORD	NO	NO	57	POL SUB	HOUSE KEEPING	20	$22,277	A	$539	ACUTE LYMPHOBLASTIC LEUKEMIA (ALL)
ORD.	NO	NO	58	TEACHER	TEACHER	17	$54,058	A	$1,234	STAGE IV FOLLICULAR LYMPHOMA
ORD.	NO	NO	56	TEACHER	TEACHER	8	$46,080	A	$703	MS
SS-ORD	NO	NO	58	POL SUB	FOOD SERVICES MANAGER	22	$32,580	A	$862	SQUAMOUS CELL CARCINOMA OF THE LARYNX
ORD.	NO	NO	54	STATE	PSYCHOLOGIST	11	$64,345	B	$1,200	ANAPLASTIC ASTROCYTOMA
ORD.	YES	NO	39	STATE	VOC REHAB COUNSELOR	5	$27,065	B	$804	DDD L4/5 & L5/SI, BILATERAL KNEE PAIN & SHOULDER PAIN
ORD.	NO	NO	59	STATE	ADMINISTRATIVE ASSISTANT	5	$21,711	A	$260	S/P SURGICAL & LUMBAR FUSIONS, DEPRESSION
ORD.	YES	NO	55	STATE	INTAKE CASE MANAGER	5	$33,078	A	$397	BREAST CA + LYMPH NODES S/P SURGERY & CHEMOTHERAPY
ORD.	YES	NO	50	POL SUB	WASTE/WATER OPERATOR	10	$37,885	A	$852	STAGE III LUNG CANCER
SS-ORD	NO	NO	53	STATE	PROGRAM SPECIALIST	8	$40,583	A	$707	COPD, DM II, DEPRESSION, HTN, RETINOPATHY
ORD.	YES	NO	50	TEACHER	TEACHER	23	$52,938	E	$1,440	MAJOR DEPRESSION
ORD.	NO	NO	52	POL SUB	MAINTENANCE SUPERVISOR	14	$34,487	E	$711	DM, PERIPHERAL NEUROPATHY
SS-ORD	YES	NO	51	STATE	DEV TECH	5	$22,318	A	$375	DISSECTING THORACIC AORTIC ANEURYSM, ESSENTIAL HTN
ORD.	YES	NO	48	STATE	TELEPHONE OPERATOR	27	$29,633	A	$962	DM, ESRD
ORD.	YES	NO	51	POL SUB	FOOD NUTRITION MANAGER	13	$23,388	A	$552	DJD W/TENDON RUPTURE OF L-ANKLE, OA OF R-FOOT, FIBROMYALGIA, OBESITY
ORD.	YES	NO	41	POL SUB	SERGEANT/JAILER	9	$37,033	A	$833	LUMBAR SPONDYLOSIS, BACK & NECK PAIN, CARPAL TUNNEL SYNDROME
ORD.	NO	NO	58	TEACHER	TEACHER	24	$49,213	D	$1,194	MS
ORD.	NO	NO	55	POL SUB	SECRETARY	16	$22,621	A	$534	DJD SPINE, HNP, DEPRESSION, ANXIETY D/O

APPROVED FOR DISABILITY
FOURTH QUARTER
2010-2011

Type	Re-E	Re-C	Age	Employer	Position	Svc	AFC	Opt.	Mo. Ben.	Disability Summary
SS-ORD	NO	NO	54	POL SUB	INSTRUCTIONAL ASSISTANT	6	$11,129	A	$172	ASTHMA, SOB, ANXIETY, DM, COMPLICATED MIGRAINES
INACT.	NO	NO	52	STATE	MEDICAL LAB TECH	15	$22,792	A	$255	DIABETES, DIABETIC NEUROPATHY, DEPRESSION
INACT.	NO	NO	52	STATE	FOOD SERVICE WORKER I	26	$23,814	D	$427	OBSESSIVE COMPULSIVE D/O, DEPRESSION, ANXIETY, ADD
ORD.	NO	NO	52	POL SUB	MECHANIC	9	$28,160	A	$557	OSA, OBESITY, HEART DISEASE, ANGINA, CAD
ORD.	YES	NO	39	STATE	SERGEANT	14	$31,090	D	$662	PTSD, ANXIETY, DEPRESSION, COPD, CERVICAL NERVE DAMAGE, SLEEP APNEA
ORD.	YES	NO	41	POL SUB	TRUCK DRIVER	14	$26,851	B	$584	BI-POLAR D/O, COCCYDYNIA, DDD, OA, CHRONIC PAIN
ORD.	NO	NO	56	POL SUB	ADMINISTRATIVE SECRETARY	12	$30,199	A	$603	FRONTAL LOBE MENINGIOMA, EPILEPSY
SS-ORD	NO	NO	59	POL SUB	TEACHING ASSISTANT	13	$17,257	B	$259	KIDNEY CANCER
ORD.	NO	NO	57	POL SUB	BUS DRIVER	14	$21,216	C	$426	ABDOMINAL AORTIC ANEURISM, SPINAL COMPRESSION FRACTURE
ORD.	YES	NO	44	POL SUB	CUSTODIAN	18	$25,086	A	$592	IDDM, DIABETIC RETINOPATHY, CAD, PVD
SS-ORD	NO	NO	57	STATE	HIGHWAY WORKER III	14	$28,418	A	$565	HYPERCAPNIC RESPIRATORY FAILURE, ASTHMA, CHF, HTN, DM II, CRI
ORD.	YES	YES	48	STATE	YOUTH SERVICE WORKER II	26	$25,776	A	$796	DM II, DIABETIC NEUROPATHY, PERONEAL TENDONITIS, DEPRESSION
SS-ORD	YES	NO	41	TEACHER	TEACHER	16	$41,387	D	$899	INFILTRATING METASTATIC BREAST CANCER
ORD.	NO	NO	50	POL SUB	COUNCILMAN/ LAW ENFORCEMENT	17	$39,314	A	$928	S/P CERVICAL FUSIONS, S/P CVA, CHRONIC LUMBAR PAIN/ R-HAND DEFORMITY
SS-ORD	NO	NO	52	POL SUB	ENVIRONMENT OFFICER	16	$34,763	B	$699	DEPRESSIVE D/O, ETOH, CAD, HTN
ORD.	YES	NO	45	TEACHER	TEACHER	20	$56,256	A	$1,378	RA, OA, R-ANKLE FUSION, CHRONIC PAIN
SS-ORD	NO	NO	56	POL SUB	TEACHER'S ASSISTANT	20	$14,001	A	$341	MULTIPLE MYELOMA
ORD.	YES	YES	52	TEACHER	TEACHER	25	$59,049	A	$1,797	LUMBAR STENOSIS W/RADICULOPATHY, LEUROGENIC CLAUDICATION
ORD.	NO	NO	54	STATE	CUSTODIAN	5	$14,066	A	$206	DDD, HTN, OBESITY >300LBS, DEPRESSION, ANXIETY, DM II, SLEEP APNEA
ORD.	YES	NO	53	STATE	COOK I	16	$17,421	A	$411	S/P MVA 10/2004, PTSD, MAJOR DEPRESSION, PANIC D/O

APPROVED FOR DISABILITY
FOURTH QUARTER
2010-2011

Type	Re-E	Re-C	Age	Employer	Position	Svc	AFC	Opt.	Mo. Ben.	Disability Summary
ORD.	YES	NO	47	TEACHER	TEACHER	7	$41,301	B	$892	ALCOHOLIC CIRRHOSIS, PARTIAL HTN, CAD S/P MI, DM, HEPATIC ENCEPHALOPATHY
SS-ORD	YES	NO	41	POL SUB	DEPUTY CLERK	21	$26,928	A	$673	SPINA BIFIDA, PARAPLEGIC
SS-ORD	YES	NO	45	POL SUB	ACCOUNTANT	15	$36,832	D	$768	ESSENTIAL BLEPHAROSPASM, OBSTRUCTIVE HYDROCEPHALUS, CHRONIC DAILY HA'S
INACT.	NO	NO	46	STATE	DEV TECH	8	$21,288	A	$58	IDDM, ESRD
ORD.	YES	NO	45	POL SUB	DIESEL MECHANIC	12	$36,069	A	$811	PELVIC NERVE DAMAGE W/CHRONIC PAIN
ORD.	YES	NO	32	STATE	CORRECTIONAL OFFICER	7	$21,856	A	$516	TRAUMATIC BRAIN INJURY
ORD.	NO	NO	58	STATE	COUNSELOR II	13	$34,301	D	$541	TRIGEMINAL NEURALGIA, PERIPHERAL NEUROPATHIC PAIN, DEMENTIA
ORD.	YES	YES	50	STATE	HIGHWAY WORKER I	13	$18,511	A	$437	BIPOLAR D/O, ANXIETY, HTN, BACK & STOMACH PAIN, KNEE REPLACEMENTS, OBESITY
ORD.	YES	NO	50	TEACHER	TEACHER	27	$61,916	A	$2,006	DEPRESSION, CONVERSION D/O, DDD, HTN, OBESITY
ORD.	YES	NO	51	STATE	HEARING SUPERVISOR	24	$34,166	D	$837	CEREBRAL PALSY, DIASTOLIC DYSFUNCTION, DM II
ORD.	YES	NO	50	POL SUB	LEAD CUSTODIAN	18	$25,329	A	$598	MAJOR DEPRESSION, ANXIETY D/O, LUPUS, RA, COPD
ORD.	YES	NO	49	TEACHER	SPECIAL EDUCATION SUPERVISOR	12	$67,586	A	$1,628	HERPES ENCEPHALITIS, COGNITIVE IMPAIRMENT, ANXIETY, DEPRESSION
ORD.	NO	NO	58	POL SUB	BUS DRIVER	17	$21,358	A	$496	STOMACH CANCER
SS-INACT.	NO	NO	46	POL SUB	LABORER	7	$21,196	A	$37	DM W/NEUROPATHY, CHRONIC ULCERATIONS
ORD.	YES	YES	43	POL SUB	TRUCK DRIVER/LABORER	10	$22,208	D	$437	S/P MVA, DJD L-HIP
ORD.	NO	NO	53	POL SUB	SPECIAL EDUCATION ASSISTANT	7	$13,415	A	$209	FIBROMYALGIA, LUMBAR DDD W/RADICULOPATHY, SCOLIOSIS, PIRIFORMIS SYNDROME
ORD.	YES	NO	50	POL SUB	MAINTENANCE MECHANIC	7	$28,427	B	$192	HNP L3-4 & L4-5, OBESE >300LBS
ORD.	YES	NO	48	STATE	ELIGIBILITY COUNSELOR II	22	$37,952	A	$1,008	MAJOR DEPRESSION, UNSTABLE MENTAL STATUS
SS-ORD	NO	NO	56	STATE	ENVIRONMENT SPECIALIST	24	$42,823	A	$1,230	S/P LIVER TRANSPLANT, COMPROMISED IMMUNE SYSTEM, OA, COPD
ORD.	NO	NO	59	TEACHER	TEACHER	11	$43,492	A	$637	ALS

APPROVED FOR DISABILITY
FOURTH QUARTER
2010-2011

Type	Re-E	Re-C	Age	Employer	Position	Svc	AFC	Opt.	Mo. Ben.	Disability Summary
ORD.	NO	NO	58	TEACHER	TEACHER	26	$40,793	D	$872	STAGE IV BREAST CANCER
SS-ORD	NO	NO	56	POL SUB	EQUIPMENT OPERATOR/SUPERVISOR	15	$50,095	A	$1,148	ASTHMA, COPD, INTERSTITIAL LUNG DISEASE, SLEEP APNEA, ARTHRITIS, DISC DISEASE
ORD.	YES	NO	46	STATE	ADMINISTRATIVE ASSISTANT	9	$44,275	A	$1,046	BILATERAL CEREBRAL INFARCTS
ORD.	YES	NO	51	TEACHER	TEACHER	24	$65,357	A	$1,907	MORBID OBESITY, HTN, BILATERAL KNEE PAIN
ACC.	NO	NO	52	STATE	RECORDS TECH	19	$30,129	D	$1,133	OJA- LUMBAR RADICULOPATHY, DDD
ORD.	YES	NO	46	STATE	SENIOR FIELD WORKER	16	$21,566	A	$509	CEREBELLAR ATROPHY
ORD.	YES	NO	45	STATE	HUMAN RESOURCES	14	$35,156	A	$830	CAD, CHF, NONISCHEMIC CARDIOMYOPATHY
ORD.	YES	NO	52	POL SUB	GREASER/CLEAN-UP	7	$25,445	A	$455	ACOUSTIC NEUROMA W/R-FACIAL PARALYSIS, SEIZURE D/O
ORD.	YES	NO	40	STATE	ELIGIBILITY COUNSELOR	5	$26,678	A	$630	END STAGE RENAL DISEASE, DM, OSA
ORD.	NO	NO	52	STATE	SECRETARY	15	$23,360	A	$551	CHRONIC BACK PAIN, DEPRESSION
ORD.	NO	NO	52	STATE	CASE MANAGER	9	$37,426	A	$733	CERVICAL SPINAL STENOSIS, HEMISPASTICITY
ORD.	YES	NO	47	TEACHER	TEACHER	16	$47,213	A	$1,115	DM, DIABETIC RETINOPATHY, GLAUCOMA, HEART DISEASE
SS-ORD	YES	NO	42	TEACHER	TEACHER	10	$50,984	A	$1,204	S/P CVA , L-SIDED HEMIPARESIS
ORD.	NO	NO	57	POL SUB	TRUCK DRIVER	13	$30,418	A	$595	S/P KNEE REPLACEMENT, REPEAT BYPASS SURGERY
ORD.	YES	NO	34	STATE	SYSTEMS ANALYST	5	$49,506	A	$1,169	MAJOR DEPRESSION, PSYCHOSIS

DISAPPROVED FOR DISABILITY
FOURTH QUARTER
2010-2011

Type	Re-C	Age	Employer	Position	Svc	Disability Summary	Reason Denied
ORD.	YES	46	STATE	HWY MAINTENANCE WKR I	8	CHRONIC BRONCHITIS, COPD	CAPABLE OF SED WRA
ACC.	NO	40	POL SUB	PARAMEDIC	20	CHRONIC BACK PAIN	CAPABLE OF SED WRA
ORD.	YES	54	STATE	CORRECTIONAL OFFICER	11	UNSPECIFIED ARTHROPATHY OF R-ANKLE AND FOOT	CAPABLE OF SED TO LGT WRA
ORD.	NO	37	STATE	CORRECTIONAL CORPORAL	9	S/P R-ANKLE SURGERY, CARPAL TUNNEL, MIGRAINES, DDD, OBESITY	CAPABLE OF SED TO LGT WRA, NO CURRENT MEDICAL RECORDS
ORD.	NO	58	STATE	CONSERVATION WKR	11	S/P L-KNEE REPLACEMENT, RA, DEPRESSION, OBESITY, LUMBAR SPINE DDD	LIMITED TO SED WRA
ORD.	YES	50	STATE	SECRETARY	10	S/P SPINAL FUSION, BULGING DISCS, FIBROMYALGIA	CAPABLE OF SED WRA
ORD.	YES	59	STATE	ADMINISTRATIVE ASSISTANT	5	MAJOR DEPRESSION	INSUFFICIENT MEDICAL DOCUMENTATION
INACT.	YES	54	STATE	OCCUPATIONAL THERAPY TECH	12	DJD L-KNEE, OBESITY, OA	CAPABLE OF LGT WRA
ACC.	YES	53	STATE	DEPUTY SHERIFF	20	DJD CERVICAL AND LUMBAR SPINE	CAPABLE OF SED TO LGT WRA
ORD.	YES	44	TEACHER	TEACHER	19	FIBROMYALGIA, OA, DDD, HTN, DEPRESSION, L-KNEE REPLACEMENT	CAPABLE OF SED TO LGT WRA
ORD.	YES	51	TEACHER	TEACHER	25	LUMBOSACRAL SPONDYLOSIS, DDD, L-SPINAL STENOSIS, OBESITY, DJD	CAPABLE OF SED WRA
ORD.	NO	46	STATE	SECRETARY	9	BI-POLAR DISORDER, FIBROMYALGIA, SPINAL STENOSIS, POLYNEUROPATHY	CAPABLE OF SED WRA
ORD.	NO	48	POL SUB	SERVICE LINEMAN	25	TBI, MULTIPLE FRACTURES, MINIMAL USE OF LUE, BLIND L-EYE, DEAF L-EAR	CAPABLE OF SED TO LGT WRA, NOT DISABLED FROM ALL WRA
ORD.	NO	43	POL SUB	TRUCK DRIVER/ LABORER	10	S/P MVA, LEFT HIP FRACTURE, TRAUMATIC ARTHRITIS	NO CURRENT MEDICAL RECORDS
ACC.	NO	62	TEACHER	TEACHER	21	CHRONIC BACK PAIN, PTSD	RECORDS DO NOT SUPPORT TOTAL DISABILITY

FINANCIAL STATEMENTS

TENNESSEE CONSOLIDATED RETIREMENT SYSTEM
STATEMENT OF PLAN NET ASSETS
AS OF JUNE 30, 2011

ASSETS	
Cash and cash equivalents	$299,627,145.56
Receivables	
Member receivable	24,836,215.57
Employer receivable	74,768,255.36
Accrued interest receivable	102,401,264.55
Accrued dividends receivable	47,940,360.88
Real estate income receivable	61,139.73
Investments sold	792,557,331.90
Total receivables	1,042,564,567.99
Investments, at fair value	
Short-term securities	120,359,417.15
Government securities	8,835,718,390.44
Corporate securities	5,658,882,629.94
Corporate stocks	17,826,699,561.20
Private Equities	74,635,798.00
Real estate	1,085,593,807.90
Total investments	33,601,889,604.63
TOTAL ASSETS	34,944,081,318.18
LIABILITIES	
Retired payroll payable	5,646,298.88
Retiree insurance premium payable	6,396,403.48
Accounts payable	1,753,831.88
Investments purchased	1,261,627,381.94
Other investment payables	6,631,395.80
TOTAL LIABILITIES	1,282,055,311.98
NET ASSETS HELD IN TRUST FOR PENSION BENEFITS	$ 33,662,026,006.20

See Accompanying Notes to the Financial Statements

UNAUDITED

TENNESSEE CONSOLIDATED RETIREMENT SYSTEM
STATEMENT OF CHANGES IN PLAN NET ASSETS
JULY 1, 2010 THROUGH JUNE 30, 2011

ADDITIONS	
Contributions	
Member contributions	$260,387,665.94
Employer contributions	995,539,475.47
Total contributions	1,255,927,141.41
Investment income	
Net Appreciation in fair value of investments	4,597,637,669.91
Interest	561,567,702.64
Dividends	337,178,372.25
Real Estate income, net of operating expenses	64,567,668.50
Total investment income	5,560,951,413.30
Less: Investment expense	(32,233,621.30)
Net investment income	5,528,717,792.00
TOTAL ADDITIONS	6,784,644,933.41
DEDUCTIONS	
Annuity benefits	
Retirement benefits	1,356,976,641.01
Cost of living	290,396,250.99
Death benefits	5,498,139.48
Refunds	35,539,393.05
Administrative expenses	8,403,593.48
TOTAL DEDUCTIONS	1,696,814,018.01
NET INCREASE	5,087,830,915.40
NET ASSETS HELD IN TRUST FOR PENSION BENEFITS	
JULY 1, 2010	28,574,195,090.80
JUNE 30, 2011	$33,662,026,006.20

See Accompanying Notes to the Financial Statements

UNAUDITED

The Tennessee Consolidated Retirement System (TCRS) administers two defined benefit pension plans - State Employees, Teachers and Higher Education Employees Pension Plan (SETHEEPP) and Political Subdivisions Pension Plan (PSPP). Although the assets of the plans are commingled for investment purposes, each plan's assets may be used only for the payment of benefits to members of that plan, in accordance with the terms of the plan.

A. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

1. **Reporting Entity** - The TCRS is included in the State of Tennessee Financial Reporting Entity. Because of the state's fiduciary responsibility, the TCRS has been included as pension trust funds in the *Tennessee Comprehensive Annual Financial Report*.

2. **Measurement Focus and Basis of Accounting** - The accompanying financial statements have been prepared in conformity with generally accepted accounting principles as prescribed by the Governmental Accounting Standards Board (GASB). The financial statements have been prepared using the flow of economic resources measurement focus and the accrual basis of accounting. Under this method, revenues are recorded when earned and expenses are recorded at the time liabilities are incurred.

   Plan member contributions are recognized in the period of time for which the contributions are assessed. Plan employer contributions are recognized when due and the employer has made a formal commitment to provide the contributions. Benefits and refunds are recognized when due and payable in accordance with the terms of each plan.

3. **Cash and Cash Equivalents** - Cash and cash equivalents by definition, includes cash and short-term investments with a maturity date within three months of the acquisition date. The state's accounting policy regarding the definition of cash and cash equivalents includes cash management pools as cash. Cash received by the TCRS that cannot be invested immediately in securities, or that is needed for operations, is invested in the State Pooled Investment Fund sponsored by the State of Tennessee and administered by the State Treasurer. The classification of cash and cash equivalents also includes cash invested in a short-term, open-end mutual fund under the contractual arrangement for master custody services.

4. **Method Used to Value Investments** - Investments are reported at fair value. Securities traded on a national or international exchange are valued at the last reported sales price at current exchange rates. The fair value of real estate investments is determined at least every three years by qualified independent appraisers who are members of the Appraisal Institute and internally by real estate advisors for those years when independent appraisals are not performed. The fair value of investments in private equities is determined quarterly by the independent private equity managers with a more intensive review being performed at the end of each calendar year end. Investment income consists of realized and unrealized appreciation (depreciation) in the fair value of investments. Interest income is recognized when earned. Securities and securities transactions are recorded in the financial statements on trade-date basis. Real estate transactions are recorded in the financial statements at the time of closing.

B. PLAN DESCRIPTIONS AND CONTRIBUTION INFORMATION

At July 1, 2009, the date of the latest actuarial valuation, the membership of each plan consisted of the following:

	SETHEEPP	PSPP
Retirees and beneficiaries currently receiving benefits	76,955	30,920
Terminated members entitled to but not receiving benefits	21,577	8,823
Current active members	136,147	78,803
Total	234,679	118,546
Number of participating employers	140	482

State Employees, Teachers and Higher Education Employees Pension Plan

Plan Description - SETHEEPP is a cost-sharing, multiple employer defined benefit pension plan that covers the employees of the state, teachers with Local Education Agencies (LEA's) and higher education employees. The TCRS provides retirement benefits as well as death and disability benefits to plan members and their beneficiaries. Benefits are determined by a formula using the member's high five-year average salary and years of service. Members become eligible to retire at the age of 60 with five years of service or at any age with 30 years of service. A reduced retirement benefit is available to vested members who are at least 55 years of age or have 25 years of service. Disability benefits are available to active members with five years of service who become disabled and cannot engage in gainful employment. There is no service requirement for disability that is the result of an accident or injury occurring while the member was in the performance of duty. Members joining the plan on or after July 1, 1979 are vested after five years of service. Members joining prior to July 1, 1979 are vested after four years of service. Compounded cost of living adjustments (COLA) are provided each July based on the percentage change in the Consumer Price Index (CPI) during the previous calendar year except that (a) no COLA is granted if the CPI is less than one-half percent; (b) a COLA of 1 percent will be granted if the CPI increases between one-half percent and one percent; (c) the maximum annual COLA is capped at three percent. Benefit provisions are established by state statute found in Title Eight, Chapters 34 through 37 of the *Tennessee Code Annotated*. State statutes are amended by the Tennessee General Assembly. Ad hoc increases may only be authorized by the General Assembly. Public safety officers receive an additional supplemental benefit that is paid from age 60 to age 62.

Superseded Systems and Certain Employment Classifications - Members of superseded systems that became members of the TCRS at consolidation in 1972, have their rights preserved to the benefits of the superseded system, if the benefit from the superseded plan exceeds that provided by the Group 1 (teachers and general employees) TCRS formula. Likewise, public safety employees and officials of TCRS Groups 2, 3 and 4 are entitled to the benefits of those formulas, if better than the Group 1 benefits.

Contributions and Reserves - Effective July 1, 1981, the plan became noncontributory for most state and higher education employees. The contribution rate for teachers is five percent of gross salary. The employers contribute a set percentage of their payrolls, determined by an actuarial valuation. *Tennessee Code Annotated* Title Eight, Chapter 37 provides that the contribution rates be established and may be amended by the Board of Trustees of the TCRS. The administrative

budget for the plan is approved through the state of Tennessee's annual budget process. Funding for the administrative budget is included in employer contributions.

The net assets of the plan are legally required to be reserved in two accounts, the Member Reserve and the Employer Reserve. The Member Reserve represents the accumulation of employee contributions plus interest. The Employer Reserve represents the accumulation of employer contributions, investment income and transfers from the Member Reserve for retiring members. Benefit payments and interest credited to the members' accounts are reductions to the Employer Reserve.

Political Subdivisions Pension Plan

Plan Description - PSPP is an agent multiple-employer defined benefit pension plan that covers the employees of participating political subdivisions of the state of Tennessee. Employee class differentiations are not made under PSPP. The TCRS provides retirement benefits as well as death and disability benefits to plan members and their beneficiaries. Benefits are determined by a formula using the member's high five-year average salary and years of service. Members become eligible to retire at the age of 60 with five years of service or at any age with 30 years of service. A reduced retirement benefit is available to vested members who are at least 55 years of age or have 25 years of service. Disability benefits are available to active members with five years of service who become disabled and cannot engage in gainful employment. There is no service requirement for disability that is the result of an accident or injury occurring while the member was in the performance of duty. Members joining the plan prior to July 1, 1979 are vested after four years of service. Members joining on or after July 1, 1979 are vested upon completion of 10 years of service, unless five years vesting is authorized by resolution of the chief governing body. Cost of living adjustments (COLA) are the same as provided by SETHEEPP except that the local government may elect (a) to provide no COLA benefits or (b) to provide COLA benefits under a non-compounding basis rather than the compounded basis applicable under SETHEEPP. Benefit provisions are established and amended by state statute. Pursuant to Article Two, Section 24 of the *Constitution of the State of Tennessee*, the state cannot mandate costs on local governments. Any benefit improvement may be adopted by the governing body of a governmental entity participating in the TCRS.

Contributions and Reserves - Political subdivisions may elect contributory or noncontributory retirement for their employees. The contribution rate for contributory employees of political subdivisions is five percent of gross salary. The employers contribute a set percentage of their payrolls, equal to at least, the percentage determined by an actuarial valuation. State statute provides that the contribution rates be established and may be amended by the Board of Trustees of the TCRS. The administrative budget for the plan is approved through the state's annual budget process. Funding for the administrative budget is included in employer contributions.

The net assets of the plan are legally required to be reserved in two accounts, the Member Reserve and the Employer Reserve. The Member Reserve represents the accumulation of employee contributions plus interest. The Employer Reserve represents the accumulation of employer contributions, investment income and transfers from the Member Reserve for retiring members. Benefit payments and interest credited to the members' accounts are reductions to the Employer Reserve.

C. DEPOSITS AND INVESTMENTS

State statute authorizes the TCRS to maintain cash, not exceeding ten percent of the total amount of funds in the retirement system, on deposit in one or more banks, savings and loan associations or trust companies that are qualified as state depositories. The TCRS does not utilize its own bank accounts but invests in the State Pooled Investment Fund for the initial deposit of funds and for its operating cash needs. The State Pooled Investment Fund is authorized by state statute to invest funds in accordance with policy guidelines approved by the Funding Board of the State of Tennessee. The current resolution of that board gives the Treasurer authority to invest in collateralized certificates of deposit in authorized state depositories, prime commercial paper, prime bankers' acceptances, certain repurchase agreements and various U.S. Treasury and Agency obligations. The State Pooled Investment Fund is also authorized to enter into securities lending agreements in which U.S. Government Securities may be loaned for a fee. The loaned securities are transferred to the borrower by the custodial agent upon simultaneous receipt of collateral securities.

State statute also authorizes the TCRS to invest in bonds, debentures, preferred stock and common stock, real estate and in other good and solvent securities subject to the approval of the Board of Trustees, but further subject to the following statutory restrictions and provisions:

a. The total sum invested in common and preferred stocks shall not exceed seventy-five percent (75 percent) of the total of the funds of the retirement system.

b. The total sum invested in notes and bonds or other fixed income securities exceeding one year in maturity shall not exceed seventy-five percent (75 percent) of the total funds of the retirement system.

c. Within the restrictions in (a) and (b) above, an amount not to exceed fifteen percent (15 percent) of the total of the funds of the retirement system may be invested in securities of the same kinds, classes, and investment grades as those otherwise eligible for investment in various approved foreign countries, provided that such percentage may be increased by the board with the subsequent approval of the council on pensions and insurance.

d. Within the restrictions in (a) and (b) above, funds may be invested in Canadian securities which are substantially of the same kinds, classes and investment grades as those otherwise eligible for investment.

e. The total amount of securities loaned under a securities lending program cannot exceed thirty percent (30 percent) of total assets.

f. The total sum invested in real estate shall not exceed ten percent (10 percent) of the market value of total assets.

g. The total sum invested in private equities shall not exceed five percent (5 percent) of the market value of total assets.

State statute also authorizes the TCRS to invest in forward contracts to hedge its foreign currency exposure and to purchase or sell domestic stock index futures contracts for the purpose of asset allocation relating to the domestic equity portfolio. The total amount of the financial futures contract obligation shall not exceed five percent (5 percent) of the market value of total assets.

Title to real property invested in by the TCRS is held by real estate investment holding companies.

As of June 30, 2010, the TCRS had the following investments:

Investments
(Expressed in Thousands)

Investment Type	Fair Value as of June 30, 2010	U.S. Treasury/ Agency (1)	Credit Quality Ratings									
			AAA	AA	A	BBB	BB	B	CCC	CC	A1(3)	(2) Not Rated
Debt Investments												
U.S. Govt. Treasuries, Notes, Bonds	$ 1,280,095	$ 1,270,056	$10,039									
U.S. Govt. Inflation Indexed	2,331,362	2,331,362										
U.S. Govt. Agencies	449,980											$449,980
U.S Govt. Asset Backed	141,172	141,172										
Municipal Bonds	104,066			$42,709	$61,357							
Govt Mortgage-Backed	3,227,126	511,824										2,715,302
Corporate Mortgage-Backed	454,043		383,543	51,718	18,782							
Corporate CMO's	410,479		63,468				18,065	90,299	217,956	$11,783		8,908
Corporate Bonds	3,480,681		103,873	403,578	1,057,367	1,717,864	142,240	33,999		414		21,346
Corporate Asset-Backed	959,443		656,144	142,133	43,677	65,621			15,580			36,288
Non-U.S. Govt./Sovereign	1,108,361		441,896	595,060								71,405
Short-Term Commercial Paper	251,101										251,101	
Short-Term Agencies	160,997											160,997
Total Debt Investments	$ 14,358,906	$ 4,254,414	$ 1,658,963	$ 1,235,198	$ 1,181,183	$ 1,783,485	$ 160,305	$ 124,298	$ 233,536	$ 12,197	$ 251,101	$ 3,464,226
Other Investments												
U.S. Equity	$ 8,780,486											
Non-U.S. Equity	4,179,865											
Derivatives	4,264											
Real Estate	973,245											
Private Equities	26,613											
Commimngled Money Market Funds	(204)											
Total Other Investments	$ 13,964,269											
Total Investments	$ 28,323,175											
Less: Short-Term Investments Classified as Cash Equivalents on the Statements of Plan Net Assets	(411,893)											
Total Investments as Shown on Statements of Plan Net Assets	$ 27,911,282											

(1) Includes obligations of the U.S. government or obligations explicitly guaranteed by the U.S. government and are not considered to have credit risk.

(2) Includes securities that are implicitly guaranteed by the U.S. government, but are not rated by Standard and Poor's or Moody's.

(3) A1 is the highest rating category for commercial paper

Credit Risk - Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations. Credit quality ratings for the TCRS' investments in fixed income securities as of June 30, 2010 are included in the above schedule. Securities are rated using Standard and Poor's and/or Moody's and are presented above using the Standard and Poor's rating scale. The State Pooled Investment Fund has not obtained a credit quality rating from a nationally recognized credit ratings agency.

The TCRS' investment policy specifies that bond issues subject for purchase are investment grade bonds rated in the four highest ratings by one of the recognized rating agencies. In addition, the policy states that private placements that do not have an active secondary market shall be thoroughly researched from a credit standpoint and shall be viewed by TCRS' investment staff as having the credit quality rating equivalent of an AA rating on a publicly traded issue. For short-term investments, the TCRS' investment policy provides for the purchase of only the highest quality debt issues. Commercial paper should be rated in the highest tier by all rating agencies which rate the paper, with a minimum of two ratings required. Commercial paper cannot be purchased if a rating agency has the commercial paper on a negative credit watch. The investment policy also requires preparation of a credit analysis report on the corporation prior to purchasing commercial paper.

As noted above, the TCRS does not utilize its own bank accounts but invests in the State Pooled Investment Fund for its operating cash purposes. Required risk disclosures relative to the State Pooled Investment Fund are presented in the *State of Tennessee Treasurer's Report*. That report is available on the state's website at http://www.tn.gov/treasury/ or by calling (615) 741-2956.

Concentration of Credit Risk - A concentration of investments in any one single issuer of debt securities presents a greater risk for loss in the event that the issuer fails on its obligations. The TCRS had the following investment amounts and percentages of plan net assets, in organizations representing five percent or more of plan net assets, excluding those organizations whose issues are explicitly guaranteed by the United States government, and investments in mutual funds, external investment pools, and other pooled investments:

	June 30, 2010	
Issuer Organization	**Fair Value**	**Percentage**
Federal National Mortgage Assoc.	$1,989,031,439	6.96%

The TCRS' investment policy limits the maximum amount of a specific corporation's commercial paper that can be purchased to $100 million. There are no specific investment policies that limit investment in any one issuer.

Interest Rate Risk - Interest rate risk is the risk that future changes in prevailing market rates of interest will have an adverse effect on the fair value of debt investments. The fair values of securities with long terms to maturity may be highly sensitive to interest rate changes. The TCRS' investment policy does not specifically address limits on investment maturities. The fixed income portfolio, however, is benchmarked against the Citigroup Broad Investment Grade Index and tends to have a duration within a range around that index. Duration is a measure of a debt investment's exposure to fair value changes arising from changing interest rates. It uses the present value of cash flows weighted for those cash flows as a percentage of the investment's full price. The TCRS had the following investments and effective duration at June 30, 2010

Debt Investments

(Expressed in Thousands)
At June 30, 2010

Investment Type	Fair Value as of June 30, 2010	Effective Duration (years)
Debt Investments		
Government Agencies	$ 526,862	5.29
Government Bonds	2,287,577	7.03
Government Inflation Indexed	2,331,362	4.13
Government Mortgage-Backed	3,227,126	1.93
Government Asset-Backed	141,172	5.75
Municipal Bonds	118,024	9.00
Corporate Collateralized Mortgage Obligations (CMO)	410,479	3.44
Corporate Mortgage Backed	454,043	2.31
Corporate Asset Backed Securities	959,443	0.55
Corporate Bonds	3,480,681	5.32
Guaranteed Fixed Income	10,039	0.25
Short-Term Commercial Paper	251,101	0.02
Short-Term Agencies	160,997	0.02
Total Debt Investments	$14,358,906	4.05

Asset-Backed Securities - The TCRS invests in various collateralized mortgage obligations (CMOs) which are mortgage-backed securities. These securities are based on cash flows from interest and principal payments on underlying mortgages and could therefore be more sensitive to prepayments by mortgagees as a result of a decline in interest rates. The fair value of CMOs at June 30, 2010 was $864,521,465 of which $510,179,228 were CMOs that are generally more sensitive to interest rate changes.

Foreign Currency Risk - Foreign currency risk is the risk that changes in exchange rates will adversely affect the fair value of an investment or deposit. The TCRS' investment policy limits the asset allocation for international investments to twenty-five percent of total assets. The TCRS' exposure to foreign currency risk at June 30, 2010 was as follows:

Foreign Currency-Denominated Investments

(Expressed in Thousands)

Currency	Total Fair Value June 30, 2010	Fixed Income	Equity	Cash
Australian Dollar	$ 211,803	$ 13,958	$ 195,247	$ 2,598
British Pound Sterling	854,109	105,779	746,819	1,511
Canadian Dollar	377,014	118,842	257,339	833
Danish Krone	57,646		57,479	167
Euro Currency	1,144,340	263,623	853,859	26,858
Hong Kong Dollar	116,389		115,557	832
Japanese Yen	1,445,642	595,061	851,743	(1,162)
New Zealand Dollar	5,809		5,809	
Norwegian Krone	56,697	11,098	45,273	326
Singapore Dollar	58,583		57,470	1,113
Swedish Krona	67,405		67,393	12
Swiss Franc	241,077		240,991	86
Total	$ 4,636,514	$ 1,108,361	$ 3,494,979	$ 33,174

Derivatives - The TCRS may buy or sell fixed income and equity index futures contracts for the purposes of making asset allocation changes in an efficient and cost effective manner and to improve liquidity. Gains (losses) on equity index futures hedge losses (gains) produced by any deviation from the TCRS' target equity allocation. The gains and losses resulting from daily fluctuations in the fair value of the outstanding futures contract are settled daily, on the following day, and a receivable or payable is established for any unsettled gain or loss as of the financial statement date. At June 30, 2010, the TCRS was under contract for fixed income and equity index futures and the resulting payable is reflected in the financial statements at fair value.

The international securities expose the TCRS to potential losses due to a possible rise in the value of the US dollar. The TCRS investment managers can reduce foreign currency exposure by selling foreign currency forward contracts, at agreed terms and for future settlement, usually within a year. The manager will reverse the contract by buying the foreign currency before the settlement date. A gain (loss) on this transaction pair will hedge a loss (gain) on the currency movement of the international security. The TCRS can sell up to 80% of its foreign currency exposure into US dollars. Forward currency forward contracts expose the TCRS to foreign currency risk as they are

denominated in foreign currency. Any unrealized gain on foreign currency forward contracts has been reflected in the financial statements as an investment. The notional amount of the foreign currency forward contracts has been reflected in the financial statements as a receivable and a payable. Any unrealized loss on foreign currency forward contracts has been included in the payable established for the contracts.

The TCRS is authorized to invest in To Be Announced (TBA) mortgage backed securities similar to the foreign currency forward contracts. The TCRS enters into agreements to purchase pools of mortgage backed securities prior to the actual security being identified. The TCRS will roll this agreement prior to settlement date to avoid taking delivery of the security. Any unrealized gain on TBA mortgage backed securities has been reflected in the financial statements as an investment. Any unrealized loss on TBA mortgage backed securities has been included in the payable established for the mortgages. The notional amounts of these agreements have been included in the financial statements as a receivable and a payable. The TCRS invests in these derivatives to adjust its exposure to mortgage coupon risk and to replicate the return on mortgage backed securities portfolios without actually purchasing the security.

The TCRS is authorized to enter into option contracts and any income earned on option contracts has been included as investment income on the statement. The TCRS did have option contract activity during the year ending June 30, 2010; however, there were no option contracts outstanding at June 30, 2010.

The fair value balances and notional amounts of derivative instruments outstanding at June 30, 2010, classified by type, and the changes in fair value of such derivative instruments for the year ended as reported in the financial statements are as follows:

Derivative Summary

(Expressed in Thousands)

	Changes in Fair Value		Fair Value at June 30, 2010			
	Financial Statement Classification	Amount	Financial Statement Classification	Amount	Notional Amount	Currency
Foreign Currency Forward Contracts		$ 2,575		$ 2,575	99,000	CAD
		185		185	19,030	EUR
		73		73	8,270	GBP
		(536)		(536)	6,287,850	JPY
	Investment Income	$ 2,297	Derivative Instruments	$ 2,297		
Futures Contracts	Investment Income	$ (23,484)	Derivative Instruments Payable	$ (3,364)	$105,747	
TBA Mortgage Backed Securities	Investment Income	$ 1,967	Derivative Instruments	$ 1,967	$474,634	

The fair values of foreign currency forward contracts are estimated based on the present value of their estimated future cash flows. Futures contracts and TBA mortgage backed securities are exchange traded and their price is based on quoted market prices at year end. It is the TCRS policy to conduct derivative transactions through the custodian bank and high quality money center banks or brokerage firms. The credit risk of foreign currency forward contracts is managed by limiting the term of the forward contracts and restricting the trading to high quality banks. The credit risk of futures contracts is managed by maintaining a daily variation margin.

D. COMMITMENTS

Standby Commercial Paper Purchase Agreement - The TCRS has agreed to serve as standby commercial paper purchaser for commercial paper issued by the Funding Board of the State of Tennessee. By serving as a standby commercial paper purchaser, the TCRS receives an annual fee of 75 basis points on the $350 million maximum issuance under this agreement during times when both Moody's and Standard and Poor's investment ratings assigned to the State of Tennessee's general obligation bonds are Aaa and AAA respectively, 80 basis points during times when either Moody's or Standard and Poor's has assigned ratings of Aa and AA respectively, or 95 basis points during times when either Moody's or Standard and Poor's has assigned ratings lower than Aa and AA respectively. In the unlikely event that the TCRS would be called upon to purchase the commercial paper, the TCRS would receive interest at a rate equal to prime plus 75 basis points during the first 30 consecutive days, plus an additional 50 basis points for each consecutive 30 days thereafter, up to a maximum rate allowed by state law.

E. FUNDED STATUS AND FUNDING PROGRESS

The funded status of each plan as of July 1, 2009, the most recent actuarial valuation date, is as follows:

Schedules of Funding Progress
(Expressed in Thousands)

	Actuarial Value of Plan Assets (a)	Actuarial Accrued Liability (AAL) Frozen Entry Age (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Annual Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a)/c)
SETHEEPP	$ 26,335,199	$ 29,054,966	$ 2,719,767	90.64%	$ 6,054,528	44.92%
PSPP	$ 5,304,455	$ 6,143,775	$ 839,320	86.34%	$ 2,282,082	36.78%

The TCRS uses the Frozen Entry Age actuarial cost method to calculate the annual required contribution (ARC). Effective July 1, 2009, the TCRS reestablished unfunded accrued liabilities for all groups.

The required schedule of funding progress immediately following the notes to the financial statements is intended to present multiyear trend information about whether the actuarial value of plan assets is increasing or decreasing over time relative to the actuarial accrued liability for benefits.

Additional information as of the latest actuarial valuation follows:

	SETHEEPP	PSPP
Valuation Date	July 1, 2009	July 1, 2009
Actuarial cost method	Frozen Entry Age	Frozen Entry Age
Amortization method	Level Dollar	Level Dollar
Remaining amortization period	20 years closed period	(1) closed period
Asset valuation method	5-year moving market average FYE on or before June 30, 2007	5-year moving market average FYE on or before June 30, 2007
	10-year Moving Market Average for FYE ending after June 30, 2007	10-year Moving Market Average for FYE ending after June 30, 2007
Actuarial assumptions:		
Investment rate of return	7.50%	7.50%
Projected salary increases	4.75% (2)	4.75% (2)
Included inflation at	3.00%	3.00%
Cost-of-living adjustments	2.50%	2.50%
Increase in Social Security wage base	3.50%	3.50%

(1) The length of the amortization period varies by political subdivision, not to exceed 30 years

(2) Uniform rate that approximates the effect of a graded salary scale.

Schedules of Funding Progress
Expressed in Thousands

	Actuarial Valuation Date	Actuarial Value of Plan Assets (a)	Actuarial Accrued Liability (AAL) Frozen Entry Age (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Annual Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a)/c)
SETHEEPP	7/1/2007	$ 26,214,995	$ 27,240,151	$ 1,025,156	96.24%	$ 5,742,866	17.85%
	7/1/2009	$ 26,335,199	$ 29,054,966	$ 2,719,767	90.64%	$ 6,054,528	44.92%
PSPP	7/1/2007	$ 4,897,974	$ 5,475,620	$ 577,646	89.45%	$ 2,081,964	27.75%
	7/1/2009	$ 5,304,455	$ 6,143,775	$ 839,320	86.34%	$ 2,282,082	36.78%

The schedule of funding progress is intended to present multiyear trend information about whether the actuarial value of plan assets is increasing or decreasing over time relative to the actuarial accrued liability for benefits.

Schedules of Employer Contributions
Expressed in Thousands

Year Ended June 30	SETHEEPP		PSPP	
	Annual Required Contribution	Percentage Contributed	Annual Required Contribution	Percentage Contributed
2010	$577,077	100.00%	$258,215	100.00%
2009	583,985	100.00%	252,926	100.00%
2008	593,412	100.00%	244,847	100.00%
2007	562,729	100.00%	231,699	100.00%
2006	474,879	100.00%	191,000	100.00%
2005	448,154	100.00%	181,096	100.00%

An actuarial valuation of the TCRS is performed every two years with the next valuation scheduled to be effective July 1, 2011.