



Investment Rates of Return, Governance, and Policies of the Kentucky Retirement Systems and the Kentucky Teachers' Retirement System

Research Report No. 352

Prepared by

Rick Graycarek, Margaret Hurst, and Colleen Kennedy

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Investment Rates of Return, Governance, and Policies of the Kentucky Retirement Systems and the Kentucky Teachers' Retirement System

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Foreword

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Robert L. Sherman
Director

Legislative Research Commission
Frankfort, Kentucky
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Summary

At its October 2007 meeting, the Program Review and Investigations Committee voted to initiate a study of the investment practices and rates of return at the Kentucky Retirement Systems (KRS) and the Kentucky Teachers' Retirement System (KTRS). This report examines how KRS and KTRS investments are governed and managed. It also considers investment performance based on benchmarks established by KRS and KTRS and in comparison to other public employee and teacher retirement systems.

This report makes five recommendations.

Membership

KRS is responsible for investing funds and managing benefits for more than 316,000 active, retired, and inactive state and local government employees. It consists of three separate retirement systems: Kentucky Employees Retirement System, County Employees Retirement System, and the State Police Retirement System. Each system has separate pension and insurance funds.

KTRS has more than 119,000 members from employers from every public school district, five regional universities, the Kentucky Community and Technical College System, Department of Education agencies, and others. Per statute, eligible participants include certified employees and graduates of a 4-year college or university. Members are not eligible for federal Social Security benefits.

Governance

Nine-member boards of trustees for KRS and KTRS have ultimate responsibility for investments. Trustees are elected, appointed, or ex officio. The "prudent person rule," which states that trustees must use the same care, skill, prudence, and diligence that a prudent person with a similar capacity and in a similar environment would use, applies to both KTRS and KRS.

Each retirement system has an investment committee to provide regular investment oversight. KRS's investment committee consists of five board members. KTRS's committee is made up of two board members and the executive secretary. Investment expertise is not required for members of either committee.

KRS and KTRS employ professional staffs to manage investments and advise their boards. Investment consultants are hired to help each retirement system plan and allocate assets. Contracts with external fund managers allow each retirement system to diversify assets by selecting managers with specific investment expertise.

Assets

KRS manages \$17 billion in assets, and KTRS manages more than \$15 billion. Funding comes from employer contributions; member contributions; investment income, which consists of interest income and dividends and appreciation of assets; and other revenues. Of these sources, investment income has been largest. In fiscal year 2007, investment income totaled \$2.3 billion, or 72 percent of the value of additions to KRS, and \$2.0 billion, or 68 percent, to KTRS.

Other revenues have recently included Kentucky general fund appropriations. KTRS received \$12 million in FY 2007 and \$14 million in FY 2008. KRS received \$12 million in FY 2007. These appropriations were separate from regular employer contributions made by the Commonwealth of Kentucky to either KRS or KTRS.

Investments

KRS and KTRS expect to operate in perpetuity. As a result, both retirement systems hold long-run investment views. Short-term or periodic fluctuations in investment rates of return are mainly important for how they affect a retirement system's ability to fund retirement benefits in the long run. KRS pension and insurance funds are combined for investing purposes. KTRS also invests pension and insurance assets jointly.

KRS and KTRS each make investment decisions according to various factors, which include ensuring sufficient liquidity to pay benefit expenses throughout the fiscal year.

Investment goals establish the broad principles on which investment policies and procedures are established. Investment objectives are specific measures of those goals. KRS's investment goal is to "preserv[e] capital, while seeking means of enhancing revenues and protecting against undue losses in any particular investment area." Its objectives are to beat comparable unmanaged market indices in the short run and, in the long run, to exceed the actuarially assumed investment rate of return, which is 7.75 percent. KTRS identifies two "goals," which appear to be what are usually defined as objectives and two investment "concerns," which appear to be what are usually considered goals. KTRS lists two investment "objectives," but neither can be measured.

Recommendation 3.1

The Kentucky Teachers' Retirement System should report specific investment goals and measurable investment objectives.

Asset Allocations

KRS and KTRS invest in various financial instruments including domestic and international equities, fixed-income securities such as U.S. Treasury notes and bonds, and alternative investments such as real estate and private equity. The proportions of assets invested in these categories is a retirement system's asset allocation. Asset allocations are developed according to recommendations from investment consultants and staff, consideration of statutory and regulatory investment restrictions, and a system's investment philosophy.

Asset allocations play an important role in a retirement system’s investment rate of return. All things equal, systems that invest proportionately more money in higher-risk investments achieve higher long-run returns than do other systems. Equities and alternative investments, in general, have more risk than fixed-income securities.

KRS and KTRS allocate assets differently. KRS’s pension and insurance funds allocate assets separately but overall KRS allocates fewer assets to domestic equities and fixed-income securities than does KTRS and allocates more to international equities and alternative investments. Administrative regulations place numerous investment restrictions on KTRS; KRS’s investments are not similarly restricted.

In recent fiscal years, KRS’s and KTRS’s asset allocations have changed. Both systems reduced their allocations to lower-risk investments such as fixed-income securities and increased their allocations to higher-risk, higher-return international equity and alternative investments. This corresponds to a similar allocation trend among other public employee retirement systems.

Investment Rates of Return

The table below shows KRS’s and KTRS’s investment rates of return over the most recent 1, 3, 5, and 10 years and net plan assets for FY 2007. At least part of the difference in rates of return is due to different asset allocations: higher rates of return generally correspond to higher risk asset allocations. Longer run returns are lower than 1- and 3-year returns, in large part, because they include declines in the domestic and international equity markets during the early 2000s.

KRS and KTRS Investment Rates of Return and Net Plan Assets

| | 1 Year | 3 Year | 5 Year | 10 Year | 2007 Net Plan Assets |
|---------------------|-----------|-----------|-----------|------------|-------------------------|
| KRS Pension Fund | 15.3% | 11.4% | 10.4% | 8.1% | \$14.2 billion |
| KRS Insurance Fund | 19.3% | 13.7% | 12.3% | 8.4% | \$2.7 billion |
| KTRS Combined Funds | 15.3% | 9.3% | 8.5% | 7.1% | \$15.6 billion |

Sources: Commonwealth. Kentucky Retirement. *Comprehensive* FY 2007; Commonwealth. Teachers’. *Comprehensive* FY 2007.

Both KRS and KTRS approve multiple investment benchmarks that are used to evaluate asset class and fund-level investment performance. One benchmark is the actuarially assumed investment rate of return. This identifies the rate at which an actuary assumes investments will grow. KRS’s most recent actuarial rate for its pension fund was 7.75 percent; KTRS’s rate was 7.5 percent. Both rates have been higher in the past, so average rates over longer time periods will be higher than current rates. Returns for KRS and KTRS exceeded their actuarial rates over the past 1-, 3-, and 5-year periods but fell slightly short over the 10-year period.

Another benchmark is the retirement system’s long-run objective. KTRS does not label this as an objective, but the system aims for an investment rate of return that exceeds inflation by 3.5 percentage points. For KRS, the long-run objective is the same as the current actuarially assumed rate of return. Actual returns for KRS and KTRS have exceeded these benchmarks.

A fund benchmark provides context for how well a retirement system's pension or insurance funds performed. The most straightforward fund benchmark is calculated by taking the benchmark indices used for each asset class within a fund and weighting them by each asset class's targeted or actual allocations as shares of the fund.

For KRS, actual reported returns for three of four pension asset classes and all four insurance asset classes for the most recent 1-year period were lower than their asset class benchmarks. The pension fund and the insurance fund, however, both exceeded their fund benchmarks. That KRS's 1-year actual returns exceeded the fund benchmarks while none or only one of the reported asset class benchmarks were met is counterintuitive and can be confusing. The problem is that investment returns for cash assets were not reported in KRS's *Comprehensive Annual Financial Report* for fiscal year 2007.

Recommendation 4.1

Subject to reporting standards, the Kentucky Retirement Systems should report investment returns and benchmarks for all classes of assets.

Another issue in comparing fund and asset class benchmarks is that KRS uses a customized fund benchmark. It would be helpful if supporting information were provided that clarified how these fund benchmarks are calculated, including how fund indices differ from asset class indices and how the weighting by asset class allocation is done.

Recommendation 4.2

The Kentucky Retirement Systems should report more detailed information on how its fund benchmarks are calculated.

Fund benchmarks were not reported in KTRS's *Comprehensive Annual Financial Report*, but KTRS staff provided these benchmarks to Program Review staff.

Recommendation 4.3

The Kentucky Teachers' Retirement System should report its fund benchmark, including a description of how that benchmark was calculated.

KTRS reports one combined benchmark for U.S. and international equities. The system has increased its investments in international equities, so it would be helpful if U.S. and international equity returns and benchmarks were reported separately.

Recommendation 4.4

The Kentucky Teachers' Retirement System should report separate U.S. and international equity asset class returns and benchmarks.

Other States

Knowing how well other retirement systems' investments performed can be useful when considering KRS's and KTRS's rates of return. Differences in investment policies, member demographics, funding, asset size, asset allocations, and other factors should be kept in mind when making comparisons, however.

Program Review staff identified and reported investment rates of return for 25 other public employee or teacher retirement systems with active membership numbers similar to KRS or KTRS. Average actual investment rates of return for those retirement systems exceeded KRS's pension fund over the 1-, 3-, 5-, and 10-year periods; KRS's insurance fund over the 10-year period; and KTRS's combined pension and insurance fund over the 1-, 3-, 5-, and 10-year periods. Consistent with academic research, these differences are attributable in some measure to different asset allocations. Higher long-run investment rates of return generally accompany higher-risk asset allocations. Judgments of decision makers may also play a role, including whether assets are invested internally or externally, how much risk is taken within a particular asset class, and which investment managers the system contracts with.

Program Review staff also identified differences in governance and investing among comparable public employee or teacher retirement systems. First, 10 out of 20 public employee retirement systems and 4 out of 9 teacher retirement systems examined in this report do not elect members to the board. Few systems are required by statute or regulation to operate an investment committee; however, most voluntarily established one. Most systems require board or investment committee members to have investment expertise, and two systems require investment training. Specific to investments, most comparable systems do not impose asset allocation limits, international investing restrictions, or in-state investing requirements.

Chapter 1

Overview and Background

Kentucky Retirement Systems (KRS) and Kentucky Teachers' Retirement System (KTRS) provide pension and health care benefits to qualified state and local government workers, teachers, and beneficiaries. KRS has \$17 billion and KTRS more than \$15 billion in net assets.

The Kentucky Retirement Systems (KRS) and the Kentucky Teachers' Retirement System (KTRS) provide pension and health care benefits to qualified state and local government employees, teachers, and their beneficiaries. Funding comes from employers' contributions, members' contributions, interest income and dividends, gains in asset values, and other sources. In total, KRS has \$17 billion and KTRS more than \$15 billion in net plan assets.

KRS has more than 148,000 active members and more than 77,000 retired and beneficiary members in three separate systems: the Kentucky Employees Retirement System, the County Employees Retirement System, and the State Police Retirement System. KTRS has more than 75,000 active members and more than 39,000 retired and beneficiary members.

The boards of trustees for KRS and KTRS have ultimate responsibility for investment of assets. Internal professional investment staff direct day-to-day investment operations and monitor external fund managers.

KRS and KTRS have diversified their portfolios in recent years.

In recent years, KRS and KTRS have diversified their investment portfolios and reallocated assets in order to improve returns and efficiently manage risk. Investment policies and asset allocation plans guided these changes. KTRS's allocations are, by statute, established in administrative regulations. KRS's investment allocations are approved by its board. KRS and KTRS maintain long-term investment views and have the powers and privileges of corporations.

As of June 30, 2007, the 10-year average return for KRS's pension fund was 8.1 percent and 8.4 percent for its insurance fund; KTRS's combined pension and insurance funds returned 7.1 percent.

Investment rates of return averaged 8.1 percent for KRS's pension fund and 8.4 percent for its insurance fund over the previous 10-year period ending June 30, 2007. For KTRS, the 10-year rate of return averaged 7.1 percent for its combined pension and insurance funds. Returns for both KRS and KTRS have been significantly higher in recent fiscal years.

Long-run liabilities exceed assets for both KRS and KTRS. Actuarial funding levels for KRS range from 57 percent to 84 percent for its three pension funds and from 12 percent to

Actuarial funding levels remain below 85 percent, sometimes significantly so, of expected liabilities for KRS's and KTRS's various pension and insurance funds. Two percent of KTRS's estimated future insurance obligations have been funded.

50 percent for its three insurance funds. For KTRS, the actuarial funding level is 72 percent for its pension fund and 2 percent for its insurance fund.

Description of This Study

The study has two objectives: 1) describe the organization and operation of KRS and KTRS as related to investments; and 2) examine investment practices, including rates of return, for KRS and KTRS.

How This Study Was Conducted

Information for this report was gathered from interviews, a literature review, and analyses of data from various public employee and teacher retirement systems.

Program Review staff interviewed staff from the Kentucky Retirement Systems and the Kentucky Teachers' Retirement System. Representatives of the Kentucky Teachers' Retirement Association, Kentucky Education Association, Kentucky League of Cities, and the Kentucky Transportation Employees' Association were also interviewed. Program Review staff contacted the National Association of State Retirement Administrators and staff from Boston College's Center for Retirement Research.

Articles from peer-reviewed journals provided a detailed overview of governance and investment factors related to public employee retirement systems.

Staff also reviewed statutes and administrative regulations related to governance and investment practices of 25 comparable public employee and teacher retirement systems. These systems were identified on the basis of active membership. Investment rates of returns, asset allocations, investment expenses, and benchmarks were also analyzed.

Program Review staff analyzed KRS and KTRS annual reports, audits, and actuarial valuations; surveys by the National Association of State Retirement Administrators and the U.S. Census Bureau; and reports by the Wisconsin Legislative Council, U.S. Federal Reserve, Morningstar, Wilshire Consulting, and the PEW Charitable Trusts.

Organization of the Report

Chapter 1 introduces the study topic and presents seven major conclusions. Basic finance and investment principles related to retirement investments are described. A review of a federal law related to retirement systems follows. The next section describes public employee retirement system characteristics from a national perspective. The chapter concludes by identifying common themes noted by representatives of retirement system member associations.

Chapter 2 describes the Kentucky Retirement Systems. Chapter 3 describes the Kentucky Teachers' Retirement System. Each chapter describes membership, funding, and governance issues and concludes with a description of investment policies.

Chapter 4 considers investment rates of return of KRS and KTRS. Investment returns of comparable public employee and teacher retirement systems are also considered.

Appendix A describes the asset and liability equation for retirement systems. Appendix B describes important pension accounting standards. Appendix C describes important Governmental Accounting Standards Board statements as they relate to KRS's and KTRS's insurance funds. Appendix D details actuarial investment rate of return assumptions, long-term investment objectives, and policy objectives for comparable public employee retirement systems. Appendix E details asset allocations and investment rates of return for comparable public employee retirement systems. Appendix F lists the sources of information for the 25 comparable systems analyzed in this report.

Major Conclusions

This report has seven major conclusions:

1. KRS and KTRS boards of trustees have ultimate fiduciary responsibility for investments, but both appoint investment committees and employ professional staff.
2. Risk-return decisions reflect retirement system circumstances and the judgment of decision makers.
3. Among retirement systems, higher-risk allocations, significant total assets, and lack of in-state investment requirements generally produce higher investment rates of return.
4. In the most recent 3 years, investment income comprised between 45 percent and 72 percent of the values of annual additions to KRS or KTRS assets.
5. In recent years, KRS and KTRS further diversified their portfolios and allocated more to international equities and other higher-risk investments, consistent with the national trend.
6. KRS and KTRS should report all asset class returns and benchmarks. KRS should explain its fund benchmarks, and KTRS should report and explain its fund benchmark.
7. KRS's and KTRS's investment rates of return met or exceeded most system-approved benchmarks. Only KRS's insurance fund had higher rates of return than the average of comparable systems.

This report has seven major conclusions.

1. Fiduciary responsibility for investments ultimately rests with the boards of trustees for KRS and KTRS. Both boards appoint investment committees to provide oversight and employ professional staff to monitor external fund managers and to perform day-to-day investment functions including compliance reviews of investment policies.
2. Typically, there is a trade-off between investment rates of return and risk. Because there is no single objective standard for what the acceptable trade-off should be, asset allocations, and thus rates of return, will vary according to the circumstances of each retirement system and the judgment of decision makers.
3. Among retirement systems, higher long-run investment rates of return are generally associated with higher-risk asset allocations. Significant total assets and lack of in-state investing requirements may also increase rates of return.
4. In the most recent 3 fiscal years, investment income, which includes interest, dividends, and appreciation of asset values, comprised between 45 percent and 72 percent of annual increases in value of KRS or KTRS assets.
5. In recent years, KRS and KTRS further diversified their investment portfolios and allocated more assets to international equities and other higher-risk investments, consistent with the national trend.
6. KRS and KTRS should report all asset class returns and benchmarks. KRS should explain its fund benchmarks, and KTRS should report and explain its fund benchmark.
7. Actual investment rates of return for different investment periods met or exceeded most benchmarks approved by KRS or KTRS. Only KRS's insurance fund had higher rates of return than the average of comparable public employee or teacher retirement systems.

Basic Finance and Investment Principles

Trade-off Between Risk and Return

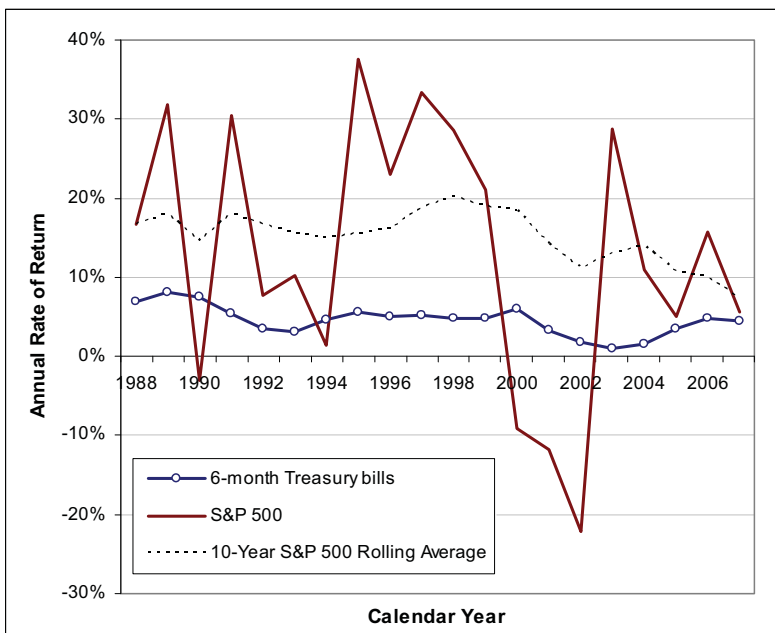
Higher returns generally accompany higher risk. For example, in the long run, higher-risk domestic securities, although prone to significant volatility, have outperformed lower-risk, stable U.S. Treasury bills.

Investments are typically categorized by their level of risk and corresponding rate of return. Generally, higher returns accompany higher risk, and lower returns go with lower risk. This pattern reflects investor demands for returns commensurate with risk.

Finance professionals describe an investment's level of risk by its volatility. Greater volatility indicates greater levels of risk, at least in the short run. Considered over longer periods of time, volatility is typically lower. Similarly, long-run investment returns are typically less volatile than short-run returns.

Historically, equities have been higher-risk investments. Annual returns, as measured by the Standard and Poor's 500, have fluctuated up to 30 percent or more by year. By comparison, U.S. Treasury bill returns, a relatively risk-free, short-term security, tended to vary little. Figure 1.A shows total annual returns for equities compared with 6-month U.S. Treasury bills. The historic rate of return for equities is about 10 percent, unadjusted for inflation, compared with 3 percent for U.S. Treasury bills (Munnell, Sass, and Soto).

Figure 1.A
Annual Rates of Return for Standard and Poor's 500 and 6-month U.S. Treasury Bills, Calendar Years 1988-2007



Sources: U.S. Board of Governors of the Federal Reserve. "Selected"; Standard and Poor's; Mutual of America.

Investment Is Long Term

Public employee retirement systems maintain long-term investment perspectives.

Most public employee retirement systems expect to operate in perpetuity, so they hold long-term investment views. Fluctuations in annual or short-term rates of returns are mainly important for how they affect a system's ability to fund retirement benefits in the long run.

Diversification Reduces Risk

Diversification can reduce risk and lead to more stable investment rates of return.

Retirement systems typically invest in a diverse group of assets, among a diverse group of investment managers. The purpose is to minimize risk associated with investing in a limited number of assets or asset classes. Through diversification, retirement systems reduce the risk that a particular asset's poor returns will inordinately weigh down overall rates of return.

Liquidity

Liquidity indicates how easily an asset can be sold without significant loss.

Liquidity indicates how easily an asset can be sold without significant loss. Because public employee and teacher retirement systems incur regular benefit expenses, liquidity is an important investment consideration. Depending on their membership demographics, some systems will have to devote more assets to current beneficiaries than others and must adjust their investments accordingly. Having sufficient liquidity can reduce or eliminate the need to sell assets at a loss in order to pay retirement benefits or other expenses.

Employee Retirement Income Security Act

The 1974 Employee Retirement Income Security Act established retirement plan standards for private industry. KRS and KTRS use similar standards.

The 1974 Employee Retirement Income Security Act (ERISA) set minimum standards for most voluntarily established pension and medical plans in private industry. It does not cover government-sponsored pension plans, but KRS and KTRS have established standards comparable to those required by ERISA.

ERISA requires plan sponsors to

- provide participants with plan information including features and funding;
- set minimum standards for participation, vesting, benefit accrual, and funding;
- provide fiduciary responsibilities for those who manage and control plan assets;

- require the establishment of a grievance and appeals process for participants to get benefits from their plans; and
- give participants the right to sue for benefits and breaches of fiduciary duty.

National Perspective

Governments of all sizes and from every state operate retirement systems for the purpose of providing benefits to employees when they retire. Many retirement systems originated in the mid-1900s.

Most retirement systems operate defined benefit pension plans whose assets are managed and invested by the system or other governing body.

Most systems are defined benefit plans, which are designed to guarantee retirees a certain proportion of their income in retirement. In exchange for regular contributions, employees become eligible to receive pension, insurance, or disability benefits based on their incomes and lengths of service. State and local employers usually make matching, and sometimes higher, contributions. Contributions are then managed and invested by a retirement system or other governing body.

Governance

Fiduciary responsibility for a retirement system's financial resources ultimately resides with the board of trustees. Most retirement systems employ a "prudent person" standard that requires trustees to use the same care, skill, prudence, and diligence as any other person acting in a similar capacity.

In most systems, the board of trustees has ultimate fiduciary responsibility for a retirement system's financial resources. Of greatest importance is how a board decides to invest its assets. Many systems follow language similar to the "prudent person" standard used under ERISA, which states that investment decisions should be made "solely in the interest of the participants and beneficiaries" and "with the same care, skill, prudence, and diligence under the circumstances then prevailing that a prudent man acting in a like capacity and familiar with such matters" would use (29 U.S.C. 1104(a)).

Constitutional, statutory, and regulatory provisions can restrict the types of investments a public employee retirement system can make.

State constitutions, statutes, and regulations occasionally restrict the types of investments that boards can make (Mitchell et al). For example, until 2007, South Carolina's constitution prevented public employee retirement systems from investing in international equities ("South Carolina"). Indiana public employee retirement systems, in another example, could not invest in equities until 1996 (Useem and Hess). Overall, investment restrictions have eased in recent years, and public employee retirement systems now hold more diverse assets.

Retirement boards typically approve contracts with investment consultants, legal counsel, and actuaries (Steffen). Actuarial

assumptions may be approved by boards. Board members generally hire an executive director and establish rules for the operation and administration of the retirement system (Steffen). Budgets for the majority of state public employee retirement systems are approved by the state legislature, but about one-third are approved solely by the board (Hsin).

Trustee authority over investments varies. Most boards oversee investment policy, but some have limited roles (Useem and Hess).

Most boards of trustees have eight members, of which some are elected, appointed, or ex officio.

Most boards consist of 8 trustees, but some have as many as 18 or as few as 4 (Hsin). Board representation can include members elected by plan participants or beneficiaries, appointed officials, or elected officials who automatically serve as ex officio members. State statute generally defines representation.

General Characteristics

According to a U.S. Census Bureau survey, there are at least 134 state-level public employee or teacher retirement systems in 39 states (U.S. Census. *State*).

As of 2006, the median state public employee retirement system had 79,100 active members and 38,300 retired members and \$12.7 billion in assets.

State-level public employee or teacher systems vary in membership and asset size. Some systems provide benefits to fewer than 5,000 members and manage less than \$400 million. Some retirement systems provide benefits to as many as 500,000 members and manage \$200-billion portfolios. As of 2006, of public employee or teacher retirement systems, the median size was 79,100 active members; 38,300 retired members; and \$12.7 billion in assets (U.S. Census. *State*).

On average, most retirement systems have sufficient financial resources to pay current benefits but only about 85 percent of long-run liabilities.

Most retirement systems have sufficient financial resources to pay current benefits. However, over the long run, actuarially determined liabilities exceed assets for most systems. This means current contributions and assets are not sufficient to pay future obligations. According to a recent report, the average state public employee pension system was approximately 85 percent funded. Medical insurance benefits were mostly unfunded (Pew Center).

Total Assets

Total assets indicate the value of resources available to pay liabilities and are a factor in making assumptions about future investment income.

Total assets indicate how much is available to pay liabilities. It is a key component in measuring a retirement system's funding adequacy, setting employer and member contribution rates, and making assumptions about future investment income.

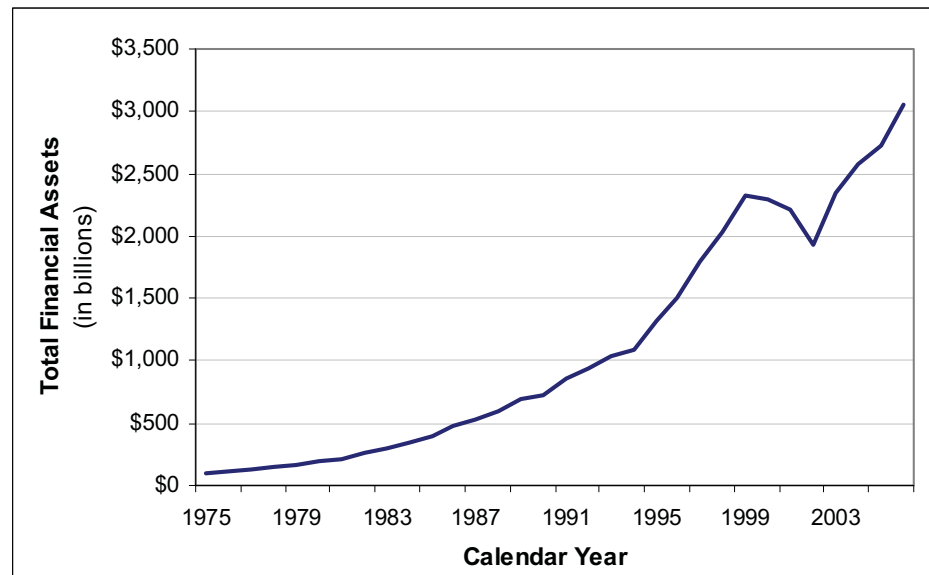
Total assets for state and local public employee retirement systems increased, on average, 12 percent per year from 1975 to 2006.

Figure 1.B shows total assets belonging to state and local public employee retirement systems rising from \$104 billion in 1975 to \$3.1 trillion in 2006. Although total assets increased, on average, 12 percent per year, total assets fell in 2000, 2001, and 2002. The dot-com bubble, terrorist attacks, and subsequent recession contributed to the decline.

Asset values can affect asset allocation decisions which, in turn, can affect investment rates of return.

Asset values can affect asset allocation decisions and, in turn, investment returns. For example, a retirement system whose asset value exactly matched expected current-year expenses would invest in short-term securities because all assets would be needed in the near term, assuming no net plan additions during the year.

Figure 1.B
Total Financial Assets for State and Local Public Employee Retirement Systems, Calendar Years 1975-2006



Source: U.S. Board of Governors. "Flow of Funds Accounts."

Asset values increase whenever interest income, dividends, employer contributions, member contributions, or the market value of investments increase. Asset values decrease whenever benefits or investment expenses increase, or investments lose market value.

All else equal, asset values increase when interest income, dividends, employer contributions, or member contributions increase. They also rise when the market value of investments increases. Asset values fall whenever benefit or investment expenses rise or investments lose market value. Appendix A has more detail.

Asset Allocations

Asset allocations are the mix of investments that each system carries.

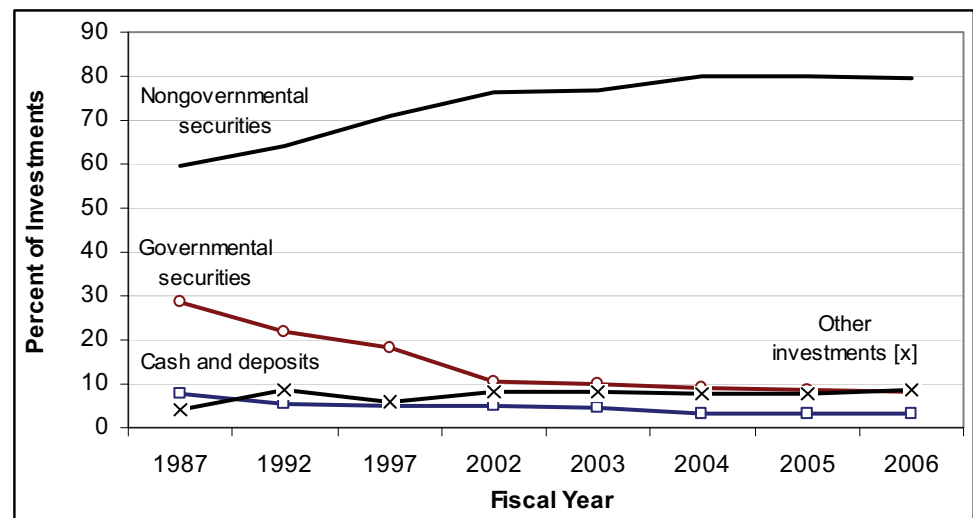
Retirement systems invest in stocks, bonds, real estate, and other financial instruments. The mix of particular investments that each system carries is its asset allocation. Diversified systems hold a broad range of investments, which should produce more stable rates of return.

The way in which systems allocate assets can account for as much as 92 percent of the differences in systems' total return from their investment portfolios.

Asset allocation is also important because it is the primary determinant of investment return. Research has shown that the way in which systems allocate assets can account for as much as 92 percent of the differences in systems' total return from their investment portfolios (Brinson; Ambachtsheer; Schneider). For example, a retirement system that invests primarily in low-risk government securities will likely realize lower rates of return over the long run compared to a system that invests in higher-risk, higher-return domestic equities.

In recent years, public employee and teacher retirement systems significantly altered their asset allocations. Figure 1.C shows asset allocations for state and local public employee retirement systems from 1987-2006.

Figure 1.C
Cash and Investment Holdings of U.S. Public Employee State and Local Retirement Systems, Fiscal Years 1987-2006



Notes: "Cash and deposits" include various short-term instruments invested for as long as 1 year. "Governmental securities" include U.S. Treasury, federal agency, and state and local government securities. "Nongovernmental securities" include primarily domestic stocks and bonds but also mortgages and foreign and international securities. "Other investments" include, among others, real property.

Sources: 1987-2002 data from U.S. Census "Employee"; 2003-2006 data from U.S. Census. *State*.

Public employee retirement systems have been shifting investments from fixed income securities and toward domestic and international equities.

In 1987, public employee and teacher retirement systems held less than 60 percent of assets in nongovernmental securities such as domestic and international equities and more than 25 percent in governmental securities such as U.S. Treasury obligations. By 2006, allocations were about 80 percent nongovernmental securities and less than 10 percent governmental securities.

Within this broad investment change, state and local public employee and teacher retirement systems significantly expanded investments in foreign and international securities. International stock allocations rose from 0.3 percent in 1990 to 6.7 percent in 1996 (Eaton). More recently, foreign and international investments increased from 11.8 percent in 2002 to 15.0 percent in 2006, a 27 percent rise (U.S. Census. *State*).

Assumed Investment Rates of Return

Assumed rates of return are used to estimate future investment income.

Assumed investment rates of return are figures developed by actuaries and approved by boards to help retirement systems gauge, among other things, future investment income.

Frequent revisions to assumed rates of return occur. Retirement systems modify assumptions based on changes in market performance. Some boards may evaluate and change assumed rates as a regular course of action.

On average, assumed rates of return have not increased in recent years despite retirement systems reallocating assets into higher-risk securities.

Despite retirement systems reallocating some assets from lower-risk governmental securities to higher-risk international securities, assumed rates of return have typically not increased. The average assumed rate of return for state and local public employee retirement systems was 8.03 percent in 2000 but only 7.95 percent in 2006 (State of Wisconsin).¹ The median rate of return, or the amount at which one-half of systems had higher and one-half had lower rates, remained constant at 8 percent. Potential reasons include a lag between asset allocation adjustments and retirement system changes to assumed rates of return, retirement systems' attachment to long-held expectations, retirement systems' desire to maintain a conservative estimate, or other external influences (Hustead).²

¹ In 2006, the highest assumed rate was 9 percent and the lowest was 6.5 percent.

² Expected rates of return increased from 3 percent to 4 percent in the 1950s and 1960s—a time when public employee retirement systems were largely invested in governmental securities—to around 8 percent in the early 1990s, when retirement systems redirected some of their assets into nongovernmental securities (Hustead).

Common Themes Among Member Associations

Program Review staff interviews with representatives of public employee and teacher associations revealed three common themes: concerns about underfunded pension and medical benefits, dissatisfaction with limited board representation, and satisfaction with the way KRS and KTRS investments are managed.

Concerns that KRS and KTRS may have inadequate resources to meet future obligations were common. Association representatives consistently mentioned funding as an important issue. Insufficient board of trustee representation was a concern for some. Overall, interviewees expressed satisfaction with the way KRS and KTRS operate, including their investment approaches and rates of return.

Chapter 2

Kentucky Retirement Systems

This chapter describes the Kentucky Retirement Systems. It begins with a summary and continues by describing membership, funding, and governance. The chapter concludes with a description of investment policies and practices.

Summary

KRS invests funds and manages benefits for more than 316,000 active, retired, and inactive state and local government employees. KRS consists of three separate systems: Kentucky Employees Retirement System (KERS), County Employees Retirement System (CERS), and the State Police Retirement System (SPRS). Each system has separate pension and insurance funds.

KRS is a state agency responsible for investing funds and managing benefits for more than 316,000 active, retired, and inactive state and local government employees. It is made up of three separate retirement systems: the Kentucky Employees Retirement System (KERS), the County Employees Retirement System (CERS), and the State Police Retirement System (SPRS). Each system has separate pension and insurance funds.

KERS was created in 1956 for the purpose of supplementing Social Security benefits for retired state government workers. CERS, a system primarily for county and city employees, and SPRS, a system exclusively for state police, were created in 1958 (Commonwealth. Kentucky Retirement. *Comprehensive* FY 2007).

This chapter has four main points.

1. KRS is governed by a nine-member board of trustees. A five-member investment committee oversees investments.
2. Assets grew \$4.9 billion, or 40 percent, from FY 2002 to FY 2007.
3. KRS is changing its asset allocations to include a greater percentage of higher-risk, higher-return securities, such as international equities.
4. Investment income accounted for 64 percent to 72 percent of annual net plan additions from FY 2005 to FY 2007.

This chapter has four main points.

First, KRS is governed by a nine-member board of trustees. Five members are elected, three are appointed, and one is ex officio. Members are not required to have investment expertise. A five-member investment committee of board members oversees all investment activities.

Second, net assets grew \$4.9 billion, or 40 percent, from FY 2002 to FY 2007. KRS had \$17 billion in net assets at the end of FY 2007.

Third, KRS is changing its asset allocations by increasing its investments in international securities and private equity while decreasing fixed-income and short-term investments. Board approval is required to change asset allocations.

Fourth, investment income, which includes interest income, dividends, and appreciation of asset values, accounted for

64 percent to 72 percent of annual net plan additions from FY 2005 to FY 2007. Employer and member contributions were the next two largest components. Other revenue, including a \$12 million general fund appropriation in FY 2007, represented the balance.

Membership

Each system in KRS consists of active, retired, and inactive members. Active members are currently employed. Retired members include former employees receiving benefits and beneficiaries of deceased members. Inactive members no longer work for a participating agency.

Among others, members of KERS include employees of state agencies and regional universities. CERS members include area development district and city and county government employees. SPRS members are limited to State Police employees.

Members of KERS include employees of state agencies and all regional universities. Total active membership in FY 2007 was 52,000. Retired and inactive members totaled 70,000.

CERS members include area development districts, boards of education, and city and county government employees. Its membership is the largest of the three systems with 95,000 active members and 97,000 retired or inactive members.

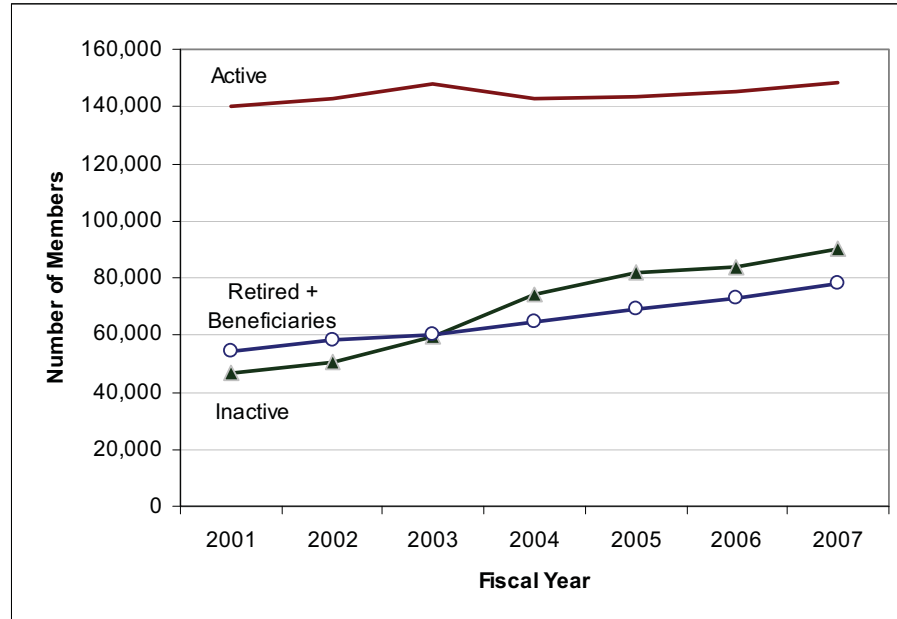
SPRS members are State Police employees. It is the smallest of the three systems, with 957 active members and 1,400 retired or inactive members.

For the KERS and CERS systems, there are two types of members: hazardous and nonhazardous. Hazardous duty members typically perform more dangerous or risky jobs. The SPRS system is hazardous duty only.

From FY 2001 to FY 2007, KRS active membership rose 6 percent, from 140,000 to 148,000. Retired membership rose 43 percent, from 54,600 to 77,900. The ratio of active to retired members has steadily declined.

Figure 2.A shows total KRS membership increasing from 241,800 in FY 2001 to 316,100 in FY 2007. Active membership increased 6 percent from 140,000 to 148,000; retired membership increased 43 percent from 54,600 to 77,900; and inactive membership increased 93 percent from 46,700 to 90,100.

Figure 2.A
Total Kentucky Retirement Systems' Membership
by Member Classification, Fiscal Years 2001-2007

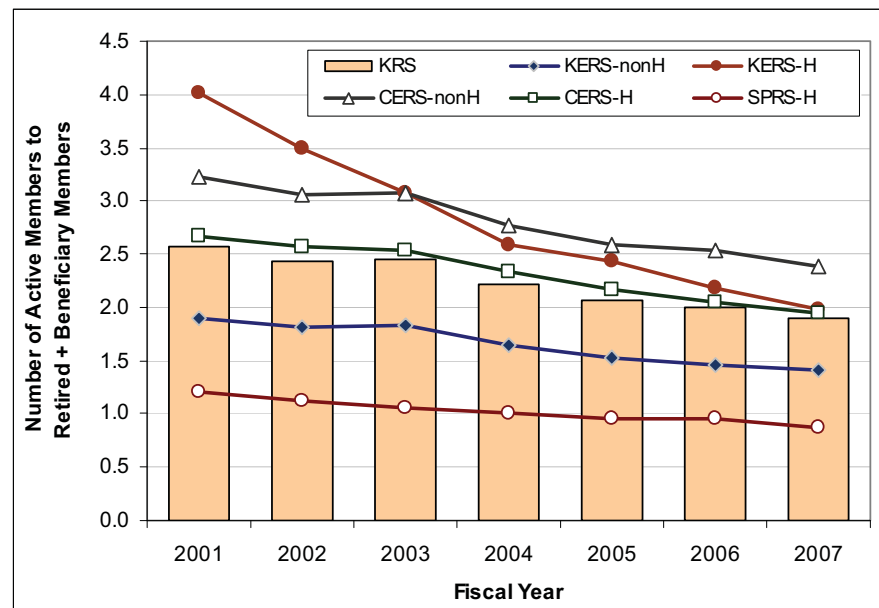


Source: Staff's compilation of information from Commonwealth. Kentucky Retirement. *Comprehensive* FY 2001-FY 2007.

Figure 2.B shows the ratio of active to retired members for all three KRS systems and hazardous/nonhazardous classifications. Active-to-retired ratios typically express the concentration of retirement costs among current employees. Higher ratios indicate the financial burden is more dispersed, which means lower per-person burdens. Lower ratios indicate costs are spread among fewer active members.

The ratio of active to retired KRS members has declined from 2.6 to 1 in FY 2001 to 1.9 to 1 in FY 2007. Each system experienced similar decreases. The most dramatic was for the KERS hazardous duty system, whose ratio fell from 4 to 1 active members per retiree or beneficiary to 2 to 1.

Figure 2.B
Ratio of Active to Retired Members by System
for the Kentucky Retirement Systems, Fiscal Years 2001-2007



Source: Staff's analysis of Commonwealth. Kentucky Retirement. *Comprehensive* FY 2001-FY 2007.

Funding

KRS's primary revenue sources are employer contributions, member contributions, interest income and dividends, and net asset appreciation.

KRS receives revenue from four primary sources: employer contributions, member contributions, interest income and dividends, and net asset appreciation. Other revenue, such as state appropriations and other one-time sources, is significantly smaller.

Other revenue in recent years has included \$48 million from Anthem Insurance demutualization, \$21.5 million from Medicare, and \$12 million from Kentucky's general fund.

KRS received \$48 million from the demutualization of Anthem Insurance, \$21.5 million from the Medicare Retiree Drug Subsidy Program, and \$12 million from the state general fund in recent years (Commonwealth. Kentucky Retirement. "Kentucky"). The latter was appropriated by House Bill 380, the 2006-2008 biennial budget, and used to shore up the Kentucky Retirement Systems' insurance fund. These were one-time revenues.

Member contribution rates are set by statute. Employer contribution rates for KERS and SPRS are subject to legislative approval, but CERS employer rates are not.

Member contribution rates are set by statute. For KERS and SPRS, employer contribution rates are determined by the board of trustees based on annual valuations, subject to legislative approval. Employer contribution rates for CERS are determined by the board of trustees without further legislative review.

Statutes

Statutory authority for the Kentucky Retirement Systems comes under KRS Chapter 61. KRS 61.645 covers the board of trustees' composition, selection, powers, terms, fiduciary responsibilities, liability, and required reports. KRS 61.650 covers the investment committee and fiduciary duties of officers and employees.

Governance

Trustees

The KRS Board of Trustees includes five elected members, three appointed members, and one ex officio member.

KRS is governed by a nine-member board of trustees. Two trustees are elected by KERS members, two are elected by CERS members, one is elected by SPRS members, three are appointed by the governor, and the secretary of the Personnel Cabinet serves as an ex officio member. At least one gubernatorial appointee must be knowledgeable about the impact of pension requirements on local governments. Each trustee's term is 4 years. Trustees are paid through per diems.

Administration

The board appoints or contracts for the services of an executive director. As the chief administrative officer of the board, the executive director oversees day-to-day operations of the system. The board retains exclusive power and control over employees and meets at least quarterly.

A five-member investment committee appointed by the board chair oversees investments. Committee members are not required to have investment expertise.

An investment committee of five board members, each appointed by the board chair, oversees assets. Acting on behalf of the board, the committee has the power to acquire, safeguard, monitor, and manage system assets and securities. This includes reviewing reports and approving the selection and termination of service providers (Commonwealth. Kentucky Retirement. Board. Sec. 2.2, d. 1.). Meetings are held at least quarterly. Members are not required to have investment expertise.

Fiduciary Responsibility

Statute mandates that trustees, officers, employers, and others complete their duties in good faith and in the best interest of KRS.

Statute requires that trustees, as fiduciaries, discharge their duties in good faith, on an informed basis, and in a manner honestly believed to be in KRS's best interests. Officers, employees, and other fiduciaries must also work for the sole interest of KRS's members and beneficiaries.

Liability and Insurance

Suits against KRS trustees for monetary damages may only be brought for acting or failing to act on a matter where the trustee's behavior constitutes willful misconduct or wanton or reckless disregard for human rights, safety, or property. This does not alleviate the need for insurance.

The executive director is covered by a surety bond of \$500,000. A Public Entity Fiduciary Liability Policy of \$5 million insures the pension and insurance trusts and any past, present, or future trustee or employee of the trusts. Premiums are paid by the KRS administrative budget.

Pension and Insurance Funds

KRS administers separate pension and insurance funds.

The Kentucky Retirement Systems' board administers separate funds on behalf of its member systems—a pension fund and an insurance fund—but combines the funds for purposes of investing. Each has a separate written investment policy incorporated in the bylaws. The pension fund invests the pension assets of KERS,

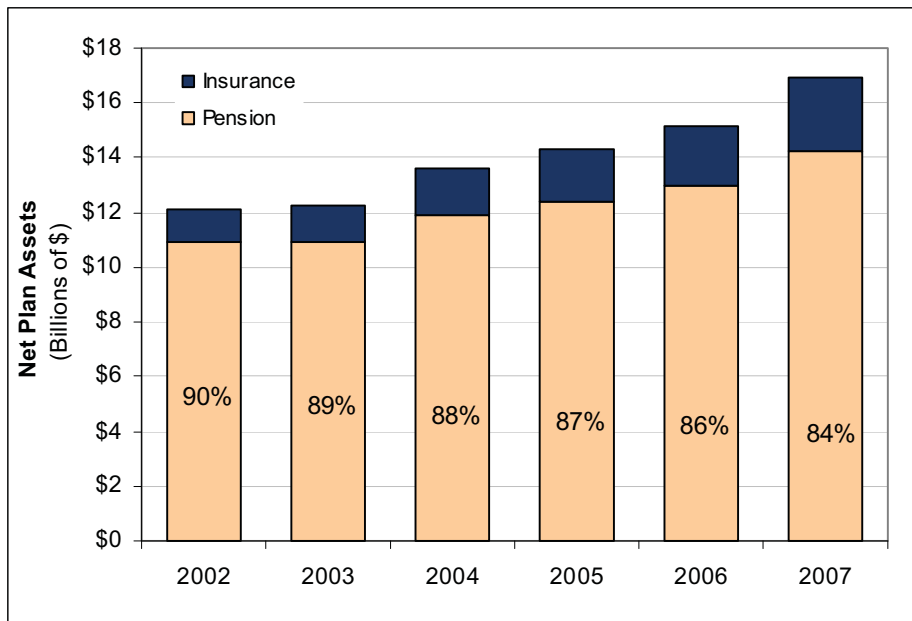
CERS, and SPRS (Commonwealth. Kentucky Retirement. “Statement of Investment Policy—Pension”). Statute establishes the Kentucky Retirement Systems’ Insurance Fund, which is to provide fringe benefits to recipients of KERS, CERS, and SPRS (Commonwealth. Kentucky Retirement. “Statement of Investment Policy—Insurance”). It is administered in the same manner as the pension funds (KRS 61.701).

Assets

Between FY 2002 and FY 2007, net plan assets grew from about \$12 billion to almost \$17 billion, a 40 percent increase. Of KRS’s net plan assets, the pension fund holds 84 percent and the insurance fund holds 16 percent.

Figure 2.C shows net plan assets for KRS’s pension and insurance funds. Net plan assets reflect contributions received, interest income and dividends earned, and asset appreciation less current-year benefit payments and other expenses. Between FY 2002 and FY 2007, net plan asset values grew from approximately \$12 billion to almost \$17 billion, a 40 percent increase, or 6.7 percent per year. Pension fund assets relative to total net assets declined from 90 percent in FY 2002 to 84 percent in FY 2007. Insurance fund assets increased by a corresponding amount.

Figure 2.C
Kentucky Retirement Systems’ Pension and Insurance Funds
Net Plan Assets and Pension Fund Percent of Total, Fiscal Years 2002-2007



Source: Staff’s analysis of Commonwealth. Kentucky Retirement. *Comprehensive FY 2002-FY 2007*.

Summary of Changes in Net Plan Assets

Table 2.1 identifies the major components of annual net plan asset changes. They are divided into revenue and expense categories. Revenues include employer and member contributions, net investment appreciation, and interest income and dividends. Reported amounts combine KRS's pension and insurance funds for simplicity.

Table 2.1
Summary of Kentucky Retirement Systems' Changes in Net Plan Assets by Revenue and Expense Categories for Pension and Insurance Funds, Fiscal Years 2005-2007
(in thousands of dollars)

| | FY 2005 | | FY 2006 | | FY 2007 | |
|------------------------------|------------------|----------------|------------------|----------------|--------------------|----------------|
| | Total | % of Sub-total | Total | % of Sub-total | Total | % of Sub-total |
| Revenues | | | | | | |
| Member contributions | \$310,806 | 16% | \$288,230 | 13% | \$326,876 | 10% |
| Employer contributions | \$390,189 | 20% | \$469,935 | 22% | \$601,162 | 18% |
| Net investment appreciation | \$845,957 | 44% | \$991,827 | 46% | \$1,874,664 | 57% |
| Interest and dividends | \$381,329 | 20% | \$413,592 | 19% | \$478,171 | 15% |
| Subtotal | \$1,928,281 | 100% | \$2,163,584 | 100% | \$3,280,873 | 100% |
| Expenses | | | | | | |
| Benefits | \$1,127,413 | 97% | \$1,275,396 | 97% | \$1,428,203 | 97% |
| Administrative | \$18,663 | 2% | \$23,931 | 2% | \$27,824 | 2% |
| Investment | \$17,947 | 2% | \$21,279 | 2% | \$21,883 | 1% |
| Subtotal | \$1,164,023 | 100% | \$1,320,606 | 100% | \$1,477,910 | 100% |
| Additions less deductions | \$764,258 | | \$842,978 | | \$1,802,963 | |
| Other changes | \$(11,935) | | \$(24,038) | | \$3,702 | |
| Net plan asset change | \$752,323 | | \$818,940 | | \$1,806,665 | |

Note: "Other changes" include capital expenses. Subtotals may not add to 100% due to rounding.

Source: Compiled by staff based on Commonwealth. Kentucky Retirement. *Comprehensive* FY 2005-FY 2007.

Net plan assets increased primarily due to investment income, which is appreciation of investments plus interest income and dividends.

Net plan assets increased in recent years primarily due to appreciation of investments and positive interest income and dividends. Since FY 2005, these factors accounted for 64 percent to 72 percent of KRS's net plan asset additions per year. Employer and employee contributions represented about one-third of additions.

Benefit payments account for almost all expenses.

Since FY 2005, benefit payments accounted for approximately 97 percent of KRS's expenses. In FY 2007, pension benefits totaled \$1.19 billion of \$1.23 billion in total expenses. For the insurance fund, health care costs accounted for \$241 million of \$249 million in total expenses. Administrative and investment expenses comprised the balance.

Investment expenses include common stock commissions, broker rebates, and contractual service costs.

Investment expenses include common stock commissions, broker rebates, and contractual service costs such as investment management.¹ Investment expenses are allocated in proportion to the number of active members participating in each plan and the carrying value of plan investments, respectively.

Asset Allocation Targets

Asset allocation targets establish how much should be invested in particular asset classes.

Asset allocation targets establish how much should be invested in particular asset classes according to projected total assets, liabilities, and system goals and objectives. An investment consultant guides the allocation process.

State statutes and administrative regulations do not specifically prohibit specific investments, but KRS imposes some restrictions of its own.

Neither statute nor administrative regulation prohibits specific investments. However, KRS imposes its own restrictions based on its annually updated 5-year investment plan (Commonwealth Kentucky Retirement. KRS). Table 2.2 identifies acceptable and restricted investments by asset class.

In-state investments are not required.

Statute requires the Kentucky Retirement Systems to give priority to investments expected to "improve the industrial development and enhance the economic welfare of the Commonwealth" whenever consistent with fiduciary responsibilities (KRS 61.650(3)). The board, however, is not required to make in-state investments.

After considering investment policies, an investment consultant models liabilities, projects assets, determines total expected funding obligations, and considers multiple risk and reward scenarios. The consultant then recommends an asset allocation policy to KRS. The most recent asset allocation and liability study was in 2006 and considered a 5-year implementation timeline.

¹ Professional consultant fees to KRS's actuary, auditor, legal counsel, and similar other entities are not included in investment expenses. They are identified separately in the *Comprehensive Annual Financial Report* and totaled \$1.8 million in FY 2007.

Table 2.2
Acceptable and Prohibited Investments by Asset Class for KRS

| Asset Class | Acceptable Investments | Prohibited Investments or Other Restrictions |
|----------------------------------|--|--|
| Alternative/ Real Estate | Venture capital, private equity, and private placements | Subject to specific investment committee approval |
| Cash Equivalent Securities | Publicly traded investment grade corporate bonds, government and agency bonds, mortgages, collective short-term investment funds, money market funds or instruments such as certificates of deposit, and repurchase agreements | Must have BBB rating or above by at least one bond rating service; maturity cannot exceed 2 years; repurchase agreement maturity equal to period remaining until repurchase of underlying security |
| Derivatives | Collateralized mortgage obligations and other asset-backed securities; exchange-traded funds, which convert cash into short-term equity investments | Cannot leverage system beyond 100 percent of position; large or unanticipated changes in duration or cash flow prohibited |
| Equities | Domestic and international common stock, securities convertible into common stock, and preferred stock of publicly traded corporations | |
| Fixed Income | Publicly traded corporate bonds that balance quality and maturity given current market and economic conditions; debt issued or guaranteed by agency or instrumentality of U.S. government | |
| Mortgages | Direct real estate mortgages or mortgage pools guaranteed by U.S. government agency or Commonwealth of Kentucky | |

Source: Commonwealth. Kentucky Retirement. *Comprehensive* FY 2007.

Asset allocation targets have decreased for domestic equity and fixed-income securities and increased for international equity and alternative investments.

Table 2.3 shows pension and insurance fund asset allocation targets for FY 2007. It also shows targets for FY 2002, the period preceding the latest allocation study in 2006.

Table 2.3
Target Asset Allocations for KRS's Pension and Insurance Funds, Fiscal Years 2002 and 2007

| Asset Class | Pension | | Insurance | |
|----------------------|---------|------|-----------|------|
| | 2002 | 2007 | 2002 | 2007 |
| Domestic equity | 40% | 30% | 60% | 40% |
| International equity | 15 | 20 | 20 | 30 |
| Fixed-income | 27 | 25 | 0 | 0 |
| Alternatives | 5 | 12 | 5 | 15 |
| TIPs | 10 | 10 | 10 | 12 |
| Cash | 3 | 3 | 5 | 3 |
| Total | 100% | 100% | 100% | 100% |

Note: TIPs is Treasury Inflation-protected Securities.

Source: Staff's compilation of information from Commonwealth. Kentucky Retirement. *Comprehensive* FY 2002 and FY 2007.

For the pension fund, the target for domestic equities decreased from 40 percent to 30 percent. The target for international equities increased from 15 percent to 20 percent. Alternative investment targets increased from 5 percent to 12 percent.

KRS's insurance fund, in general, maintains a higher-risk investment portfolio relative to KRS's pension fund.

Compared to the pension fund, the insurance fund had a more aggressive investment strategy but showed similar asset allocation changes. Domestic equity targets decreased from 60 percent to 40 percent of total allocations, and international equity rose from 20 percent to 30 percent. Target allocations for alternative investments increased from 5 percent to 15 percent. According to KRS staff, the insurance fund is appropriately diversified without holding any fixed-income assets (Burnside).

Actual and target asset allocations do not usually match due to market fluctuations and regular asset management.

Actual investment practice usually does not match allocation targets. Frequent market fluctuations, along with regular, active asset management, create differences. Consequently, KRS investment staff monitor investment practices to ensure that allocations remain close to asset targets.

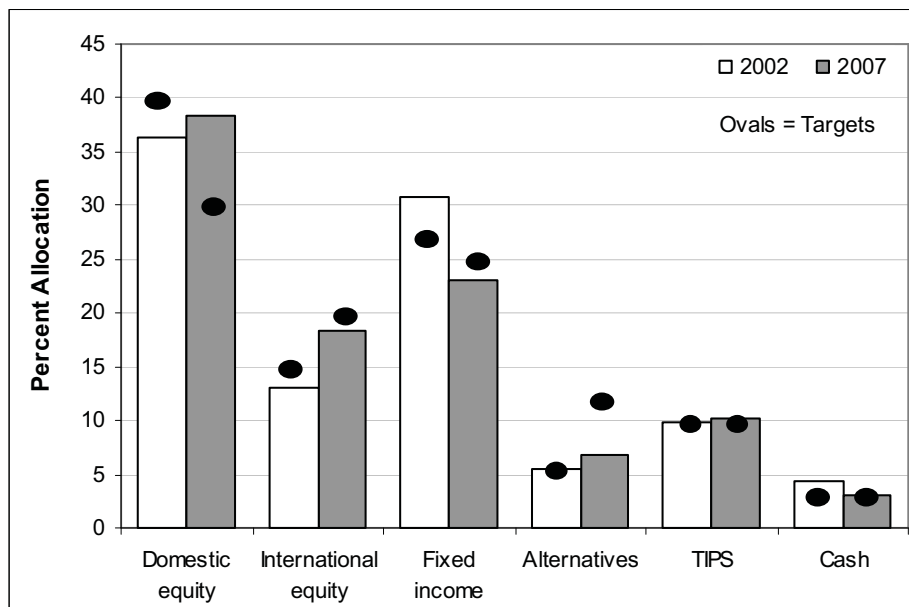
Actual Allocations

Figures 2.D and 2.E show actual asset allocations for KRS's pension and insurance funds for FY 2002 and FY 2007. KRS established a 5-year timeline to implement these asset targets. According to KRS staff, the system had 0.91 percent exposure to sub-prime securities as of December 31, 2007 (Burnside).

Significant deviations from allocation targets require KRS staff to rebalance assets.

Pension Fund. For the pension fund, domestic and international equity holdings increased between FY 2002 and FY 2007. Although the FY 2007 domestic equity target is lower than it was in FY 2002, actual allocations are higher, due, in part, to the time it takes to make large allocation changes. A 10-point change in domestic equity pension fund target, for example, equals approximately \$500 million. According to KRS staff, changing asset allocations is similar to changing the direction of a super-tanker—it takes a long time.

Figure 2.D
KRS Pension Fund Actual and Target Asset Allocations, Fiscal Years 2002 and 2007



Note: TIPS is Treasury Inflation-protected Securities.

Source: Staff's compilation of information from Commonwealth. Kentucky Retirement. *Comprehensive FY 2002 and FY 2007.*

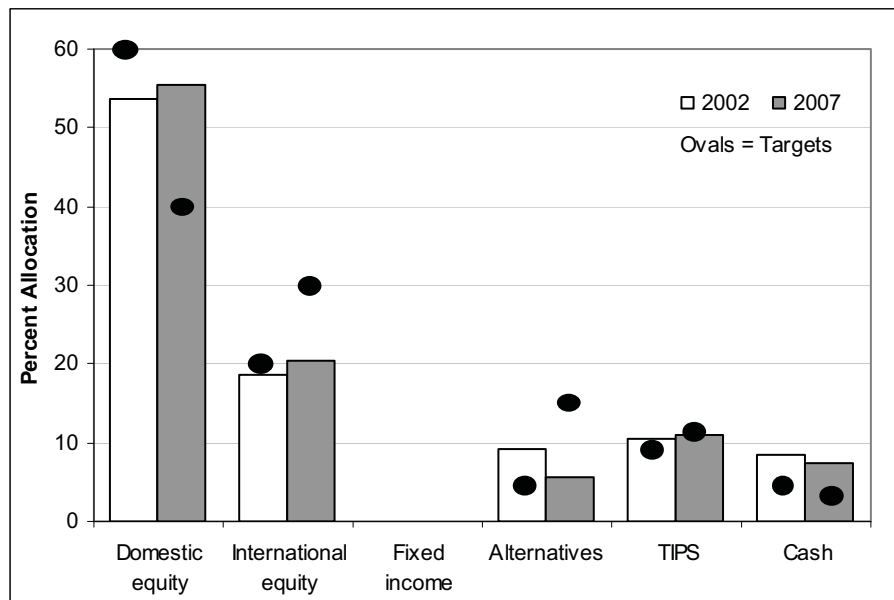
Actual allocations for fixed-income decreased from 31 percent to 23 percent. Over the long run, fixed-income assets generally have lower returns compared to equities, in large part, because they are less volatile.

KRS's asset allocations have generally followed national trends.

Overall, actual asset allocations for the Kentucky Retirement Systems' pension fund generally followed national trends. KRS moved some assets from fixed-income and cash to domestic and international equities, as many other state and local public employee retirement systems did.

Insurance Fund. For the insurance fund, increased allocations to domestic and international equities accounted for most change between fiscal years 2002 and 2007. These increases were offset by decreases to alternative and cash investments.

Figure 2.E
KRS's Insurance Fund Actual and Target Asset Allocations,
Fiscal Years 2002 and 2007



Note: TIPS is Treasury Inflation-Protected Securities.

Source: Staff's compilation of information from Commonwealth. Kentucky Retirement. *Comprehensive FY 2002 and FY 2007.*

Investments

Goals

KRS's primary goal is to preserve capital while trying to enhance revenues.

KRS invests assets to provide retirement benefits to its members. According to its 2007 *Comprehensive Annual Financial Report*, the primary goal is to "preserv[e] capital, while seeking means of enhancing revenues and protecting against undue losses in any particular investment area." KRS staff also noted that they try to follow three related principles: diversification, globalization, and opportunity.

Objectives

Approved by the KRS Board of Trustees, investment objectives establish how retirement system investments will be evaluated in the short term and long term in relation to investment goals. Investment consultants advise the board on investment strategies, including asset allocations.

The short-term investment objective is to beat comparable unmanaged market indices. The long-term investment objective is to exceed actuarially assumed investment rate of return, which is currently 7.75 percent, and blended performance benchmarks.

Since FY 2002, the board has held the same short-term objective: year-over-year returns for managed funds should exceed comparable unmanaged market indices. The long-term objective has changed. In FY 2002, long-term returns were expected to exceed the Consumer Price Index by at least 4 percentage points over two market cycles, about 6 to 10 years. In FY 2007, long-term returns on total assets were expected to exceed the actuarially assumed investment rate of return of 7.75 percent and blended performance benchmarks over two market cycles. In 2006, the board changed investment consultants.

Organization and Operation

The board of trustees has ultimate responsibility and authority to oversee investments.

Figure 2.F depicts the organizational structure for KRS's investments. All decisions ultimately reside with the board of trustees. A five-member Investment Committee oversees investment activities. An appointed executive director manages the retirement system, including investments, and reports to the board.

Ten investment staff monitor and evaluate internal and external investments.

Ten investment staff monitor and evaluate internal and external investments. Three directors—equities, alternative investments, and fixed assets—report to the chief investment officer. A compliance officer monitors all portfolios to ensure they operate within acceptable allocation targets and follow investment policies and procedures. The compliance officer reports to the chief investment officer and the Investment Committee.

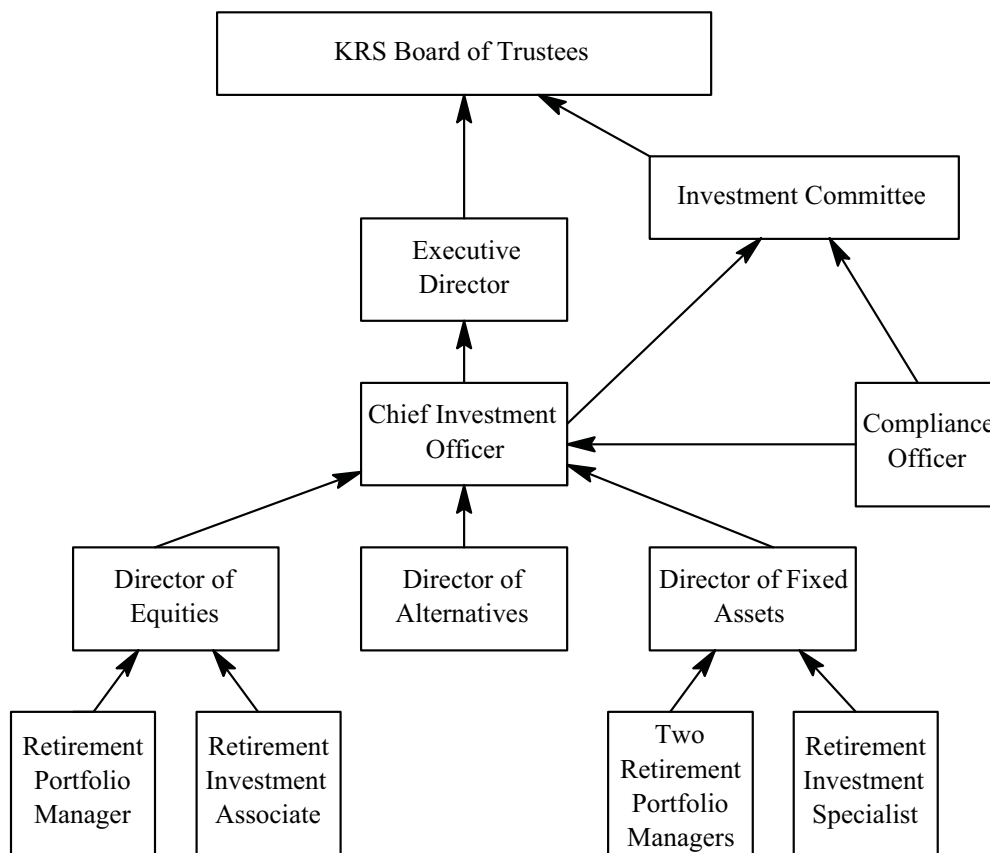
Investment staff from KRS perform multiple functions including managing investments, monitoring and evaluating external fund managers, rebalancing assets, examining and evaluating investment opportunities, monitoring compliance with investment policy, and developing reports. Staff also negotiate and execute contracts with service providers.

Monthly compliance tests ensure that asset allocations and risk exposures are acceptable. KRS investment staff conduct quarterly performance reviews of external fund managers.

Monthly compliance tests are performed by the compliance officer to ensure that asset allocations and risk exposures are acceptable (Commonwealth. Kentucky Retirement. “Statement of Investment Policy—Pension” and “Statement of Investment Policy—Insurance”). Staff also conduct quarterly performance reviews that examine how well external fund managers performed relative to their benchmarks.

Staff also rebalance assets by continually monitoring and adjusting asset holdings to approximate asset allocation targets. Target differences of plus or minus 1 percentage point for a particular asset category may be adjusted. Whenever an asset class is within plus or minus 1 percentage point of the upper or lower target limit, staff must reallocate assets to ensure compliance with allocation targets.

Figure 2.F
KRS Investment Organization



Source: Staff analysis.

Reporting

KRS staff report quarterly to the Investment Committee. Occasionally, staff make informational presentations, such as describing the advantages and disadvantages of investing in emerging markets.

The Kentucky Retirement Systems publishes an annual financial report showing all receipts, disbursements, assets, and liabilities, including a copy of the audit. The board may select an independent certified public accountant or the auditor of public accounts to perform the audit. A copy of the audit must be sent to the Legislative Research Commission (KRS 61.645(12)).

Internal and External Management

About one-third of total assets are managed internally, generally using passive funds.

About one-third of total assets are managed internally. By category, KRS staff managed about 57 percent of total domestic equities and 33 percent of fixed-income investments in FY 2007. For the most part, internally managed funds attempt to mimic representative indices, a passive investment strategy. Internally managed funds outperformed externally managed domestic equity assets and underperformed externally managed fixed-income assets (Commonwealth. Kentucky Retirement. "Kentucky").

Chapter 3

Kentucky Teachers' Retirement System

This chapter describes the Kentucky Teachers' Retirement System. It begins with a summary and continues by describing membership, funding, and governance. The chapter concludes with a description of KTRS's investment policies and practices.

Summary

KTRS invests funds and manages benefits for 119,100 members. KTRS members do not participate in the federal Social Security system.

The Kentucky Teachers' Retirement System was established in 1938 out of concerns that teachers could not afford to retire and school districts could not attract and retain educators (Commonwealth Teachers' "KTRS"). The primary purpose was to provide retirement benefits to educators and other public employee members of the retirement system. As of June 30, 2007, total membership was 119,100. Members do not participate in the federal Social Security system.

This chapter has five main points.

This chapter has five main points.

1. KTRS is governed by a nine-member board of trustees. Board and committee members are not required to have investment expertise. An investment committee of two trustees and the executive secretary oversees investments.

First, KTRS is governed by a board of nine trustees: seven elected and two ex officio. Board and committee members are not required to have investment experience. An investment committee of two trustees and the executive secretary oversees investments.

2. Net assets grew \$3.7 billion, or 31 percent, from FY 2002 to FY 2007.

Second, net assets grew \$3.7 billion, or 31 percent, from FY 2002 to FY 2007. KTRS had \$15.6 billion in net assets at the end of fiscal year 2007.

3. KTRS is changing its asset allocations to include more investments in international securities, private equity, and real estate.

Third, KTRS is changing its asset allocations by increasing its investments in international securities, private equity, and real estate, while decreasing domestic equity and short-term investments. Statute requires KTRS to set out its asset allocation policy in administrative regulation; thus, changing the policy requires changing administrative regulations.

4. Investment income accounted for 45 percent to 68 percent of annual net plan additions between fiscal years 2005 and 2007.

Fourth, interest income and dividends plus gains in asset values accounted for between 45 percent and 68 percent of annual net plan additions from FY 2005 to FY 2007. Employer and member contributions were the next two largest components, with other revenues, including general fund appropriations of \$12 million in FY 2007 and \$14 million in FY 2008, representing the balance.

5. KTRS's medical insurance fund has received and borrowed a total of \$624 million from its pension fund in order to maintain health care benefits.

Fifth, KTRS's medical insurance fund has borrowed and received a total of \$624 million in funds designated for its pension fund in recent years. This was done so KTRS could continue paying annual insurance benefits without reducing benefit levels for members.

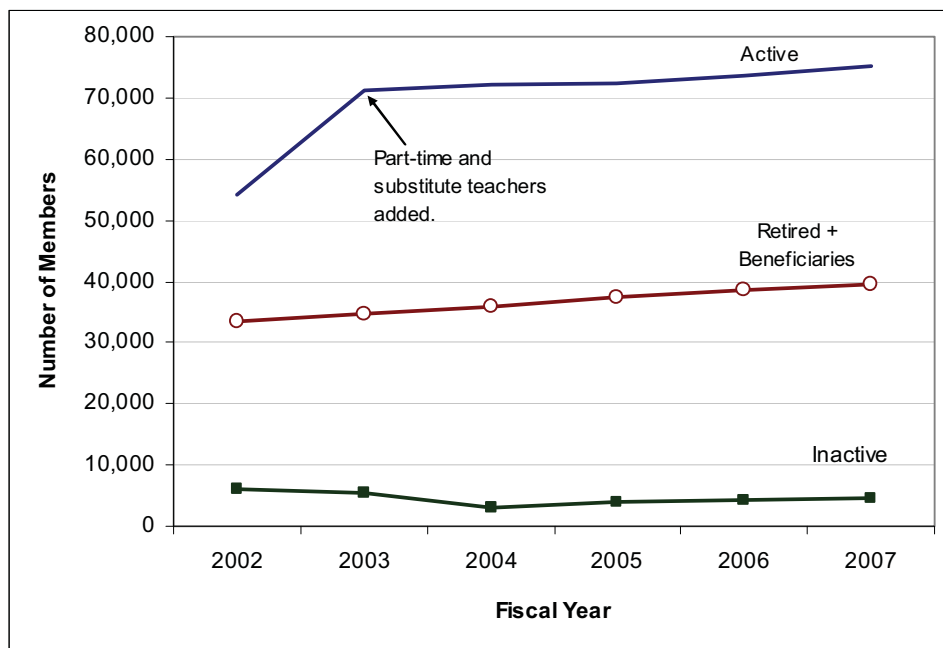
Membership

KTRS members include employees of school districts, five regional universities, the Kentucky Community and Technical College System, Department of Education agencies, and others.

Kentucky Teachers' Retirement System membership includes employees from 198 employers including every school district, five regional universities, the Kentucky Community and Technical College System, Department of Education agencies, and others.¹ Per statute, eligible participants include certified employees and graduates of a 4-year college or university (KRS 161.220).

Figure 3.A shows the number of active, retired, and inactive KTRS members from FY 2002 through FY 2007.

Figure 3.A
Total KTRS Membership by Member Classification, Fiscal Years 2002-2007



Source: Staff's compilation of information from Commonwealth. Kentucky Teachers'. *Comprehensive FY 2002-FY 2007*.

¹ The five regional universities in KTRS are Eastern Kentucky, Western Kentucky, Morehead, Murray State, and Kentucky State.

Between fiscal years 2002 and 2007, active membership rose 39 percent, and retired membership rose 18 percent. Most of the active membership increase was due to the addition of part-time and substitute teachers to the retirement system in FY 2002.

Between FY 2002 and FY 2007, active membership increased 39 percent, from 54,200 to 75,100. Legislation enacted in 2002 allowed part-time and substitute teachers into KTRS, which mostly accounts for the increase. The number of retired members and their beneficiaries rose 18 percent, from 33,500 to 39,500. Inactive membership fell 26 percent, from 5,700 to 4,500. Total membership—the combination of active, retired, and inactive members—rose 27 percent, from 93,600 to 119,100.

From FY 2003 to FY 2007, the ratio of active to retired members steadily declined.

Between FY 2002 and FY 2007, the ratio of active members to retiree and beneficiary members rose because part-time and substitute teachers were added to the active ranks. Considering only the period from FY 2003 to FY 2007 to account for this change, the active to retired ratio decreased from 2.1 to 1 to 1.9 to 1.

Funding

Funding comes from four primary sources: employer contributions, member contributions, interest income and dividends, and net asset appreciation. Other revenue in recent years has included appropriations of \$12 million and \$14 million from the Kentucky general fund.

Pension and medical insurance benefits are provided by the retirement system to eligible members by separate pension and insurance funds. Funding comes from four primary sources: employer contributions, member contributions, interest income and dividends, and net asset appreciation. Other revenues included state appropriations of \$12 million in FY 2007 and \$14 million in FY 2008 to help shore up KTRS's insurance fund.

Employer and member contribution rates are set by statute.

Employer and member contributions for both funds are based on salary. Statute establishes employer and member contribution rates. Employers and members each contribute an additional three-quarters of 1 percent of salary to the insurance fund.

Statutes and Regulations

Statutory authority for KTRS is provided under KRS Chapter 161. KRS 161.430 covers investments, KRS 161.250 covers the composition and terms of the board, and KRS 161.340 covers officers and their liability.

Administrative regulations function in place of bylaws for KTRS. These are found at 107 KAR 1:175. Regulations pertain to the investment committee, investment counselors, and asset allocation policy.

Governance

KTRS is administered and managed by a board of trustees. Full power and responsibility to buy, sell, exchange, transfer, or otherwise dispose of investments rests with the board.

Trustees

The KTRS Board of Trustees includes seven elected and two ex officio members. Board members are not required to have investment expertise.

The board consists of nine members: seven elected and two ex officio. The elected members are four teachers, two lay persons, and one retired teacher. Ex officio members are the chief state school officer and the state treasurer. Elected trustees receive a per diem when the board is in session. Elected board trustees serve 4-year terms.

The board hires an executive secretary under a contract of no more than 4 years. The executive secretary administers investment policies and procedures established by the board.

The board appoints an investment committee of two trustees plus the executive secretary.

The board appoints an investment committee consisting of the executive secretary and two trustees. The investment committee makes recommendations to the board regarding employment of investment counselors and whether those contracts are renewed. Although there is no requirement that board members have investment expertise, the board is required by statute to employ experienced, competent investment counselors to advise it on all investment matters.

In general, no investment or disbursement of funds can be made unless authorized by the board. By administrative regulation, however, the board establishes investment guidelines under which staff and investment counselors may execute purchases and sales of investment instruments without prior board approval to ensure timely market transactions.

Fiduciary Responsibility

KTRS's Board of Trustees has ultimate responsibility for investments and follows the "prudent person" standard.

Trustees have a fiduciary responsibility to KTRS members. They must discharge their duties solely in the interests of members and retirees, following the "prudent person" standard. The standard states that the same care, skill, prudence, and diligence should be used as a prudent person with a similar capacity and in a similar environment.

Liability and Insurance

Trustees, the executive secretary, and other employees identified by the board are required to execute bonds for the faithful performance of their duties. KTRS carries a commercial crime bond of \$1 million on trustees and all employees. The board also purchases fiduciary liability coverage that includes legal defense coverage. Coverage includes breach of fiduciary duty committed by the KTRS Trust and any past, present, or future trustee or employee of the Trust (Harbin. Letter. April 4, 2008). Statute allows use of KTRS funds to insure against liability caused by an act or failure to act while performing assigned duties.

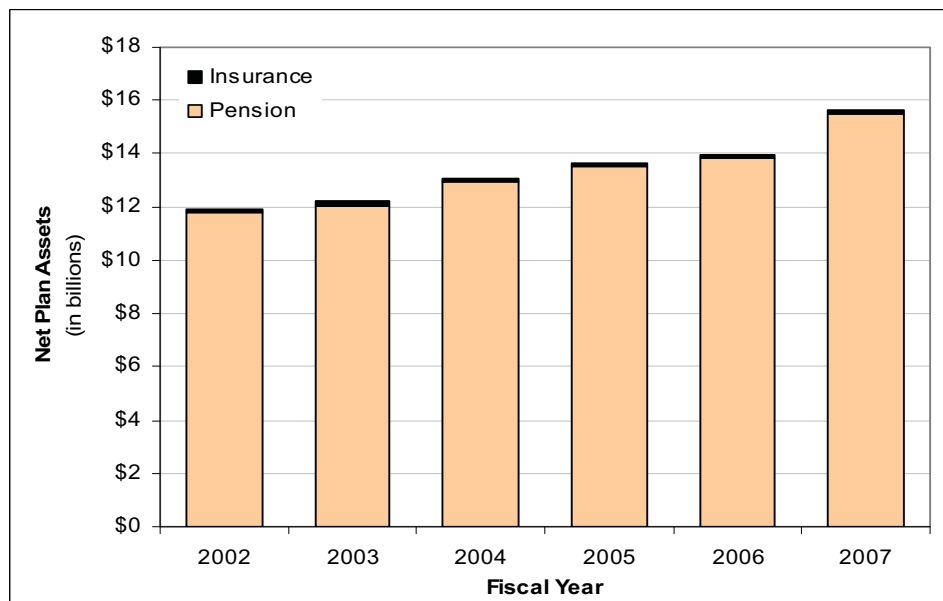
Assets

Figure 3.B shows net plan assets, which reflect contributions received, interest income, and asset appreciation less benefit payments and other expenses.

Between fiscal years 2002 and 2007, net plan assets grew from \$11.9 billion to \$15.6 billion, a 31 percent increase.

From FY 2002 to FY 2007, net plan assets rose from \$11.9 billion to \$15.6 billion, a 31 percent increase, which represents an average annual increase of 5.2 percent. Net plan assets increased by \$591 million in FY 2005, \$315 million in FY 2006, and \$1.65 billion in FY 2007. Of the two funds, KTRS's insurance fund has relatively minimal net assets.

Figure 3.B
Net Plan Assets, KTRS Pension and Insurance, Fiscal Years 2002-2007



Source: Staff's compilation of information from Commonwealth. Kentucky Teachers'. *Comprehensive FY 2002-FY 2007*.

Summary of Changes in Net Plan Assets

In recent years, net plan assets increased primarily due to investment income, which is appreciation of investments plus interest income and dividends.

Table 3.1 identifies the major components of changes in annual net plan assets by revenue and expense categories. Net investment appreciation and interest and dividends accounted for 53 percent in FY 2005, 45 percent in FY 2006, and 68 percent in FY 2007 of total annual additions. Annual net investment appreciation varied significantly from \$282 million in 2006 to \$1.6 billion in FY 2007, reflecting, in large part, an upswing in stock market returns. Interest and dividend income remained relatively stable at slightly more than \$400 million annually.

Table 3.1
Summary of KTRS's Changes in Net Plan Assets by Revenue and Expense Categories, Fiscal Years 2005-2007, Pension and Insurance Funds (in thousands of dollars)

| | FY 2005 | | FY 2006 | | FY 2007 | |
|-----------------------------|-------------|----------------|-------------|----------------|-------------|----------------|
| | Total | % of Sub-total | Total | % of Sub-total | Total | % of Sub-total |
| Revenues | | | | | | |
| Member contributions | \$298,601 | 17% | \$310,162 | 20% | \$322,788 | 11% |
| Employer contributions | \$467,369 | 27% | \$500,241 | 32% | \$553,147 | 18% |
| Net investment appreciation | \$512,314 | 29% | \$282,573 | 18% | \$1,617,338 | 54% |
| Interest and dividends | \$411,115 | 24% | \$415,938 | 27% | \$426,832 | 14% |
| Other income | \$33,122 | 3% | \$30,950 | 4% | \$30,344 | 3% |
| Subtotal | \$1,722,521 | 100% | \$1,539,864 | 100% | \$2,950,449 | 100% |
| Expenses | | | | | | |
| Benefits | \$1,105,721 | 97% | \$1,200,612 | 96% | \$1,276,362 | 95% |
| Administrative | \$10,724 | 1% | \$11,464 | 1% | \$12,003 | 1% |
| Investment | \$4,670 | 2% | \$6,157 | 3% | \$8,668 | 4% |
| Subtotal | \$1,121,115 | 100% | \$1,218,233 | 100% | \$1,297,033 | 100% |
| Additions less Deductions | \$602,103 | | \$322,440 | | \$1,654,758 | |
| Other changes | \$(10,985) | | \$(6,724) | | \$(4,493) | |
| Net plan asset change | \$591,118 | | \$315,716 | | \$1,650,265 | |

Note: The table does not include 403 (b) additions or deductions because it is an optional deferred compensation program. Subtotals may not add to 100% due to rounding.

Source: Staff's compilation of information from Commonwealth. Kentucky Teachers'. *Comprehensive* FY 2005-FY 2007.

Employer and member contribution amounts, the other primary funding components, steadily increased from FY 2005 to FY 2007. As a percentage of total additions, these contributions fluctuated due to large swings in investment appreciation.

Benefits accounted for more than 95 percent of total expenses.

Benefits accounted for more than \$1 billion in pension and insurance expenses annually from FY 2005 to FY 2007. This represented more than 95 percent of total expenses.

Health care expenses have been primarily funded by borrowing and redirecting \$624 million from KTRS's pension fund.

Health care expenses are primarily funded by borrowing and redirecting funds from the pension fund. Over the past 10 years, KTRS, with legislative approval, has redirected \$624 million from its pension fund to its insurance fund.²

Total investment expenses more than doubled from FY 2002 to FY 2007, primarily due to increases in fees paid to two external fund managers for managing significantly higher dollar amounts.

Investment expenses include management, consultant, and bank fees; but not professional consultant fees such as those paid to the actuary, auditor, or legal counsel.³ Between FY 2002 and FY 2007, total investment expenses rose from \$4.2 million to \$8.7 million, which represents an average annual increase of 17.4 percent. Fees to two equity managers (UBS and Wellington) doubled over a 2-year period, accounting for most of this increase. These increases were attributable to significant increases in the dollar amount of assets managed by these firms.

Asset Allocation Targets

Assets must be prudently diversified.

Assets must be prudently diversified among various classes of investments. In determining asset allocation policy, the investment committee and the board must be mindful of the system's liquidity and its capability of meeting both short- and long-term obligations.

Asset allocation limits are broad investment parameters that must be written into regulation and reviewed by the Legislative Research Commission's Administrative Regulation Subcommittee.

The Kentucky Teachers' Retirement System's asset allocation policy has allocation limits, allocation targets, and specific restrictions. Asset allocation limits are broad investment parameters adopted by the KTRS Board of Trustees and then written into regulation with review by the Legislative Research Commission's Administrative Regulation Subcommittee.

² Specifically, \$335 million was redirected from the 3.25 percent supplemental pension contribution, and an additional \$289 was borrowed directly from the pension fund.

³ In FY 2007, professional consultant fees were \$1.8 million. In FY 2006, they were \$2.4 million.

Table 3.2 lists asset allocation limits by investment type. They are typically expressed as maximums. For example, corporate debt obligations cannot exceed 35 percent of total system assets.

Table 3.2
KTRS Investment Category and Asset Allocation Limits

| Type of Investment | Limit |
|---|--|
| Guaranteed by U.S. government | No limit |
| Corporate debt obligations | 35% or less of system assets |
| Common stocks or preferred stocks | 65% or less of system assets |
| General stock index portfolios | 25% or less of system assets |
| Stocks of companies domiciled outside the U.S. | 15% or less of system assets and counted toward 65% common/preferred stock limit |
| Real estate (including equity, lease agreements, and real estate investment trusts) | 10% or less of system assets |
| Alternative investments (including private equity, venture capital, and timberland) | 10% or less of system assets |
| Additional categories of investments | 10% or less of system assets and with board approval |

Sources: 102 KAR 1:175, Sec. 2, updated June 2007; Commonwealth. Teachers'. *Annual* 157.

Having established asset allocation limits and specific guidelines, the KTRS board sets allocation targets, but they are not enacted into administrative regulation. Asset allocation targets are more precise investment guideposts that attempt to balance return and risk in the current market by establishing how much money should be invested in particular asset classes.

Prior to FY 2008, KTRS established allocation ranges, but it now establishes specific allocation targets.

Table 3.3 shows KTRS asset allocation ranges for FY 2007 and specific targets for fiscal years 2008 and 2009. KTRS did not identify specific allocation targets until FY 2008.

Table 3.3
Target Asset Allocations for KTRS Pension and Insurance Funds, Fiscal Years 2007, 2008, and 2009

| Asset Class | FY 2007 | FY 2008 | FY 2009 |
|----------------------|----------------|----------------|----------------|
| Domestic equity | 50-60% | 56% | 53% |
| International equity | 1-10% | 9% | 11% |
| Fixed income | 30-45% | 28% | 28% |
| Real estate | 1-5% | 4% | 4% |
| Cash | 3-10% | 2% | 2% |

Sources: Staff's compilation of information from Commonwealth. Teachers'. *Annual* 191; Harbin. Letter. May 8, 2008.

Asset allocation targets for the FY 2008 to FY 2009 period are consistent with national trends. KTRS expects to redirect some assets from domestic equities to international equities. Fixed-income allocation targets remain unchanged at 28 percent but are lower than the FY 2007 target.

The Kentucky Teachers' Retirement System also considers statutory, regulatory, and investment guidelines when setting investment policies. These typically constrain, but in some cases promote, investment choice. They can be grouped into three categories: investments to avoid, preferred investments, and limitations on the amount of certain investments.

Prohibited investments include undeveloped land, bullion, foreign currency, stamps, rare coins, and other collectibles.

Prohibited investments include undeveloped land (unless development plans are imminent), bullion, foreign currency, stamps, rare coins, or other collectibles. Except for undeveloped land, with specific board approval, KTRS can invest up to 10 percent of its assets in the above areas as part of the 10 percent or less reserved for "additional category of investments" (102 KAR 1:175, Sec. 4).

In-state investments are not required, although the board gives priority to investments calculated to improve the industrial development and economic welfare of the Commonwealth.

In-state investments receive priority by the board whenever they are calculated to improve the industrial development and enhance the economic welfare of the Commonwealth (KRS 161.430(1)). The board, however, is not required to make in-state investments.

The Kentucky Teachers' Retirement System also maintains specific fixed-income and equity investment guidelines. Tables 3.4 and 3.5 list them.

Table 3.4
KTRS Fixed-income Investment Guidelines

| Category | Guideline |
|---|--|
| Securities of a single issuer (unless issuer is U.S. government or government-sponsored enterprise) | No more than 5% of the assets of the system may be invested |
| A fixed-income investment | Must be rated, when purchased, within the four highest credit classifications identified by one of the major rating services |
| Private placement debt investment | Must be rated, when purchased, within the four highest credit classifications identified by one of the major rating services |
| Fixed-income investment portfolio as a whole | Must maintain an average rating equal to at least the second-highest credit classification |
| Investments in mortgages or mortgage-backed securities | Must be first mortgages on property located in the U.S. unless guaranteed by the U.S. government |
| Debt obligations of Canadian government and Canadian-domiciled corporations | No more than 5% in aggregate of the assets of the system may be invested |
| Other foreign debt | Shall not be purchased unless approved by the board as an additional category of investment |

Source: 102 KAR 1:175, Sec. 3.

Table 3.5
KTRS Equity Investment Guidelines

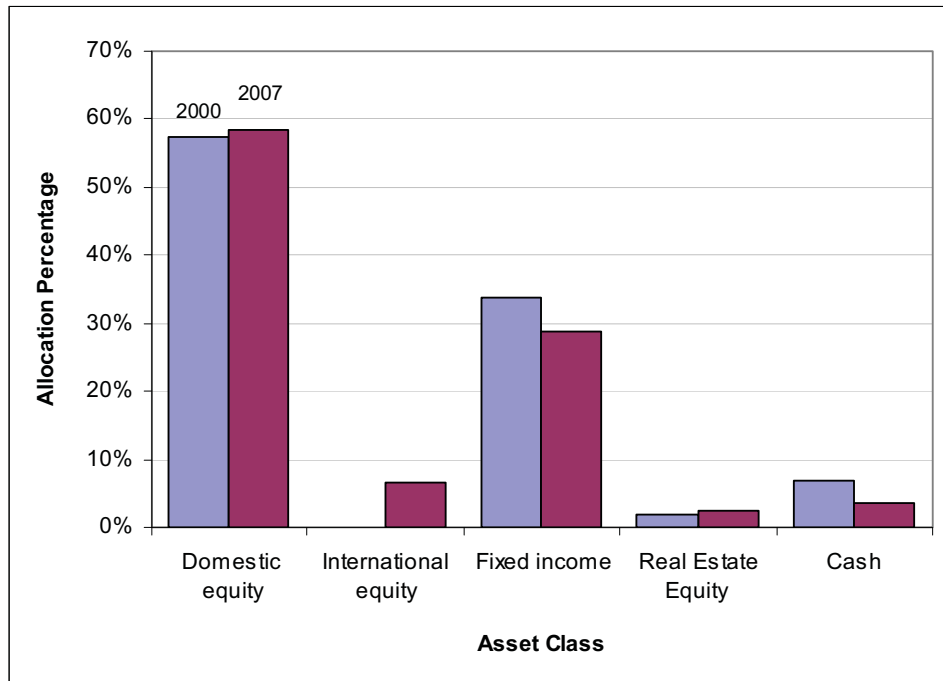
| Equity and Real Estate Investments | Guidelines |
|--|--|
| System's position in a single stock | Shall not exceed 2.5% of the system's assets; shall not exceed 5% of the outstanding stock for that company unless the investment is part of a venture capital program |
| Real estate purchase conducted on a triple net lease basis | Shall involve a company that at the initial agreement generates one of the three highest credit ratings by a national credit rating service |
| Real estate investment | Shall be judged on its total return potential |

Source: 102 KAR 1:175, Sec. 4.

Actual Asset Allocations

Actual asset allocations depend on several factors, including market conditions, cash flow, and investment expectations. As a result, actual asset allocations and target allocations usually do not match. Figure 3.C compares KTRS’s actual asset allocations in FY 2000 and FY 2007.

Figure 3.C
KTRS Actual Asset Allocations for Pension and Insurance Funds,
Fiscal Years 2000 and 2007



Source: Staff’s compilation of information from Commonwealth. Teachers’
Comprehensive FY 2000-FY 2007.

As of June 30, 2000, KTRS held less than 1 percent of its assets in international securities, but by June 30, 2007, that increased to 7 percent. The cash asset allocation has declined. KTRS does not have any subprime mortgage investments.

There are two noteworthy trends in Figure 3.C. First, KTRS recently entered the international equity market. As of June 30, 2007, approximately 7 percent of total assets were invested in this market segment, compared to less than 1 percent in FY 2000. Second, cash assets declined from 6.8 percent in FY 2000 to 3.6 percent in FY 2007. Cash assets generally have lower rates of return than other investments. According to staff, KTRS does not have any investments in subprime mortgages or hedge funds.

Investments

KTRS invests pension and insurance assets jointly, even though benefits are maintained separately.

Goals and Objectives

KTRS's investment goals and objectives are not clearly detailed in its financial statements.

Investment goals establish the broad principles on which investment policies and procedures are established. Investment objectives are specific measures of those goals. KTRS's investment goals were not obvious in its financial statements, and its objectives were not measurable.

In its *Annual Investment Report: June 30, 2007*, KTRS identified two "goals," which appear to be what are usually defined as objectives: 1) attain a 10-year annualized total return that exceeds the Consumer Price Index by 3.5 percentage points, and 2) attain a total return similar to a comparable major index for each asset class. Program Review staff could not find any mention of investment "goals" in KTRS's FY 2007 *Comprehensive Annual Financial Report*.

KTRS identifies two primary investment "concerns," which appear to be what are usually considered goals: 1) "preservation of assets in order to provide an adequate retirement plan for active and retired members"; and 2) invest "funds in order to promote the industrial development and economic welfare of Kentucky" (Commonwealth Teachers'. *Annual* 153). It is unclear if "concern" and "goal" have the same meaning.

The Kentucky Teachers' Retirement System lists two investment objectives, but neither can be measured (Commonwealth Teachers'. *Comprehensive Fiscal Year 2007* 46).⁴ The first objective is to invest funds in the sole interest of members and beneficiaries while allowing for reasonable administrative expenses. KTRS's second objective is that invested assets should provide a reasonable rate of total return, with major emphasis on protecting principal. Because "reasonable" is used in both objectives, and no definition was provided, success or failure cannot be determined. More precise objectives are needed.

Recommendation 3.1
The Kentucky Teachers' Retirement System should report specific investment goals and measurable investment objectives.

Recommendation 3.1

The Kentucky Teachers' Retirement System should report specific investment goals and measurable investment objectives.

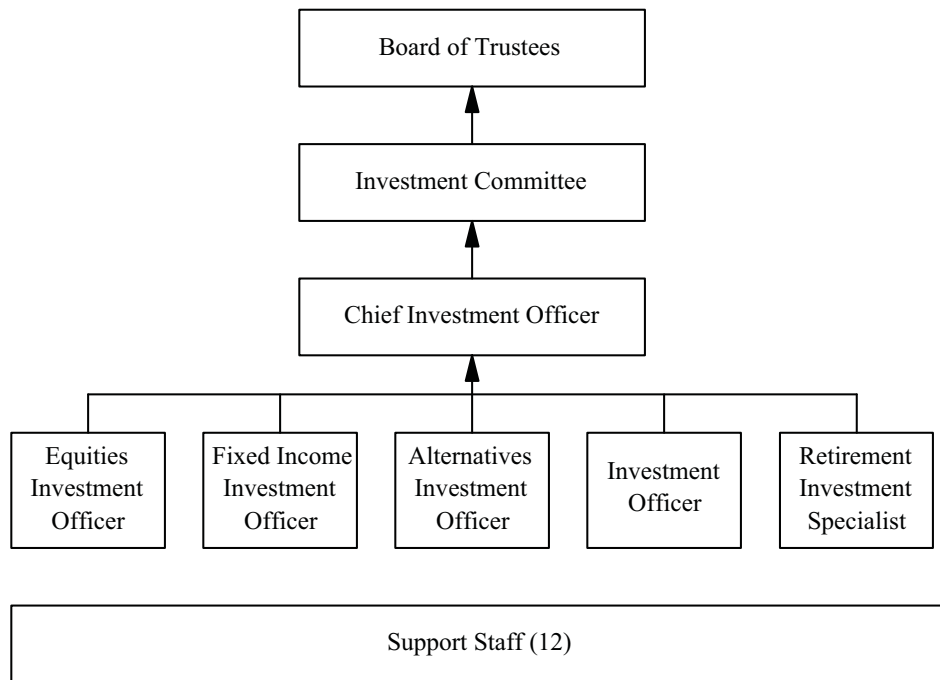
⁴ Objectives are also maintained for specific portfolios. KTRS has had the same two investment objectives since at least FY 2004.

Organization and Operation

KTRS investments are managed by 6 professionals and 12 support staff.

KTRS’s investments are managed by six professionals, four of whom hold the Chartered Financial Analyst designation. Investments are specifically divided into three groups: equities, fixed-income, and alternatives. An investment officer executes equity trades and works on monthly and quarterly performance calculations. A retirement investment specialist tracks KTRS portfolio performance. A 12-member support staff provides assistance (Harbin. Letter. May 8, 2008). Figure 3.D depicts KTRS’s organizational chart for investments.

Figure 3.D
KTRS Investment Organization



Source: Staff’s analyses of Harbin. Letter. May 8, 2008 and Commonwealth. Teachers’. “KTRS.”

The Kentucky Teachers’ Retirement System contracts with an investment consultant for the purpose of advising the investment committee on asset allocations and portfolio risk and return, and helping evaluate the effectiveness of investment counselors. Since at least 2002, KTRS has contracted with Becker, Burke Associates.

Investment counselors are external fund managers who must acknowledge in writing their fiduciary responsibilities to the retirement fund. They must also be registered under the Federal Investment Advisors Act of 1940, be a bank as defined by that Act, or be an insurance company qualified to perform investment

services under the laws of more than one state
(KRS 161.430(3)(b))

Reporting

Investment counselors report results at least quarterly.

Investment counselors report their results at least quarterly. The investment committee annually reports to the board on the performance and service of each investment counselor.

An annual report, audit, and actuarial valuation must be published by the board each year. The annual report describes KTRS's operations and the past year's fiscal transactions and balance sheet. The audit evaluates and describes the retirement system's finances. It may be conducted by the auditor of public accounts or an independent certified public accountant. The actuarial valuation determines the retirement system's financial condition, including its unfunded liability, and projects future retirement costs and necessary contribution rates.

Internal and External Management

An individual investment counselor is limited to managing no more than 40 percent of KTRS's funds.

No single investment counselor is allowed to manage more than 40 percent of the funds of the retirement system. By statute, KTRS staff are limited to managing no more than 50 percent of its assets based on book value (KRS 161.430(1)).

KTRS staff are limited to managing no more than 50 percent of assets.

As of June 30, 2007, asset management was about evenly split between internal and external managers. Based on market value, external managers oversaw 51 percent and internal managers 49 percent.

KTRS staff generally manage short-term investments, stock index funds, bond funds, and real estate equity.

Fund management was further split along asset class lines. KTRS internal investment staff managed, for the most part, short-term investments, stock index funds, bond funds, and real estate equity. According to KTRS staff, bond funds have been actively managed. External fund managers generally have managed longer-term, global securities; specific stock funds such as small-, mid-, and large-capitalizations; and alternative investments such as international equity and private equity (Commonwealth Teachers' *Annual*). Five investment counselors managed 15 external funds. Counselors are required to follow KTRS's objectives, constraints, and administrative guidelines.

To ensure assets remain appropriately allocated, monthly reports are developed by KTRS staff.

To ensure assets remain appropriately allocated, monthly reports are developed by KTRS staff that compare market values by asset class against established allocation ranges and administrative regulation limits. Asset classes that approach these limits are managed so they continue to conform to regulations and policies (Harbin. Letter. May 8, 2008).

Chapter 4

Measuring Performance

Chapter 4 evaluates investment rates of return for KRS and KTRS.

The second objective of this report is to evaluate investment rates of return for the Kentucky Retirement Systems and the Kentucky Teachers' Retirement System. The chapter begins by evaluating actual investment performance compared with four measures approved by KRS and KTRS. Next, the chapter presents KRS's and KTRS's investment performance from a national perspective. Governance and investment factors that may affect investment rates of return follow.

KRS and KTRS Investment Performance

Summary

KRS and KTRS outperformed most internally established investment performance benchmarks.

Table 4.1 summarizes four KRS and KTRS investment performance measures: fund benchmarks, asset class benchmarks, actuarially assumed investment rates of return, and system long-term objectives. Each measure was developed or approved by KRS or KTRS.

Table 4.1
Summary of Actual Investment Performance Compared With Performance Measures Approved by KRS and KTRS

| Performance Measure | KRS | KTRS |
|-----------------------------|--------------|--------------|
| Fund Benchmarks | Outperformed | Mixed |
| Asset Class Benchmarks | Mixed | Outperformed |
| Actuarially Assumed Rates | Mixed | Mixed |
| System Long-term Objectives | Outperformed | Outperformed |

Source: Program Review staff's analysis.

KRS outperformed its fund benchmarks and system long-term objective over 1-, 3-, 5-, and 10-year periods but showed mixed results when evaluating performance against its asset class and actuarially assumed rate benchmarks.

KTRS outperformed its asset class benchmarks and system long-term objective, but actual investment rates of return did not exceed

the 1-year fund benchmark or the 10-year average of the actuarially assumed rate.

The rates of return for KRS's pension fund and KTRS's combined pension and insurance funds were lower than averages for comparable systems. KRS's insurance fund exceeded the averages for most investment periods.

Relative to comparable public employee retirement systems, actual rates of return for KRS's pension fund and KTRS's combined pension and insurance funds were lower over the most recent 1-, 3-, 5-, and 10-year periods. KRS's insurance fund exceeded the average over the most recent 1-, 3-, and 5-year periods but not the 10-year period.

Benchmarks Provide Context

According to Merriam-Webster's dictionary, benchmarks are "points of reference from which measurements may be made." In other words, benchmarks provide context. Investment rates of return have little meaning without benchmarks.

A 5 percent investment rate of return for a year may be a great result for a year in which financial markets were generally down. If markets gained significantly more than 15 percent, for example, a 15 percent return for a year may not be so great. Benchmarks therefore provide the context in which to evaluate rates of return relative to returns for similar financial market segments.

Rate of return in isolation says nothing about the risk involved. There is no single standard for what the trade-off between risk and return should be.

Looking at returns in isolation also says nothing about the risk involved and how returns go up and down over time. Typically, higher return investments necessitate more risk of losing money, at least in the short term. There is no single standard for what the trade-off between risk and return should be. The decision will be based on the judgment of decision makers, taking into consideration the needs of the retirement system.

Retirement systems use and report several benchmarks to evaluate investment performance. Four are considered below: a fund benchmark, an asset class benchmark, the actuarial rate, and the long-term objective.

A fund benchmark measures how well a retirement system performed by comparing performance to that of markets for the kinds of investments the system makes. The most straightforward fund benchmark is calculated by taking the benchmark indices used for each asset class within a fund and weighting them by each asset class's target allocation or proportionate share of the fund. Some systems create customized fund benchmarks that do not directly match their asset class benchmarks or asset class

allocations. Fund benchmarks may be reported for the current year and for longer-term investment periods.

Retirement systems use and report several benchmarks to evaluate investment performance.

Fund benchmarks measure performance of an entire fund compared to how relevant investment markets are doing.

Asset class benchmarks measure the performance of particular groups of investments within a fund.

Actuarially assumed investment rates project funding needed to pay future liabilities.

Long-term objectives establish the importance of managing investments for the long run.

An asset class benchmark measures the performance of particular groups of investments, such as domestic equities, international equities, fixed income, or cash. It is usually an indicator of whether fund managers did as well as the market. The benchmark is almost always an existing index, such as the Wilshire 3000 or Standard and Poor's 500. A system can also calculate a customized asset class benchmark by using weighted percentages from multiple indices. Presumably, this would more accurately reflect the types of investments a retirement system held within each asset class.

An actuarial rate is developed by an actuary and projects the funding needed to pay for future liabilities and, thus, the contribution rates necessary to pay for those liabilities. If a system's investment returns were consistently less than the actuarial rate, then projections of future liabilities and contributions would have to be revised.

A long-term objective is typically set by a retirement system and may be different from the actuarial rate. It establishes the importance of managing investments for the long run. Often, the long-term objective is to equal or exceed the inflation rate, typically the Consumer Price Index, by 3 to 5 percentage points.

Fund and Asset Class Benchmarks

KRS has separate benchmarks for its pension and insurance funds. KTRS has one fund benchmark.

Both KRS and KTRS evaluate the performance of their investments by comparing actual rates of return with fund and asset class benchmarks. KRS has separate benchmarks for its pension and insurance funds. KTRS has one fund benchmark. Investment consultants guide the selection of these benchmarks and trustees approve them.

Over the past 1-, 3-, 5-, and 10-year periods, KRS's pension fund and insurance fund investments outperformed their fund benchmarks.

Kentucky Retirement Systems. Table 4.2 shows reported actual investment performance compared with benchmarks for KRS's pension fund, insurance fund, and asset classes within those funds. Downward arrows represent performance below the relevant benchmark. The pension fund represents about 84 percent of total net plan assets; the insurance fund about 16 percent.

Over the past 1-, 3-, 5-, and 10-year periods, actual rates of return for the U.S. equity, international equity, fixed-income, and alternative equity asset classes equaled or exceeded their corresponding benchmark 16 out of 29 times.

Over the past 1-, 3-, 5-, and 10-year periods, KRS's pension and insurance funds consistently outperformed their investment benchmarks by as much as 0.9 percentage points. For these periods, actual rates of return for the U.S. equity, international equity, fixed-income, and alternative equity asset classes equaled or exceeded their corresponding benchmarks 16 out of 29 times.

Table 4.2
KRS's Reported Actual Rates of Return by Asset Class
and Fund Compared to Benchmarks (in percent)

| | 1 year | | 3 year | | 5 year | | 10 year | |
|-----------------------|--------|-------------|--------|-------------|--------|-------------|---------|-------------|
| | Return | Bench -mark | Return | Bench -mark | Return | Bench -mark | Return | Bench -mark |
| Pension Fund | | | | | | | | |
| U.S. Equity | 19.3 ↓ | 19.9 | 12.4 ↓ | 12.5 | 11.3 ↓ | 11.7 | 8.1 | 8.0 |
| International Equity | 24.4 ↓ | 27.5 | 21.4 ↓ | 22.8 | 16.6 ↓ | 18.3 | n/a | n/a |
| Fixed Income | 5.7 | 5.5 | 4.1 | 3.9 | 5.2 | 5.1 | 6.3 | 6.2 |
| Alternative Equity | 15.6 ↓ | 16.8 | 21.5 | 10.9 | 18.6 | 11.6 | 16.5 | 7.3 |
| Total Fund | 15.3 | 14.9 | 11.4 | 10.5 | 10.4 | 10.1 | 8.1 | 8.0 |
| Insurance Fund | | | | | | | | |
| U.S. Equity | 19.8 ↓ | 20.3 | 12.2 | 12.1 | 11.2 | 11.2 | 7.8 | 7.0 |
| International Equity | 24.2 ↓ | 27.5 | 22.0 ↓ | 22.8 | 17.8 ↓ | 18.2 | n/a | n/a |
| Fixed Income | 3.9 ↓ | 4.0 | 3.9 | 3.8 | 6.1 | 6.0 | 6.8 | 6.8 |
| Alternative Equity | 16.7 ↓ | 18.5 | 12.7 | 11.5 | 11.4 | 11.4 | n/a | n/a |
| Total Fund | 19.3 | 19.1 | 13.7 | 12.9 | 12.3 | 11.8 | 8.4 | 8.0 |

Note: A downward arrow represents performance below the relevant benchmark.

Source: Commonwealth. Kentucky Retirement. *Comprehensive FY 2007*.

Actual reported returns for three of four pension asset classes and all four insurance asset classes for the most recent 1-year period were lower than their asset class benchmarks. This apparent inconsistency with both fund benchmarks being met is due to investment returns for cash assets not being reported. Investment returns for cash holdings exceeded benchmarks for both funds.

As shown in Table 4.2, actual reported returns for three of four pension asset classes and all four insurance asset classes for the most recent 1-year period were lower than their asset class benchmarks. However, the pension fund and the insurance fund both exceeded their fund benchmarks. That KRS's 1-year actual returns exceeded the fund benchmarks while none or only one of the reported asset class benchmarks were met is counterintuitive and can be confusing.

The problem is that investment returns for cash assets are not reported in the *Comprehensive Annual Financial Report*. In FY 2007, investment returns for cash holdings exceeded their benchmarks for both funds, which means that the pension fund met two of five asset class benchmarks, and the insurance fund met one of five asset class benchmarks. Anyone who had to rely only on

the reported information would not know this and would have to assume that the benchmarks for asset classes and funds were inconsistent.

Recommendation 4.1 is that KRS should report investment returns and benchmarks for all classes of assets.

Recommendation 4.1

Subject to reporting standards, the Kentucky Retirement Systems should report investment returns and benchmarks for all classes of assets.

Another issue in comparing fund and asset class benchmarks is that KRS uses a customized fund benchmark. Most of the indices used in the fund benchmark seem to be based on the indices used for asset classes weighted by the target allocations for each asset class during the previous fiscal year. For example, the pension fund benchmark weights international equities at 15 percent, the same as its FY 2006 target allocation, by using the MSCI EAFE index. However, at least one index used for the fund appears to be weighted differently than the target allocation, and one index was used for the fund but was not reported as being used for any asset class.

There is no problem with KRS choosing to use customized fund indices. However, it would be helpful if supporting information were provided to clarify how the fund benchmarks are calculated, including how fund indices differ from asset class indices and how the weighting by asset class allocation is done.

Recommendation 4.2 is that KRS should report more detailed information on how its fund benchmarks are calculated.

Recommendation 4.2

The Kentucky Retirement Systems should report more detailed information on how its fund benchmarks are calculated.

KTRS's actual fund returns exceeded the 3-, 5-, and 10-year benchmarks but fell short of the 1-year benchmark.

Kentucky Teachers' Retirement System. Table 4.3 shows KTRS actual investment rates of returns and corresponding benchmarks by asset class and fund. Downward arrows represent performance below the relevant benchmark.

Table 4.3
KTRS Actual Rates of Return by Asset Class and Fund Compared to Benchmarks
(in percent)

| Pension and Insurance | 1 year | | 3 year | | 5 year | | 10 year | |
|-----------------------|--------|----------|--------|----------|--------|----------|---------|----------|
| | Return | Index | Return | Index | Return | Index | Return | Index |
| Total Equity | 20.6 | 20.6 | 12.1 | 11.7 | 10.7 | 10.7 | 7.8 | 7.1 |
| Total Bonds | 6.3 | 5.7 | 4.2 | 3.7 | 4.7 | 4.4 | 6.2 | 6.0 |
| Total Real Estate | 8.2 | See Note | 9.7 | See Note | 9.6 | See Note | 9.3 | See Note |
| Cash Equivalents | 7.2 | 2.7 | 4.8 | 3.2 | 3.4 | 3.0 | 4.2 | 2.7 |
| Total Fund | 15.3 ↓ | 15.7 | 9.3 | 9.3 | 8.5 | 8.5 | 7.1 | 6.7 |

Note: A downward arrow represents performance below the relevant benchmark. According to KTRS staff, benchmarking real estate assets is difficult due to real estate's relative illiquidity. A nationally recognized commercial real estate index resembles KTRS's real estate earnings over the long run but is less applicable in the short run.

Sources: Commonwealth. Teachers'. *Annual*; Harbin. Letter. May 8, 2008.

Each of KTRS's asset classes met or exceeded their benchmarks over the 1-, 3-, 5-, and 10-year periods. For the fund, actual investment rates of return equaled or exceeded the benchmark rates over the 3-, 5-, and 10-year periods but not the 1-year period.

Each of KTRS's asset classes met or exceeded their benchmarks over the 1-, 3-, 5-, and 10-year periods. Fund benchmarks were not reported in KTRS's *Comprehensive Annual Financial Report*, but KTRS staff provided these benchmarks to Program Review staff. For the fund, actual investment rates of return equaled or exceeded the benchmark rates over the 3-, 5-, and 10-year periods but not the 1-year period.

According to KTRS staff, fund benchmarks are based on actual asset allocations as of June 30. Because asset allocations regularly change throughout the year, calculating the fund benchmark according to end-of-year allocations likely means the fund benchmark will either exaggerate or understate the relative importance of each asset class. For example, international equities have recently represented a larger share of KTRS's assets at the end of the year than at the beginning. This explains how KTRS could have missed its fund benchmark in FY 2007 while meeting each asset class benchmark.

Recommendation 4.3 is that KTRS should report its fund benchmark, including a description of how that benchmark was calculated.

Recommendation 4.3

The Kentucky Teachers' Retirement System should report its fund benchmark, including a description of how that benchmark was calculated.

Of 17 comparable systems, none met its benchmark while missing all its asset class benchmarks as the KRS insurance fund did in 2007. None failed to meet its fund benchmark while meeting or exceeding all its asset class benchmarks as KTRS did in 2007.

Comparable States. Program Review staff examined benchmarks for 17 comparable public employee or teacher retirement systems, which are listed in Appendix D, that reported annual fund and asset class benchmarks. Of those, there were no states in which the fund met its benchmark while missing all of its reported asset class benchmarks as the KRS insurance fund did in 2007. Only one system (Idaho Public Employees) met its fund benchmark while meeting only one reported asset class benchmark as the KRS pension fund did in 2007. No system failed to meet its fund benchmark while meeting or exceeding all of its asset class benchmarks as KTRS did in 2007.

Comparable retirement systems differed in how they developed their benchmarks.

For 14 systems, there was a clear explanation for how the fund benchmark was developed. Five systems reported using a customized fund benchmark, as does KRS. Nine systems reported fund benchmarks calculated solely based on their own actual or targeted asset class allocations and asset class indices, as does KTRS.

Most of the comparable systems used a single index per asset class to benchmark domestic equities, international equities, fixed income, and cash. None of the comparable systems used a customized benchmark for domestic equities, as KRS did in FY 2007.

Most of the 17 comparable retirement systems reported using a single index each to benchmark domestic equities, international equities, fixed income, and cash. However, choice of index varied.¹ A few retirement systems developed customized benchmarks for their international equity and fixed-income asset classes. These benchmarks typically incorporated multiple indices. None of the systems reported using a customized benchmark for domestic equities, as KRS did in FY 2007.

KTRS benchmarks cash allocations according to the Consumer Price Index, which, most recently, was 2.7 percent. A review of comparable systems found six that reported a cash benchmark, but all used Treasury bill returns that ranged from 5.1 to 5.3 percent.

KTRS reported one combined benchmark for its U.S. and international equity investments.

KTRS reported one combined benchmark for its U.S. and international equity investments. Of comparable systems, 16 out of 17 reported separate U.S. equity and international equity benchmarks. KTRS has been increasing its investments in international equities, so it would be helpful if returns and

¹ Among the 17 comparable systems, retirement systems referred to fund benchmarks by various names, including static, policy, composite, blended, and passive. For U.S. equities, each system used one of six indices or created a custom index. For international equities, systems used indices maintained by Morgan Stanley Capital International or created custom indices. For fixed income, systems used indices maintained by Lehman Brothers or created custom indices. All six of the systems reporting a benchmark for cash assets used U.S. Treasury bill returns.

benchmarks were reported separately for U.S. and international equities.

Recommendation 4.4 is that the system should report separate U.S. and international equity asset class returns and benchmarks.

Recommendation 4.4

The Kentucky Teachers' Retirement System should report separate U.S. and international equity asset class returns and benchmarks.

Table 4.4 identifies benchmarks by asset class for KRS and KTRS. Benchmarks were generally similar to the average of comparable states. One exception was that KRS's fixed-income benchmarks for its pension and insurance funds were notably lower than the average of comparable systems.

Among the 17 comparable retirement systems, asset class benchmarks varied in the most recent year. The average domestic equity benchmark was 19.9 percent but ranged from 15.1 percent to 20.6 percent. International equity benchmarks varied even more. The average rate was 28 percent, but the lowest rate was 18.7 percent and the highest rate was 30.7 percent. Fixed-income securities averaged 6.2 percent and ranged from 4 percent to 6.8 percent.

Table 4.4
Benchmarks by Asset Class for 17 Comparable Systems,
KRS, and KTRS, Fiscal Year 2007

| 17 Comparable Systems | U.S. Equity | International Equity | Fixed Income |
|------------------------------|--------------------|-----------------------------|---------------------|
| Average | 19.9% | 28.0% | 6.2% |
| Minimum | 15.1% | 18.7% | 4.0% |
| Maximum | 20.6% | 30.7% | 6.8% |
| KRS-Pension | 19.9% | 27.5% | 5.5% |
| KRS-Insurance | 20.3% | 27.5% | 4.0% |
| KTRS | 20.6%* | | 6.0% |

Note: * KTRS reports a combined U.S. and international equity benchmark.

Sources: Staff analysis of comparable retirement systems' financial documents. Appendix F has the list of sources.

Actuarially Assumed Investment Rates of Return

Retirement system actuaries establish assumed investment rates of return to, among other things, project unfunded liabilities and establish actuarially required contribution rates. As a measure of retirement system performance, investment rates of return should meet or exceed actuarially assumed rates.

KRS's and KTRS's investment returns exceeded the actuarially assumed rates over the past 1-, 3-, and 5-year periods, but fell slightly short of the 10-year rate.

Table 4.5 shows the actuarially assumed rates of return for KRS and KTRS compared to the 1-, 3-, 5-, and 10-year investment returns. Rates of return for KRS's pension fund exceeded the actuarially assumed rate in the 1-, 3-, and 5-year periods but fell slightly short in the 10-year period. Similar results occurred with KTRS.

Table 4.5
KRS and KTRS Pension Fund Actuarially Assumed
Rates of Return Compared to Investment Returns (Percent)

| Period | KRS | | KTRS | |
|---------|--------|---------|--------|---------|
| | Return | Actuary | Return | Actuary |
| 1-year | 15.3 | 7.8 | 15.3 | 7.5 |
| 3-year | 11.4 | 7.9 | 9.3 | 7.5 |
| 5-year | 10.4 | 8.1 | 8.5 | 7.5 |
| 10-year | 8.1 | 8.2 | 7.1 | 7.6 |

Note: Decimals are rounded to tenths. KRS's current rate is 7.75 percent. The 3-, 5-, and 10-year figures are averages of the rates of relevant years. Actuarial rates are different for insurance funds in accordance with governmental accounting standards. Those rates are not included here. Sources: Commonwealth. Kentucky Retirement. *Comprehensive* various years; Commonwealth. Teachers'. *Comprehensive* various years.

KRS's actuarially assumed rate of return has declined from 8.25 percent in FY 2005 to 7.75 percent in FY 2007.

Kentucky Retirement Systems. The Kentucky Retirement Systems' actuary develops, and the KRS Board of Trustees adopts, assumed rates about every 5 years. For the most recent pension fund actuarial valuation (January 2006), KRS's actuary projected a 7.75 percent annual net investment rate of return for the pension funds. From 2002 to 2005, the projected rate of return was 8.25 percent.

Compared with actuarially assumed rates of return, KRS's actual returns were at least 2 percentage points greater over the 1-, 3-, and 5-year periods. For the 10-year period, the rate of return was 8.1 percent, slightly less than the actuarial rate of 8.2 percent.

KTRS actuarially assumed rate of return has been 7.5 percent since FY 1999.

Kentucky Teachers' Retirement System. Rates of return for KTRS, which includes the pension and the insurance funds, exceeded the actuarial rates over the 1-, 3-, and 5-year periods. The 10-year rate of return of 7.1 percent fell short of the average 10-year actuarial rate of 7.55. KTRS's assumed rate of return has been 7.5 percent since FY 1999.

Comparable Systems. Of the 25 comparable public employee or teacher retirement systems examined in this report, current actuarially assumed investment rates of return ranged from 7.25 percent to 8.5 percent. These rates are listed by system in Appendix D. The most commonly reported rate was 8 percent, which is higher than KRS's rate of 7.75 percent and KTRS's rate of 7.5. Table 4.6 shows the number of retirement systems by actuarially assumed rate of return.

Table 4.6
Current Actuarially Assumed Investment Rates of Return for Comparable Public Employee or Teacher Retirement Systems

| Actuarially Assumed Rate of Return | Number of Systems |
|------------------------------------|-------------------|
| 7.25% | 2 |
| 7.50% | 4 |
| 7.75% | 2 |
| 8.00% | 11 |
| 8.25% | 3 |
| 8.50% | 3 |
| Total | 25 |

Sources: Staff's compilation of information from comparable retirement systems' financial documents. Appendix F has the list of sources.

System Long-term Objective

KRS's current long-term investment objective is to achieve a rate of return that exceeds its actuarially assumed rate of 7.75 percent over a 6- to 10-year period.

Kentucky Retirement Systems. Until FY 2007, KRS's long-term investment objective was to achieve a rate of return that exceeded the Consumer Price Index-Urban (CPI-U), a measure of inflation, by at least 4 percentage points over two market cycles, typically 6 to 10 years. From 1997 to 2007, the CPI-U plus 4 percentage points averaged 6.6 percent. KRS's rate of return averaged 8.9 percent for the pension fund and 8.6 percent for the insurance fund, so KRS met its long-term objective.

For FY 2007, KRS changed its long-term objective from the CPI-U to the actuarially assumed rate of return, which was 7.75 percent. The 10-year rate of return for KRS's pension fund was 8.1 percent, which is greater than 7.75 percent.

KTRS's long-term investment objective, which KTRS labels a "goal," is to attain a 10-year annualized total return that exceeds inflation by 3.5 percentage points.

Kentucky Teachers' Retirement System. According to KTRS's investment report, its long-term objective, which KTRS labels a "goal," is to attain a 10-year annualized total return that exceeds the Consumer Price Index by 3.5 percentage points.² For the 10-year period ending June 30, 2007, the CPI-U plus 3.5 percentage points totaled 6.1 percent. KTRS's 10-year return averaged 7.1 percent, meaning KTRS outperformed its long-term investment objective (Commonwealth Teachers' *Annual*). This includes the pension and medical insurance funds.

Comparable Systems. Long-run investment objectives were found in 11 of 25 comparable public employee or teacher retirement systems examined for this report. These objectives are listed by system in Appendix D. Most objectives were identified as inflation plus an additional 3 to 5.25 percentage points. One system's long-run objective was a flat percentage rate. Two systems used a flat percentage rate along with an inflation-based measure.

Investment Performance of Comparable Systems

Considering other retirement system rates of return can be useful but cannot explain on its own why differences occurred.

In this section, the investment performance of comparable public employee and teacher retirement systems is examined. Although differences in investment policies, member demographics, funding, asset size, and asset allocations may contribute to rate of return differences, examining investment returns for a comparable group provides a context in which to consider KRS's and KTRS's actual returns.

² KTRS uses the term "goal," not "objective."

Fund Returns Relative to KRS

Table 4.7 identifies fund rates of return for 20 state employee retirement systems that had active membership of between 50,000 and 250,000 (U.S. Census Bureau. *State*).³ This range was selected because KRS's active membership as of June 30, 2007, was 148,000, placing it about in the middle.

Table 4.7
Investment Rates of Return for State Public Employee Retirement Systems
With Active Membership Between 50,000 and 250,000

| Retirement System | Rate of Return (%) | | | |
|--|--------------------|--------|--------|---------|
| | 1 year | 3 year | 5 year | 10 year |
| Arizona Retirement System | 17.8 | 11.9 | 11.0 | 8.4 |
| Employees' Retirement System of Georgia | 14.7 | n/a | 8.5 | n/a |
| Public Employee Retirement System of Idaho | 20.0 | 14.3 | 12.8 | 9.0 |
| State Employees Retirement System of Illinois | 17.1 | 12.6 | 10.8 | n/a |
| Indiana Public Employees' Retirement Fund | 18.2 | 12.8 | 11.8 | 8.4 |
| Iowa Public Employees' Retirement System | 16.3 | 12.9 | 11.6 | 9.0 |
| Kansas Public Employees Retirement System | 18.0 | 14.1 | 12.3 | 8.8 |
| Louisiana State Employees' Retirement System | 18.5 | 14.5 | 15.4 | n/a |
| Maine Public Employees Retirement System | 16.2 | 11.8 | 11.4 | 7.7 |
| State Retirement and Pension System of Maryland | 17.6 | 12.4 | 11.3 | 7.2 |
| Massachusetts State Employees' Retirement System | 19.9 | 16.2 | 14.3 | 10.1 |
| Public Employees Retirement Association of Minnesota | 18.5 | 14.0 | 12.0 | 8.5 |
| Missouri State Employees' Retirement System | 18.1 | 14.2 | 13.3 | 9.2 |
| Public Employees' Retirement System of Nevada | 15.0 | 11.0 | 10.0 | 7.9 |
| Public Employees Retirement System of New Mexico | 18.1 | 13.2 | 11.7 | 9.8 |
| Oregon Public Employees Retirement System | 18.6 | 15.6 | 13.4 | n/a |
| South Carolina Retirement Systems | 13.4 | 8.6 | 8.8 | 7.0 |
| Tennessee Consolidated Retirement System | 13.2 | 9.1 | 8.3 | n/a |
| Employees Retirement System of Texas | 13.9 | 11.8 | 11.2 | 7.3 |
| Washington Public Employees' Retirement System | 21.3 | 17.0 | 14.0 | 9.7 |
| Average | 17.2 | 13.0 | 11.7 | 8.6 |
| KRS (Pension only) | 15.3 | 11.4 | 10.4 | 8.1 |
| KRS (Insurance only) | 19.3 | 13.7 | 12.5 | 8.4 |

Notes: Some system investments are pooled with other in-state retirement funds. The 10-year rate of return for Indiana was calculated by staff based on annual data.

Sources: Various retirement system documents and staff's analysis. Appendix F has the list of sources.

³ Twenty-eight systems fell within this range, but eight were excluded due to old or missing data.

Public employee retirement systems generally experienced extraordinarily high returns in recent years due to increases in domestic and international stock market values.

Retirement systems listed in Table 4.7 generally experienced extraordinarily high returns in recent years. This is evident by comparing the 1-year average return of 17.2 percent to the 10-year average return of 8.1 percent. The past 10-year period includes both the run-up and the collapse of the dot-com bubble and the post-9/11 recession.

Rates of return for KRS's pension fund were below average relative to 20 other systems but above average over the 1-, 3-, and 5-year periods for its insurance fund.

Rates of return for KRS's pension fund were lower than the 20-state average for each time period. KRS's insurance fund returns were higher than the 20-state average for the 1-, 3-, and 5-year periods, but not the 10-year period.

Retirement systems that invested proportionately more assets in international equities generally outperformed other systems.

Program Review staff's examination of 2007 asset allocations for these 20 retirement systems indicated that a relationship between risk and return existed. Relative to 1-year returns, retirement systems that invested proportionately more assets in international equities, a higher-risk investment, generally had higher rates of return than other systems.⁴

Fund Returns Relative to KTRS

Table 4.8 shows rates of return for 1-, 3-, 5-, and 10-year periods for state teacher retirement systems with 50,000 to 100,000 active members. That particular range was selected because KTRS membership falls in the middle with 75,000 active members.⁵ Thirty-two states operate teacher retirement systems (staff's analysis of U.S. Census Bureau data).

Relative to the average returns of nine other similarly sized retirement systems, KTRS investments did not perform as well.

Average 1-year investment performance for the nine state teacher retirement systems was 18.5 percent. Exceptionally strong equity returns likely bumped rates above their historic average. For the 10-year period, the average return for these teacher retirement systems was 9.4 percent. Relative to the averages for these systems, KTRS's investment rates of return were lower for each time period.

⁴ Percent of assets allocated to international equities and 1-year rates of return had a 0.55 correlation value. A correlation value of 1 indicates that two factors move in unison; a correlation value of 0 indicates unrelated behavior.

⁵ Twelve retirement systems were originally considered, but three were excluded because the investment data were too old or could not be located.

Table 4.8
Investment Rates of Return for State Teacher Retirement Systems With
Active Membership Between 50,000 and 100,000

| System | Rates of Return | | | |
|---|-----------------|--------|--------|---------|
| | 1 year | 3 year | 5 year | 10 year |
| Arkansas Teachers Retirement System | 19.1 | 14.0 | 12.1 | n/a |
| Georgia Public School Employees Retirement System* | 14.7 | n/a | 8.5 | n/a |
| Indiana State Teachers' Retirement Fund | 18.2 | 12.9 | 11.6 | n/a |
| Louisiana Teachers' Retirement System | 19.7 | 15.0 | 14.0 | 9.7 |
| Massachusetts Teachers' Retirement System* | 19.9 | 16.2 | 14.3 | 10.1 |
| Minnesota Teachers' Retirement System* | 18.5 | 14.0 | 12.0 | 8.5 |
| Public School and Education Employee Retirement Systems of Missouri | 16.6 | 11.8 | 10.5 | 8.2 |
| Teachers' Retirement System of Oklahoma | 18.5 | 12.8 | 12.8 | 10.4 |
| Washington Teachers' Retirement System* | 21.3 | 17.0 | 14.0 | 9.7 |
| Average | 18.5 | 14.2 | 12.2 | 9.4 |
| KTRS | 15.3 | 9.3 | 8.5 | 7.1 |

*Pooled with other in-state retirement funds.

Notes: The 10-year rate of return for Oklahoma was calculated by staff based on annual data.

Sources: Various retirement system documents and staff's analysis. Appendix F has the list of sources.

Asset Class Allocations and Returns Relative to KRS and KTRS

Allocations. Twenty-two comparable systems reported U.S. equity, international equity, and fixed-income allocations for FY 2007. Table 4.9 shows their range of asset class allocations compared to KRS and KTRS. Allocations ranged from 23 percent to 56 percent for U.S. equities, 0 percent to 30 percent for international equities, and 0 percent to 39 percent for fixed-income securities.

Table 4.9
Asset Class Allocations for KRS, KTRS, and 22 Comparable Systems

| | | U.S. Equities | International Equities | Fixed Income |
|---------------------------|---------------|------------------|---------------------------|-----------------|
| Comparable Systems | Average | 40.6% | 18.1% | 24.1% |
| | Minimum | 23.3% | 0.0% | 0.0% |
| | Maximum | 56.0% | 29.8% | 38.5% |
| | KRS-Pension | 38.4% | 18.4% | 23.1% |
| | KRS-Insurance | 55.5% | 20.4% | 0.0% |
| | KTRS | 58.4% | 6.7% | 32.4% |

Sources: Various retirement system documents and staff's analysis. Appendix F has the list of sources.

Relative to the average, KRS's pension fund allocated about 2 percentage points less to U.S. equities, while KRS's insurance fund allocated about 15 percentage points more and KTRS allocated about 18 percent more.

For international equities, KRS's pension fund allocated 0.3 percentage points more and KRS's insurance fund allocated 2.3 percentage points more than the average. KTRS allocated 11.4 percentage points less.

For fixed-income securities, KRS's pension fund allocated 1 percentage point less. KRS's insurance fund did not allocate any assets to fixed income. KTRS allocated 8.3 percentage points more than the average.

Returns. As noted previously, investment rates of return vary from one retirement system to another due, in some measure, to asset allocation differences. Some retirement systems had similar asset allocations but still had notable differences in rates of return. These differences were likely attributable to judgments of decision makers. Decision makers ultimately decide whether to manage assets internally or externally, how much risk to take within a particular asset class, and which investment managers to contract with. Each of these factors may positively or negatively impact rates of return.

Appendix E identifies domestic equity, international equity, and fixed-income asset allocations for each retirement system examined here. It also lists 1- and 5-year investment rates of return per asset class.

Governance and Investment Practices of Comparable Systems

Public employee retirement systems vary in how they invest and are governed.

While all public employee retirement systems have a similar goal of maintaining sufficient assets to pay benefits to members, the way retirement systems invest and oversee assets varies. In the following tables several important governance and investment characteristics specific to retirement systems are described. Program Review staff identified these characteristics by examining state statutes, administrative regulations, and financial statements for comparable state employee and teacher retirement systems.

Governing Bodies

Retirement system boards include some combination of elected, appointed, and ex officio members. They have ultimate responsibility for investments. Comparable retirement system boards have between 4 and 18 members. KRS and KTRS have nine members each.

Retirement system boards include some combination of elected, appointed, and ex officio members who have ultimate responsibility for investments. Comparable state government employee retirement systems, as shown in Table 4.10, have from 4 to 18 board members. Comparable teacher retirement systems, as shown in Table 4.11, have from 4 to 16 board members. KRS and KTRS have nine board members each.

Ten of the 20 public employee retirement systems do not have elected member representation. Four of nine teacher retirement systems do not have elected members. By comparison, KRS has five elected members and KTRS has seven.

Governance Requirements

Most comparable retirement systems voluntarily create an investment oversight body.

Few of the comparable retirement systems are required by statute or regulation to operate an investment committee. However, most systems, including KRS and KTRS, voluntarily created some type of investment oversight body.

Most comparable retirement systems require board or investment committee members to have some investment expertise or knowledge. Neither KRS nor KTRS has this requirement.

For most comparable retirement systems, state statutes or administrative regulations require board or investment committee members to have at least some investment expertise. Similar requirements do not exist for KRS or KTRS members.

Investment training for committee members is required by two of the comparable retirement systems. KRS and KTRS encourage, but do not require, training.

Investing Factors

Asset allocation limits cap the amount or percent of investments in particular assets. For example, a 40 percent domestic equity allocation limit means no more than 40 percent of a system's assets can be invested in domestic equities.

Statutory international investing restrictions may include a prohibition on investment in foreign securities; limitations on the percentage of assets that can be invested in foreign stocks, bonds, and other securities; or a requirement regarding the expertise of the investment manager.

In-state investing requirements generally mandate that a retirement system invest a defined percentage or amount of assets within the

state in which it operates. Only two retirement systems examined here impose such a requirement. Language encouraging in-state investments “where prudent” is not considered a requirement for purposes of this report.

Table 4.10
Selected Governance and Investment Characteristics for State Public Employee Retirement Systems With Active Membership Between 50,000 and 250,000

| Retirement System | Board Members | | | | Governance Requirements | | | Investing Factors | | |
|--------------------------|---------------|-----------|------------|-------|-------------------------|----------------------|-----------------|-------------------------|--------------------------------------|--------------------------------|
| | Elected | Appointed | Ex Officio | Total | Investment committee | Investment expertise | Member training | Asset allocation limits | International investing restrictions | In-state investing requirement |
| AZ | 0 | 9 | 0 | 9 | | ■ | | ■ | ■ | |
| GA | | | | | | | | | | |
| ID | | | | | | | | | | |
| IL | | | | | | | | | | |
| IN | | | | | | | | | | |
| IA | | | | | | | | | | |
| KS | | | | | | | | | | |
| LA | | | | | | | | | | |
| ME | | | | | | | | | | |
| MD | | | | | | | | | | |
| MA | | | | | | | | | | |
| MN | | | | | | | | | | |
| MO | | | | | | | | | | |
| NV | | | | | | | | | | |
| NM | | | | | | | | | | |
| OR | | | | | | | | | | |
| SC | | | | | | | | | | |
| TN | | | | | | | | | | |
| TX | | | | | | | | | | |
| WA | | | | | | | | | | |
| Number of Systems | | | | | 7 | 11 | 2 | 7 | 4 | 2 |
| KRS | 5 | 3 | 1 | 9 | | | | | | |

Notes: Governance describes the body having final say on a system’s investments and includes single-system retirement boards and state investment boards or commissions with investment responsibility for multiple systems. Required investment expertise may be on the governing board or investment committee.

Source: Staff’s analysis of various state statutes and administrative regulations.

Table 4.11
Selected Governance and Investment Characteristics for State Teacher Retirement Systems With Active Membership Between 50,000 and 100,000

| Retirement System | Board Members | | | | Governance Requirements | | | Investing Factors | | |
|--------------------------|---------------|-----------|------------|-------|-------------------------|----------------------|-----------------|-------------------------|--------------------------------------|--------------------------------|
| | Elected | Appointed | Ex Officio | Total | Investment committee | Investment expertise | Member training | Asset allocation limits | International investing restrictions | In-state investing requirement |
| AK | 11 | 0 | 4 | 15 | | | | | | |
| GA | | | | | | | | | | |
| IN | | | | | | | | | | |
| LA | | | | | | | | | | |
| MA | | | | | | | | | | |
| MN | | | | | | | | | | |
| MO | | | | | | | | | | |
| OK | | | | | | | | | | |
| WA | | | | | | | | | | |
| Number of Systems | | | | | 2 | 5 | 0 | 3 | 3 | 0 |
| KTRS | 7 | 0 | 2 | 9 | | | | ■ | ■ | |

Note: Required investment expertise may be on the governing board or investment committee. Oklahoma's regulatory asset allocations are guidelines and may be modified by the board. For Georgia, Massachusetts, Minnesota, and Washington, investments are pooled with their public employee systems' investments. Source: Staff's analysis of state statutes and administrative regulations.

Factors Related to Investment Performance

Academic research indicates that retirement systems that invest proportionately more money in higher-risk investments typically achieve higher long-run returns than other systems.

Public employee retirement systems earn different rates of return on their investment portfolios. As shown in Tables 4.7 and 4.8, some systems reported rates that exceeded 21 percent in FY 2007, others reported returns of less than 14 percent. Academic research has identified several factors that explain some of the difference. Most important is how retirement systems allocate assets. All things equal, retirement systems that invest proportionately more assets in higher-risk investments achieve higher long-run returns than other systems (Brinson).

Among retirement systems with similar asset allocations, asset size and in-state investing have consistently been identified as factors affecting rates of return (Munnell et al).

Asset size positively affects rates of return for two reasons. First, large systems generally operate more efficiently than small ones, in

part, because certain fixed operating expenses must be paid regardless of system size (Munnell and Sunden). Second, very large retirement systems may be able to influence markets through buying, selling, or persuading in a manner that improves rate of return. For example, the California state employee retirement system, which recently drew national attention for its decision to withhold votes for Eli Lilly directors, has more than \$200 billion in assets (Graybow).

According to academic research,

- asset size positively affects rates of return because large systems generally operate more efficiently than small ones;
- in-state investment requirements negatively impact rates of return;
- board size, percent of board members elected, board authority, board transparency, independent evaluations, and tactical and social investing had mixed effects on rates of return; and
- governance factors may affect investment policy, which may affect investment rates of return.

In-state investment requirements negatively impact rates of return. These requirements are imposed under the assumption that in-state investing can provide an appropriate rate of return while improving the local or state economy at the same time. With rare exceptions, these benefits do not occur. Worse, retirement systems reportedly end up receiving a lower rate of return than they would have received by investing elsewhere (Hsin; Schneider).

Many other governance and investment factors have also been examined, but conclusions have varied. Research has considered board size, percent of board members elected, board authority, and board transparency without consistent agreement (Romano; Munnell and Sunden; Coronado). The value of independent evaluations has also been debated (Useem and Mitchell; Munnell and Sunden). Studies considering the impact of tactical investing and socially responsible investing reached opposite conclusions (Useem and Hess; Nofsinger; Romano).

Some factors have no apparent effect on rate of return. These include prudent person requirements, external management, and reporting frequency (Mitchell and Hsin; Nofsinger; Useem and Mitchell).

Although governance structure may not directly affect rates of return, several studies have concluded that governance factors have an indirect effect. Governance factors may affect investment policy, which may affect investment rates of return (Useem and Mitchell).

In general, research identified few factors that might contribute to an optimal governance structure or investment policy for all public employee retirement systems. Only two investment factors—asset allocation and size—exhibited a consistent positive effect on returns. In-state investing requirements negatively affected rates of return. Governance factors appear to have no direct or consistent effect on rates of return, but no study has considered how board member investment expertise requirements might affect rates of

return. These findings suggest high rates of returns over the long run can be achieved by allocating more assets to higher-risk investments, increasing asset size, and eliminating in-state investment requirements.

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Appendix A

Balancing the Equation

Understanding how investment performance fits into the overall funding of the retirement systems is essential. Investment income is only one part of the equation that makes up retirement funding. The basic equation is $\text{Employee Contributions} + \text{Employer Contributions} + \text{Investment Income} = \text{Pension Benefits} + \text{Expenses}$. If investment income decreases, then contributions must increase to pay for benefits and expenses. Further, if benefits and expenses rise or decrease, adjustments must be made on the other side of the equation to sustain the income needed to pay for benefits in the long run. Because pension benefits and member contributions are generally fixed, employer contributions and investment returns must balance the pension equation.

Another way to explain the fund is from a balance sheet perspective. If a plan is 100 percent funded, assets of the plan equal the benefits earned by and promised to active and retired members. When plan assets are less than promised benefits, the plan is less than 100 percent funded and has an unfunded actuarial accrued liability. The percentage funded depends on the difference between plan assets and promised benefits. This difference varies according to how much of the unfunded accrued liability (obligation) is met (paid) when it becomes due. Therefore, using the accounting equation, the overall management strategy should ensure a stable funding approach, depending on the pre-funding strategy as required by governmental accounting and reporting standards. The funding strategy affects investment strategy. A well-funded pension plan

- enhances investment performance;
- achieves the lowest employer contribution in the long term;
- provides additional assurance that promised benefits will be paid when due;
- provides full transparency of the actual cost of promised benefits; and
- complies with generally accepted accounting principles, based on accrual-based accounting and its ability to result in transparency of actual cost.

Principles of accrual-based accounting are the way public employee retirement systems are able to track long-term obligations and determine how they will pay for them when due. The accrual basis of accounting becomes the tool that managers rely on to know how strong the plan assets are, what the funding needs are, and what amount of investments can be allocated.

The Government Finance Officers Association's issued a 2005 policy statement that stated:

The fundamental financial objective of a state or local government employee retirement system is to establish a funding policy, and receive contributions which, expressed as a percentage of active member payroll, will remain approximately level from generation-to-generation based on the plan's existing benefit package while fulfilling the long-term goal of fully funding member benefits. Embodied in this objective are the principles of accrual accounting, which require that the total cost of employee services be recognized in the period in which those services are rendered. The level contribution design of pension plan funding is intended to assign pension costs for the employee population to the appropriate fiscal periods.

Sources:

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Appendix B

Accounting Standards

Public employee retirement systems measure, recognize, and disclose future obligations for postemployment benefits, including pension and health care. The Governmental Accounting Standards Board (GASB) is an independent entity that establishes financial accounting and reporting standards for state and local governmental entities.

Pension Plan Standards

In 1994, GASB issued two government pension reporting statements to make pension information in governmental financial reports more understandable and useful. GASB Statement 25 established financial reporting standards for defined pension plans and note disclosures. GASB Statement 27 established standards for the measurement, recognition, and display of pension plan assets, expense, and related liabilities presented in financial reports of employers. All governmental employers, including school districts, must disclose actuarial and pension information in their financial statements.

Recently, GASB Statement 50 closely aligned the requirements of note disclosures and required supplementary information (RSI) for pensions with those for other postemployment benefit standards. Statement 50 improves the transparency and usefulness of financial reporting by pension plan trusts and employers by amending Statements 25 and 27, beginning after June 30, 2007. The following changes are required:

- Defined benefit pension plans must disclose actuarial methods and significant assumptions used in the most recent actuarial valuation in notes to financial statements, instead of RSI. The notes must disclose the funded status of the plan as of the most recent actuarial valuation date.
- If the aggregate actuarial cost method is used to determine actuarially required contributions, notes to financial statements must disclose the funded status of the plan, and a schedule of funding progress would be presented as RSI, using the entry age actuarial cost method.
- Notes to financial statements must include narrative disclosures of an informative nature regarding the actuarial measurement process. Further, the funded status in the note disclosures must be referenced and linked to the required schedule of funding progress in RSI.
- If applicable, notes to the financial statements must disclose legal or contractual maximum contribution rates.
- If an actuarial assumption is different for successive years, notes to financial statements must disclose the initial and ultimate rates.

Statement 50 also requires defined benefit pension plans and defined contribution plans to disclose in the notes to financial statements the methods and assumptions used to determine the fair value of investments, if based on other than quoted market prices.

Other Postemployment Benefit Standards

In 2004, GASB issued Statements 43 and 45, which required state and local governments to disclose the true costs of providing other postemployment benefits (OPEB). Prior to the standards established in these statements, it was not possible to analyze the financial position and long-term cost of healthcare and other postemployment benefits.

GASB Statement 43 established uniform financial reporting standards for postemployment plans other than pensions administered by trusts or equivalent arrangements. The standards are consistent with pension income standards. The main requirement is that the plan must report the actuarial cost and liabilities of the substantive OPEB plan based on the same actuarial cost methods allowed for pension benefits. The substantive plan may differ from written plan provisions based on whether benefits are discretionary or required by statutes. Assets are accumulated and benefits are paid as they come due in accordance with an agreement between employers and plan members and their beneficiaries, and in which

- employer contributions to the plan are irrevocable,
- plan assets are dedicated to providing benefits to their retirees and their beneficiaries in accordance with the terms of the plan, and
- plan assets are legally protected from creditors of the employer or the plan administrator.

GASB Statement 45 established accounting and financial reporting standards for any employer that provides postemployment benefits other than pensions by paying for all or part of the cost. The standard requires that the actuarial requirements be accounted for and reported in the employer's financial statements, unless the employer participates in a cost-sharing multiple-employer plan. In a cost-sharing plan, employers recognize annual OPEB expense for their contractually required contributions to the plan.

Employers are required to determine the actuarial costs of OPEB at least every 2 years for plans with 200 or more participants based on valuations performed in accordance with parameters. Standards require plans with fewer than 200 people to determine actuarial costs every 3 years. These valuations generally follow accepted actuarial practices established by the Actuarial Standards Board as follows:

- Future cash outlays are projected based on economic and demographic assumptions (as explained in the actuarial approach of financing).
- The cash outlays are discounted to their actuarial present value using a discount rate equal to an assumed long-term rate of return on investments. The actuarial assumption regarding investment returns should reflect the expected investment return on the OPEB assets rather than on the expected investment on employer assets.
- Once present value is determined, it is spread over a period approximating the anticipated length of service for an average employee, using one of six acceptable methods. GASB believes that governments should use the same method for both funding and financial reporting.
- The part of the actuarial present value allocated to a given year is the normal cost.
- The portion allocated to future years is called future normal costs.

Although Statements 43 and 45 are required for accounting and reporting, they do not mandate the funding of other postemployment benefits. Postemployment benefits are often financed in one of two ways. Some governments follow an actuarial approach, often referred to as the “contribution approach.” Other governments follow a pay-as-you-go approach.

Employers applying the actuarial approach transfer an amount to the benefit plan that is expected to be sufficient, if currently invested, for future postemployment benefits. Actuaries determine the amount the employer should contribute based on appropriate assumptions. Assumptions about factors such as retirement ages, mortality schedules, inflation rates, investment returns, and demand for benefits are examples of assumptions used to estimate the cost of the benefits earned. This approach is commonly used to finance the costs of pension income.

Employers that apply the pay-as-you-go approach transfer only the resources required to satisfy the current benefits distributed or claimed in any given year. Many governments have been following this approach to finance OPEB.

GASB Statement 47 provides accounting and reporting standards for state and local governments that offer benefits such as early retirement incentives or severance benefits to employees that are involuntarily terminated.

Investment Standards

Governmental accounting and reporting standards require equity, debt, real estate, and other investments, excluding insurance contracts, to be reported at fair value. “Fair value” is the amount reasonably expected in a current sale between a willing buyer and a willing seller. Other investment requirements are very detailed and included in many GASB statements.

Sources:

For GASB Statements 25, 27, 43, and 45, information is from Codification of Governmental Accounting and Financial Reporting Standards as of June 30, 2006.

For GASB Statement 50, information is from J. Michael Inzina. “2008 GASB UPDATE.” Kentucky Governmental Accounting and Auditing Conference. Executive West Hotel, Louisville. May 12-13, 2008.

Appendix C

Key Elements of Governmental Accounting Standards Board Statements 43 and 45 Relative to KRS and KTRS Insurance Funds

| Key Elements of GASB Statements 43 and 45 | Insurance Fund KRS | Insurance Fund KTRS |
|--|---|---|
| <p>Structure of Entity GASBS 43 applies to financial reports of plan sponsors of other postemployment benefits (OPEB) trust funds, and GASBS 45 applies to presentation requirements of governmental employers participating in the plan. GASB identifies types of postemployment benefit plans based on type of employer plan and how costs are determined. Reporting requirements vary based on the structure of the plan.</p> | <p>The KRS Insurance Fund is a cost-sharing, multiple-employer plan. It was established to provide hospital and medical insurance for all members receiving benefits from KERS, CERS, and SPRS. In 1988, medical coverage was added to the provisions of the inviolable contract (KRS 16.652, 61.692, and 78.852). The fund pays a prescribed contribution for whole or partial payment of required premiums to purchase hospital and medical insurance, and for the spouse and dependents of retired hazardous-duty employees killed in the line of duty. The amount paid is a percentage based on years of service and is subject to annual changes based on CPI for all urban consumers. In addition, KRS began self-funding healthcare benefits for its Medicare-eligible retirees on Jan. 1, 2006, assuming the financial risk of providing healthcare benefits to its retirees.</p> | <p>The KTRS Medical Insurance Benefit Fund is a cost-sharing, multiple-employer plan. The plan provides post-retirement healthcare benefits to eligible members and dependents, as required by KRS 161.675. The fund has been self-insured since 1992. The dollar amount that KTRS pays toward coverage is directly related to the number of years of service credit at retirement. Coverage for spouses (under age 65), and dependent children of members are available at members' cost. Changes to the system may be made by the board of trustees, the General Assembly, and the Kentucky Department of Employee Insurance.</p> |
| <p>Implementation Dates The criterion used to determine the implementation date for GASBS 43 and GASBS 45 is based on total annual revenues reported in the first fiscal year ending after</p> | <p>KRS implemented GASBS 43, required for fiscal year beginning after Dec. 15, 2005, and GASBS 45, required one year later. Implementation requirements were based on annual revenues of greater than \$100 million. KERS is the</p> | <p>KTRS implemented GASBS 43 for the fiscal year beginning after Dec. 15, 2005, based on annual revenues of greater than \$100 million. KTRS is in compliance with implementation of the OPEB standards.</p> |

| Key Elements of GASB Statements 43 and 45 | Insurance Fund KRS | Insurance Fund KTRS |
|---|---|---|
| <p>June 15, 1999. Plan revenues are based on the revenues of the largest participating employer for GASBS 45.</p> | <p>largest participating employer in the plan. KRS applied early implementation of GASBS 43 and GASBS 45.</p> <p>KRS is in compliance with implementation of the OPEB standards.</p> | |
| <p>Pre-funding and Funding Policy In order for an OPEB obligation to be considered funded, if only partially, the money must be set aside in a separate trust account. GASBS 43 refers to entities with a separate trust established in order to refund OPEB benefits under GASB regulations. KRS and KTRS initially had to determine whether to set aside funds and pay for the obligations with contributions and investment income or to use only contributions to fund the benefits.</p> <p>Other facts affecting funding:</p> <ul style="list-style-type: none"> • Short-term interest rates are lower than long-term rates. • Pay-as-you-go financing has higher liabilities than fully funded OPEB plans. • A blended rate may be used for employers using a blended funding approach. | <p>KRS uses both contributions and investment income to fund the benefits of its Insurance Fund (OPEB plan).</p> <p>Management states that in prior years, the employers' required medical insurance contribution rate was increased annually by a percentage that would result in advance-funding the medical liability on an actuarially determined basis. KRS used the entry age normal cost method within a 20-year period measured from 1987. In Nov. 1992, the board of trustees adopted a fixed percentage contribution rate and suspended future increases under the current medical premium funding policy. In May 1996, the board adopted a policy to increase the insurance contribution rate by the amount needed to achieve the target rate for full entry age normal funding within 20 years. (See current actuarial cost method and UAL amortization.)</p> <p>In accordance with GASBS 43, lack of pre-funding the health insurance benefits in recent years has led to a blended discount rate of 4.5%.</p> | <p>KTRS uses both contributions and short-term investment income to fund the post-retirement healthcare. KTRS uses a pay-as-you-go basis to finance its post-retirement healthcare (OPEB plan).</p> <p>To continue funding through 2008, the Commonwealth borrowed approximately \$289 million from the KTRS pension fund to meet healthcare obligations of KTRS plan members. Borrowing from the pension fund to sustain retiree medical insurance does impact actuarial soundness.</p> <p>KTRS prepares actuarial assumptions using both pre-funded and not pre-funded rates to show how each affects unfunded liability costs. KTRS's Schedule of Funding Progress reflects the change in discount rate of 4.5% because of lack of pre-funding. (See UAL amortization for both amounts.)</p> |

| Key Elements of GASB Statements 43 and 45 | Insurance Fund KRS | Insurance Fund KTRS |
|---|---|---|
| <p>Asset-Valuation Methods Plan assets must be valued at a market-related value. This includes using actual market value or an asset-smoothing method that averages returns over a longer period, typically 3 to 5 years.</p> | <p>KRS uses a 5-year smoothed market related value for both non-hazardous and hazardous plans that averages returns.</p> | <p>KTRS uses a 5-year smoothed asset valuation market approach.</p> |
| <p>Actuarial Cost Method There are six actuarial cost methods that are acceptable under the parameters of GASBS 45. The cost method used should be the same method both for accounting and for funding calculations.</p> <p>The difference in the value between the actuarial accrued liability and the actuarial value of assets is known as the unfunded accrued liability (UAL), as defined in the section on amortization that follows.</p> | <p>KRS Uses an Entry Age Normal actuarial cost method. The actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis over the earnings or service of the individual between entry age and assumed exit age.</p> | <p>KTRS uses a Projected Unit Credit actuarial cost method. The projected benefits of each individual included in an actuarial valuation are allocated by a consistent formula to valuation years.</p> |
| <p>Actuarial Assumptions The assumptions, referred to as parameters in GASBS 43 and 45, are assumptions such as investment return assumption (discount rate), healthcare cost trend, payroll growth, and other demographics.</p> <p>Actuarially determined amounts are subject to continual revision as actual results are compared with past expectations and new estimates are made about the future.</p> | <p>KRS uses the following actuarial assumptions:</p> <ul style="list-style-type: none"> • Medical trend assumption of 12% - 5% (ultimate trend) for both non-hazardous and hazardous • Year of ultimate trend is 2015. Medical trend assumption decreases by 1% each year up to 2015. • Investment return assumption of 4.5% for non-hazardous and 7.75% for hazardous; includes inflation rate of 3.5% for non-hazardous and hazardous. | <p>KTRS uses the following actuarial assumptions:</p> <ul style="list-style-type: none"> • Investment rate of return: 4.5%; includes inflation rate of 4% • Projected salary increases: 4% • Healthcare cost trend: 12% • Ultimate healthcare trend: 5% • Year of ultimate pre-Medicare trend rate is 2015. Medical trend decreases by 1% until ultimate percentage is reached in 2015 |

| Key Elements of GASB Statements 43 and 45 | Insurance Fund KRS | Insurance Fund KTRS |
|---|---|---|
| <p>Employers are required to determine the actuarial costs of OPEB based on evaluations performed in accordance with parameters established by GASB at least every 2 years for plans with 200 or more participants.</p> | | |
| <p>Amortization of Any Unfunded Accrued Liability (UAL) Three elements are decided when determining how unfunded accrued liability is amortized. An employer must:</p> <ul style="list-style-type: none"> • use an amortization period of up to 30 years to meet the GASBS 45 compliance standard, • decide whether the period is open or closed, and • decide whether the payment will be flat dollar or will grow with total payroll. | <p>The amortization of the plan’s UAL conforms to standards in accordance with the actuarial cost method of entry-age normal. The UAL is amortized over a 30-year period using a level percent closed to covered payroll. UAL is determined separately for all members of the multi-cost sharing plan. As of June 30, 2007, the UAL amounts for KRS insurance fund were</p> <ul style="list-style-type: none"> • \$4,833.4 million for KERS (non-hazardous and hazardous), • \$3,507.2 million for CERS (non-hazardous and hazardous), • \$317.5 million for SPRS (hazardous). | <p>KTRS amortization period conforms to accounting standards.</p> <p>KTRS uses level percent pay, open to amortize UAL over a 30 year period.</p> <p>UAL was \$5,787.9 million (not pre-funded discount) for valuation year of June 30, 2007, an increase from 2006.</p> <p>KTRS also determines a pre-funded discount rate of 7.5% that results in a UAL of \$3,514.2 million.</p> |

Sources:

Codification of Government Accounting and Reporting Standards (sections relating to Statements 43 and 45).

Kentucky Retirement Systems. *Audited Financial Statements, June 30, 2007.*

Kentucky Teachers’ Retirement System. *Annual Comprehensive Financial Statements, June 30, 2007.*

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Appendix D

Actuarial Assumptions and Benchmarks for Comparable Public Employee and Teacher Retirement Systems

This appendix details actuarial investment rate of return assumptions, long-term investment objectives, and policy objectives for those public employee retirement systems considered in Chapter 4. Retirement systems were selected on the basis of active membership relative to Kentucky Retirement Systems or Kentucky Teachers' Retirement System. The Georgia, Massachusetts, Minnesota, and Washington systems combine state employees and teachers and are covered in this appendix in the first table only.

Public Employees

| System | Actuarial Assumption (%) | Long-term Investment Objective | Fund Benchmark: 1 Year | Fund Benchmark: More Than 1 Year |
|--|--------------------------|--------------------------------|------------------------|----------------------------------|
| Arizona Retirement System | 8.00 | | | |
| Georgia Employees Retirement System | 7.50 | | | |
| Idaho Public Employee Retirement Board | 8.00 | Inflation + 4.75%-5.25% | √ | |
| Illinois State Employees Retirement System | 8.50 | | √ | |
| Indiana Public Employees' Retirement Fund | 7.25 | | | |
| Iowa Public Employees Retirement System | 7.50 | Inflation + 3% | | √ |
| Kansas Public Employee Retirement System | 8.00 | | √ | |
| Louisiana State Employees Retirement System | 8.25 | 9.15% & Inflation + 4% | | |
| Maine Public Employees Retirement System | 7.75 | | | √ |
| Maryland State Retirement and Pension Systems | 7.75 | Inflation + 3% | √ | |
| Massachusetts State Board of Retirement | 8.25 | | | √ |
| Minnesota Public Employees Retirement Association. | 8.50 | Inflation + 3%-5% | | √ |

Table continued on next page.

Public Employees continued

| System | Actuarial Assumption (%) | Long-term Investment Objective | Fund Benchmark: 1 Year | Fund Benchmark: More Than 1 Year |
|---|---------------------------------|---------------------------------------|-------------------------------|---|
| Missouri State Employees' Retirement System | 8.50 | Inflation + 5% | | √ |
| Nevada Public Employees Retirement Board | 8.00 | Inflation + 4.5% | | √ |
| New Mexico Public Employees Retirement | 8.00 | | | √ |
| Oregon Public Employees Retirement System | 8.00 | | | √ |
| South Carolina Retirement System | 7.25 | 8.33% | | |
| Tennessee Consolidated Retirement System | 7.50 | | | √ |
| Texas Employees Retirement System | 8.00 | | | √ |
| Washington Public Employees Retirement System | 8.00 | | | √ |

Source: Staff's analysis of financial statements for other public employee retirement systems. Appendix F has the list of sources.

Teachers

| System | Actuarial Assumption (%) | Long-term Investment Objective | Fund Benchmark: 1 Year | Fund Benchmark: More Than 1 Year |
|---|---------------------------------|---------------------------------------|-------------------------------|---|
| Arkansas Teachers Retirement System | 8.00 | | | √ |
| Indiana Teachers' Retirement Fund | 7.50 | | | √ |
| Louisiana Teachers' Retirement System | 8.25 | Inflation + 3.9% | | |
| Missouri Public School Retirement Board | 8.00 | 8% & Inflation + 4.5% | √ | |
| Oklahoma Teachers' Retirement System | 8.00 | Inflation + 3% | | √ |

Source: Staff's analysis of financial statements for other public employee retirement systems. Appendix F has the list of sources.

Appendix E

Asset Allocations and 1-year and 5-year Investment Returns for KRS, KTRS, and Comparable Public Employee and Teacher Retirement Systems

| State | FY 2007 Allocations (%) | | | 1-year Returns (%) | | | 5-year Returns (%) | | |
|--------------------|-------------------------|-------------------------|--------------|--------------------|-------------------------|--------------|--------------------|-------------------------|--------------|
| | U.S. Equities | Inter-national Equities | Fixed Income | U.S. Equities | Inter-national Equities | Fixed Income | U.S. Equities | Inter-national Equities | Fixed Income |
| AZ | 56.0 | 20.0 | 23.0 | 19.8 | 27.9 | 6.1 | 11.7 | 17.2 | 4.6 |
| ID | 36.7 | 15.3 | 24.2 | 19.4 | 34.5 | 5.7 | 12.1 | 20.8 | 5.4 |
| IL | 52.0 | 11.0 | 20.0 | 19.9 | 28.8 | 6.9 | 11.8 | 17.9 | 4.7 |
| IN | 48.0 | 17.6 | 21.9 | 18.8 | 33.3 | 5.5 | 12.4 | 19.8 | 4.9 |
| IN (T) | 45.7 | 21.2 | 20.8 | 19.8 | 30.8 | 7.2 | 11.7 | 17.4 | 5.6 |
| IA | 29.7 | 15.6 | 32.5 | 19.4 | 27.7 | 6.5 | 12.0 | 18.8 | 5.4 |
| KS | 33.0 | 20.0 | 17.0 | 19.2 | 30.8 | 6.7 | 11.7 | 18.4 | 6.5 |
| LA | 39.3 | 24.9 | 20.3 | 19.3 | 32.7 | 7.0 | 12.0 | 21.4 | 7.3 |
| LA (T) | 37.1 | 22.5 | 16.7 | 15.8 | 30.2 | NA | 10.3 | 30.5 | NA |
| ME | 48.0 | 20.0 | 0 | 19.9 | 29.8 | | 11.6 | 19.1 | |
| MD | 41.4 | 13.3 | 28.0 | 19.8 | 29.6 | 6.1 | 11.5 | 17.5 | 5.3 |
| MA | 25.1 | 21.0 | 15.4 | 20.8 | 26.5 | 4.9 | 12.2 | 17.8 | 5.2 |
| MN | 49.6 | 16.3 | 22.1 | 19.7 | 30.3 | 6.3 | 11.3 | 18.8 | 5.0 |
| MO (T) | 37.3 | 22.0 | 25.0 | 18.8 | 31.8 | 6.3 | 11.6 | 18.1 | 4.8 |
| NV | 45.1 | 10.5 | 33.5 | 20.2 | 27.0 | NA | 10.7 | 17.2 | NA |
| NM | 40.8 | 29.8 | 27.1 | 19.2 | 29.7 | 6.6 | 11.6 | 19.0 | 5.0 |
| OK (T) | 51.3 | 16.6 | 27.2 | 21.8 | 27.7 | 6.7 | 14.2 | 18.0 | 4.9 |
| OR | 28.6 | 21.6 | 26.8 | 19.7 | 30.0 | 7.0 | 12.1 | 20.3 | 6.6 |
| SC | 46.7 | 0 | 31.1 | 18.7 | | 7.0 | 10.8 | | 5.5 |
| TN | 33.2 | 15.5 | 38.5 | 20.6 | 27.2 | NA | 11.1 | 18.7 | NA |
| TX | 44.6 | 18.6 | 36.1 | 15.0 | 20.0 | 5.7 | 12.2 | 18.6 | 5.5 |
| WA | 23.3 | 23.8 | 23.5 | 20.3 | 30.7 | 6.6 | 12.0 | 19.5 | 5.7 |
| Highest | 56.0 | 29.8 | 38.5 | 21.8 | 34.5 | 7.2 | 14.2 | 30.5 | 7.3 |
| Lowest | 23.3 | 0.0 | 0.0 | 15.0 | 20.0 | 4.9 | 10.3 | 17.2 | 4.6 |
| Average | 40.6 | 18.1 | 24.1 | 19.4 | 29.4 | 6.4 | 11.8 | 19.3 | 5.4 |
| KRS-Pension | 38.4 | 18.4 | 23.1 | 19.3 | 24.4 | 5.7 | 11.3 | 16.6 | 5.2 |
| KRS-Ins. | 55.5 | 20.4 | | 19.8 | 24.2 | | 11.7 | 17.8 | |
| KTRS* | 58.4 | 6.7 | 32.4 | 20.6* | | 6.3 | 12.1* | | 4.7 |

Note: The table includes information for comparable states for which 1-year and 5-year investment returns were available. Teacher pension systems are denoted by (T); other systems are public employee systems or combined public employee/teacher systems. No overall returns for fixed-income investments were available for three states ("NA" in the table) because returns were reported separately for domestic and international fixed-income investments.

*In its financial reports, KTRS does not separate returns for U.S. and international equities. In this table, the returns are shown in the columns for U.S. equities.

Sources: Staff compilation of data from Commonwealth. Kentucky Retirement. *Comprehensive FY 2007*; Commonwealth. Teachers'. *Comprehensive FY 2007*; and documents for other systems. Appendix F has the list of sources for comparable systems.

Appendix F

Sources of Data for Comparable Public Employee and Teacher Retirement Systems

Sources of information for the 25 comparable systems analyzed in this report are listed below in alphabetical order by state.

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