Report 10-14
November 2010

An Evaluation

State of Wisconsin Investment Board

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Janice Mueller
State Auditor

November 19, 2010

Senator Kathleen Vinehout and
Representative Peter Barca, Co-chairpersons
Joint Legislative Audit Committee
State Capitol
Madison, Wisconsin 53702

Dear Senator Vinehout and Representative Barca:

We have completed an evaluation of the State of Wisconsin Investment Board, as directed by s. 25.17(51m), Wis. Stats. As of December 31, 2009, the Investment Board managed a total of $78.1 billion in investments that include assets of the Wisconsin Retirement System, the State Investment Fund, and five smaller insurance and trust funds.

We assessed the performance of the Investment Board by comparing returns to benchmarks established by the Board of Trustees. As of December 31, 2009, the Wisconsin Retirement System's two funds—the Core and the Variable—had each exceeded their ten-year benchmarks, although performance relative to shorter-term benchmarks had fluctuated. When we compared average annual investment returns to those of nine other public pension funds during the same period, the Core Fund's performance compared favorably.

Nevertheless, the value of Wisconsin Retirement System assets has fluctuated significantly over the past ten years as financial markets have experienced their worst decline since the 1930s. For example, losses in 2008 totaled $23.6 billion. While these losses were partially offset by gains of $13.5 billion in 2009, the combined value of the two retirement funds on December 31, 2009, was 17.1 percent below its peak in 2007. The losses of 2008 will significantly affect Wisconsin Retirement System participants and employers for the next several years.

In addition to meeting its benchmarks, the Investment Board is also concerned with meeting the long-term earnings expectation established by the Wisconsin Retirement System's actuary. Returns are currently assumed to equal 7.8 percent over the long term. To better respond to recent market volatility while at the same time maintaining sufficient earnings to meet long-term goals, the Investment Board is undertaking new investment strategies that may involve leveraging Wisconsin Retirement System assets and entail new risks. We recommend careful review of the continuing appropriateness of the earnings expectation, as well as of the new strategies the Investment Board is undertaking.

We appreciate the courtesy and cooperation extended to us by the Investment Board. A response from the Board's Executive Director follows the appendices.

Respectfully submitted,

Janice Mueller

Janice Mueller
State Auditor

JM/DA/ss

Report Highlights ▪

Over the last three years, as financial markets experienced their worst decline since the 1930s, Wisconsin Retirement System assets fluctuated significantly.

Significant investment losses in 2008 will affect Wisconsin Retirement System participants and employers for the next several years.

A new "risk parity" strategy is intended to reduce the effects of market volatility.

The State Investment Fund's returns consistently exceeded performance benchmarks.

The State of Wisconsin Investment Board manages the assets of the Wisconsin Retirement System, the State Investment Fund, and five other state insurance and trust funds. The Retirement System's Core Fund and Variable Fund account for 93.2 percent of all assets under its management and fund retirement benefits for more than 560,000 current and former state and local government employees. The State Investment Fund provides short-term investment and cash management for the Wisconsin Retirement System; other funds of the State; and the counties, municipalities, and other local units of government that participate in the Local Government Investment Pool.

As of December 31, 2009, the Investment Board managed $78.1 billion in domestic and international investments. Its assets were primarily stocks, bonds, real estate, private equity and debt (including direct loans to Wisconsin companies), and cash. The nine-member Board of Trustees establishes long-term investment strategies and policies, while the Executive Director and professional staff are responsible for day-to-day investment management. For some investments, external managers and advisors supplement staff resources or provide expertise that would otherwise not be available.

Statutes require the Legislative Audit Bureau to perform a biennial management audit of the Investment Board. This evaluation reviews the performance of Wisconsin Retirement System investments in 2007, 2008, and 2009, as well as the implications of recent returns for participants, employers, and the system's long-term goals. We also reviewed the Investment Board's plans to reduce the effects of market volatility on the Core Fund, as well as the performance of the State Investment Fund.

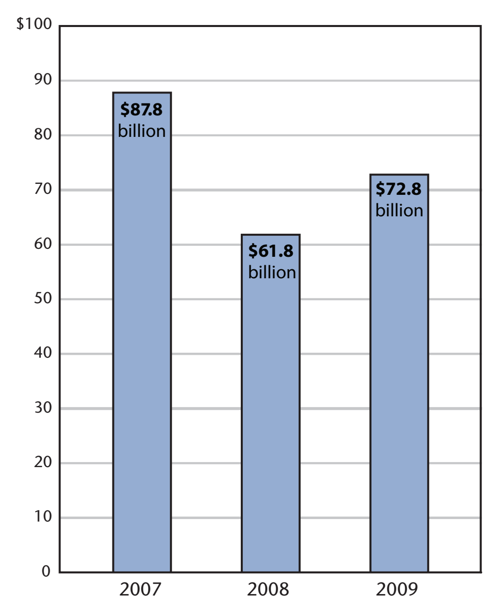
Wisconsin Retirement System Investments

The Investment Board's basic investment objective is to provide earnings that, along with contributions from employers and participants, will be sufficient for the system to pay projected pension benefits over time. Assets are managed in two funds. At least one-half of each participant's pension fund contributions are deposited to the larger Core Fund, which is a fully diversified, balanced fund. Approximately 20 percent of participants have also chosen to participate in the more volatile Variable Fund, which is an equity (stock) fund.

As financial markets experienced their worst decline since the 1930s, the value of both funds fluctuated significantly during the period we reviewed, as shown in Figure 1. In 2007, their combined value reached a record high of $87.8 billion. In 2008, each fund experienced its largest one-year loss since the Wisconsin Retirement System was created, and together they lost a total of $23.6 billion. Both funds rebounded strongly in 2009, when they gained a total of $13.5 billion. Their combined value on December 31, 2009, was $72.8 billion.

Figure 1

Wisconsin Retirement System Assets
As of December 31



Because growth or decline in absolute terms does not necessarily reflect how well assets are being managed, we assessed the Investment Board's performance by comparing one-, three-, five-, and ten-year returns to benchmarks established by the Board of Trustees. Both funds exceeded their ten-year performance benchmarks in each of the past three years, but performance relative to shorter-term benchmarks fluctuated. For example, the Core Fund lagged its one-year benchmark in 2008, when it lost 26.2 percent of its value, but outperformed its one-year benchmark by a large margin in 2009, when its value increased by 22.4 percent. The Variable Fund exceeded its one-year benchmark in 2009, when it achieved its highest return to date and its value increased by 33.7 percent. However, the Variable Fund lost 39.0 percent of its value in 2008, despite meeting its one-year benchmark.

The Investment Board also encountered liquidity issues in 2008, when two external managers imposed withdrawal restrictions on approximately 20 percent of its retirement fund assets. Restrictions remained on a portion of the investments until October 2010.

Funding Public Pensions

The Core Fund's 2009 performance was favorable compared to the average annual rates of return earned by nine other public pension funds. However, the losses of 2008 will significantly affect participants and employers for the next several years.

The Wisconsin Retirement System is unique among public pension plans in that participants share investment risk. Therefore, for the first time in the Core Fund's history, retirees experienced reductions in their monthly annuity payments as a consequence of the 2008 investment losses. Core Fund annuity payments were reduced by 2.1 percent in 2009 and 1.3 percent in 2010. Annuity payments funded by the Variable Fund were reduced by 42.0 percent in 2009 but increased by 22.0 percent in 2010. Likewise, public employers' costs to fund pension benefits increased from 10.4 percent of employee salaries in 2009 to 11.0 percent in 2010 and 11.6 percent in 2011, which will be the highest rate since 1996.

Wisconsin Retirement System funds are invested for the long term, and actuarial expectations for the long-term earnings necessary to meet pension obligations are currently 7.8 percent. From the current system's inception in 1982 through 2009, the Core Fund has returned 10.5 percent. However, the ten-year returns of 3.8 percent in 2008 and 4.3 percent in 2009 suggest that careful review of future investment expectations and performance will be important to ensuring the continued long-term health of the Wisconsin Retirement System.

Changes in Investment Strategy

The Investment Board's authority for the Wisconsin Retirement System's investments was significantly increased in "investment modernization" legislation enacted in 2007 Wisconsin Act 212. The Investment Board is using this authority to pursue a new "risk parity" investment strategy that will shift some Core Fund assets from equities to less-volatile investments and may attempt to increase returns through leverage by investing in futures and other derivatives.

In January 2010, the Board of Trustees approved the first year of a three-year plan that potentially reduces the Core Fund's asset allocation targets from 55.0 percent equities in 2009 to 43.0 percent equities in 2012. The plan also allocates funds for the Investment Board to establish its first hedge fund portfolio, and it explicitly allows the Investment Board to leverage up to 4.0 percent of the Core Fund's value for investment purposes in 2010. Up to 20.0 percent of the Core Fund's value could potentially be leveraged through the use of futures or other derivatives by 2012. As of October 2010, the Investment Board had not implemented the use of leverage allowed in the plan.

Leverage is not a new strategy for the Investment Board or most other pension fund managers. In the past, its use has both helped and harmed the performance of funds under the Investment Board's management. For example, the leverage used in many real estate investments improved the Core Fund's performance in 2005 and 2006 but significantly reduced returns in 2008 and 2009.

Because leverage multiplies losses as well as gains, its risks increase with the ratio of leveraged investments. The Investment Board's current risk parity plan allows it to leverage the Core Fund up to a ratio of 1.04-to-1 in 2010, and the ratio could potentially increase to 1.2-to-1 if 20.0 percent of the Core Fund's value were leveraged in 2012. Failed private firms that misused leverage had much higher ratios. For example, Lehman Brothers Holdings Inc. was leveraged at a ratio of 44-to-1.

Although the merits of risk parity strategies remain subject to debate by investment professionals and academics, there seems to be agreement that key risks and challenges need to be effectively managed and that investors who adopt these strategies must be prepared to accept short-term underperformance relative to more traditional investment strategies during some periods—such as in a strong equities market—in exchange for less volatility over the long term. Our report includes a recommendation for the Investment Board to report on its efforts to manage risk and increase its oversight capabilities.

State Investment Fund

During the period we reviewed, approximately one-half of deposits to the State Investment Fund were made by participants in the Local Government Investment Pool.

Most of the State Investment Fund's investments are either explicitly or implicitly guaranteed by the federal government, and its returns consistently exceeded benchmarks during the entire period we reviewed. Returns benefited from the Investment Board's ability to extend the average maturity of investments and its decision to hold more than one-half of State Investment Fund investments in federal agency securities rather than U.S. Treasury Bills. The State's General Fund is authorized to borrow from the State Investment Fund if it cannot meet current funding obligations. Borrowing increased during the period we reviewed, although it did not exceed statutory limits.

We reviewed steps the Investment Board has taken to minimize the risk of credit default associated with its investments in the Wisconsin Certificate of Deposit Program, which loans funds to Wisconsin banks.

Recommendations

To help ensure effective oversight and risk management, our report includes recommendations that:

☑ the Investment Board and the Department of Employee Trust Funds provide a status report to the Legislature by May 31, 2011, on their current assessment of the appropriate actuarial investment expectation for the Core Fund and the ability of the Investment Board to meet the expectation in the short- and long-term future *(p. 32)*; and

☑ the Investment Board's annual report to the Legislature include a discussion of efforts to enhance entity-wide risk management capabilities *(p. 37)*.

▪ ▪ ▪ ▪

Introduction ■

At the end of 2009, the Investment Board managed $78.1 billion in assets, including $72.8 billion in Wisconsin Retirement System assets.

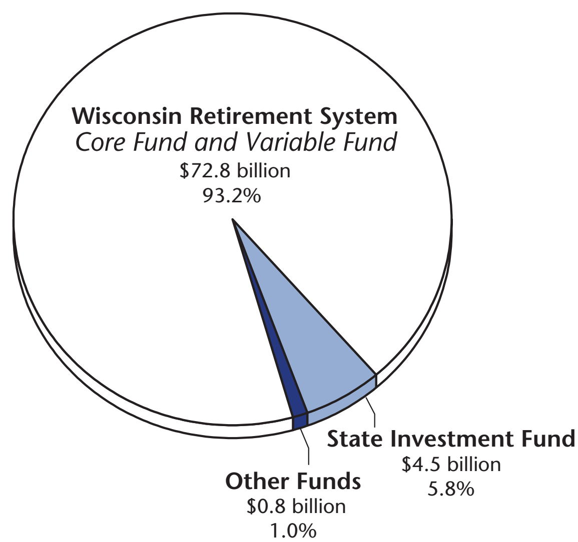
The Investment Board's statutory mission is to provide prudent and cost-effective management of the funds it holds in trust by investing them consistent with the purpose and risk profile of each fund. As shown in Figure 2, 93.2 percent of the $78.1 billion in assets under its management at the end of 2009 are intended to fund the pension benefits earned by more than 560,000 current and former state and local government employees who participate in the Wisconsin Retirement System. The Investment Board also manages assets of the State Investment Fund, which provides short-term investment and cash management for state funds, the Wisconsin Retirement System, and nearly 1,300 local units of government that choose to participate in the Local Government Investment Pool, and it manages five other funds: the Injured Patients and Families Compensation Fund, the State Life Insurance Fund, the Local Government Property Insurance Fund, the Historical Society Trust Fund, and the EdVest Tuition Trust Fund.

The Board of Trustees establishes investment strategies and policies.

The Investment Board's nine-member Board of Trustees is responsible for establishing investment strategies and policies, developing investment guidelines, and monitoring investment performance. Two trustees are participants in the Wisconsin Retirement System, one is the Secretary of the Department of Administration or a designee, and the remaining six are appointed by the Governor with the consent of the Senate to serve six-year terms. Four of the appointed trustees are required to have at least ten years of investment experience, and one must have at least ten years of local government financial experience.

Figure 2

Assets Under Management of the Investment Board
December 31, 2009



Investment Board staff are responsible for day-to-day investment decisions.

The trustees appoint the Executive Director and have delegated day-to-day investment management decisions to the Investment Board's professional staff, which includes 67.4 investment professionals who research, select, buy, and sell investments they expect to perform according to the strategies and policies established by the Board of Trustees, as well as 57.9 support staff with financial, information technology, administrative, legal, human resources and internal audit responsibilities. Statutes permit no more than 11 investment directors within the investment professional staff.

To supplement internal investment staff resources and provide additional expertise, the Investment Board also hires external managers to invest and manage certain assets. In addition, to fulfill its fiduciary responsibilities for overseeing the Investment Board, the Board of Trustees contracts with multiple consultants for a variety of reasons, including assisting with asset allocation and benchmarking decisions.

The current organization chart is Appendix 1.

2007 Act 212 significantly expanded the Investment Board's authority to manage its investments.

Investment Board trustees and staff are held by s. 25.15(2)(a), Wis. Stats., to the "prudent investor standard" of responsibility, which directs them to manage investment assets with the care, skill, prudence, and diligence that a prudent person would exhibit acting in a similar capacity, with similar resources, and for similar types of funds. Their investment authority was significantly increased by "investment modernization" legislation enacted in 2007 Wisconsin Act 212, which authorizes the Investment Board to manage the Wisconsin Retirement System assets "in any manner" that does not violate its prudent investor standard and meets the statutory requirement that the smaller Variable Fund invest primarily in equity securities. Previous investment authority for these assets had been limited to investment categories specified in statute.

Each year, with advice from senior investment staff and professional consultants, the Executive Director develops and recommends investment policies and guidelines for adoption by the Board of Trustees and submits an asset allocation plan for the retirement funds for its review and approval. The asset allocation plan, which diversifies Wisconsin Retirement System holdings among broad asset classes such as stocks, bonds, real estate, and other types of investments as part of a long-term investment strategy, is subsequently included in the Investment Board's annual report to the Legislature, as required by statute.

Operating and Investment Expenses

2009 expenses included \$18.6 million in internal staffing costs and \$203.8 million for external managers and services.

The Investment Board spent $225.5 million to operate in 2009, and its expenses increased $56.8 million, or 33.7 percent, over the five-year period shown in Table 1. No general purpose revenue (GPR) supports Investment Board operations: internal operating expenses, which are primarily salaries and fringe benefits, are billed to the funds the Investment Board manages, as authorized by s. 20.536(1)(k), Wis. Stats. External investment expenses, which are primarily the fees of external investment managers, are charged directly to current investment income.

External investment expenses represent more than 90 percent of the Investment Board's operating costs.

Since 2006, the Investment Board has been taking steps to increase the internal management of its investments and decrease reliance on external managers. In support of those efforts, the Investment Board received approval in December 2007 and September 2008, under s. 16.505, Wis. Stats., to increase its position authority by 18.9 percent, from 104.5 to 124.3 full-time equivalent positions. It received approval in September 2010 for an additional full-time equivalent position through this same process. As those positions were filled, salary and fringe benefit expenses increased. However, external investment expenses continue to represent more than 90 percent of the Investment Board's operating costs.

Table 1

Investment Board Expenses
Calendar Years 2005 through 2009
(in millions)

	2005	2006	2007	2008	2009	Change (2005-2009)	Percentage Change
Internal Operating Expenses[1]							
Salaries and Fringe Benefits	$ 15.6	$ 16.6	$ 17.1	$ 19.0	$ 18.6	$ 3.0	19.2%
Supplies and Permanent Property	2.6	2.7	3.1	3.6	3.1	0.5	19.2
Subtotal	18.2	19.3	20.2	22.6	21.7	3.5	19.2
External Investment Expenses[2]							
Public Market Management Fees	84.5	111.4	102.7	82.7	76.0	-8.5	-10.1
Private Equity Management Fees	31.7	38.4	48.1	68.9	84.4	52.7	166.2
Real Estate Advisory Fees	22.9	29.3	37.5	40.2	34.3	11.4	49.8
External Support Services	11.1	10.8	10.3	9.1	9.1	-2.0	-18.0
Soft Dollars[3]	0.3	0.3	0.0	0.0	0.0	-0.3	-100.0
Subtotal	150.5	190.2	198.6	200.9	203.8	53.3	35.4
Total	**$168.7**	**$209.5**	**$218.8**	**$223.5**	**$225.5**	**$56.8**	33.7

[1] Reflects expenses that are enumerated in ch. 20, Wis. Stats., and include personnel expenses associated with all Investment Board staff.

[2] Reflects expenses that are directly charged against investment earnings, with the exception of soft dollars.

[3] Soft dollars are credits used to purchase research and other services in exchange for using brokers to trade securities. The Investment Board discontinued the use of soft dollars in 2005, and the credit balance was completely expended in 2006.

The Investment Board has been largely unaffected by the statewide budget cuts implemented in fiscal year (FY) 2009-10, and it is the only state agency whose staff were not subject to furlough. In addition, under s. 25.16(7), Wis. Stats., unclassified Investment Board staff are eligible to receive bonuses in addition to their regular salaries. Bonuses are awarded based on both quantitative and qualitative measures of performance and are intended to help attract and retain qualified staff. Table 2 shows bonus amounts for the last five years. More than $1.5 million of the 2008 bonuses has been deferred and will be payable to staff in March 2011 under a deferral policy the Investment Board adopted in September 2009.

Statutes require the Legislative Audit Bureau to perform a biennial management audit of the Investment Board, as well as annual financial audits of its investment activities. This report represents our fifth management audit and is focused primarily on the 2008 and 2009 performance of investments that make up the

Table 2

Staff Bonuses

		Staff Receiving Bonuses		
Year	Total Bonuses (in millions)	Investment Staff	Support Staff	Total
2005	$2.9	51	46	97
2006	2.9	53	45	98
2007	3.0	52	48	100
2008[1]	1.7	49	0	49
2009[2]	4.3	64	51	115

[1] More than $1.5 million of the bonuses for 2008 performance has not yet been paid to staff and is being held in trust, according to an Investment Board policy adopted in September 2009.

[2] The bonuses awarded for 2009 performance were paid to staff in April 2010.

Wisconsin Retirement System and the State Investment Fund, as well as a review of the effect of recent market returns on system funding and benefit payments.

To conduct our evaluation, we:

- compared one-, three-, five-, and ten-year returns for both the Core Fund and the Variable Fund to performance benchmarks established by the Investment Board, and investment results for the Core Fund to those of nine other large public pension funds;

- examined the Investment Board's holdings, investment strategies, and guidelines and analyzed and tested selected investment practices and processes;

- reviewed recent efforts to reduce the effects of market volatility and better position the Core Fund for unfavorable economic conditions;

- considered the implications of recent returns for participants, employers, and the long-term goals of the Wisconsin Retirement System; and

- reviewed the performance of the State Investment Fund.

The Wisconsin Retirement System ▪

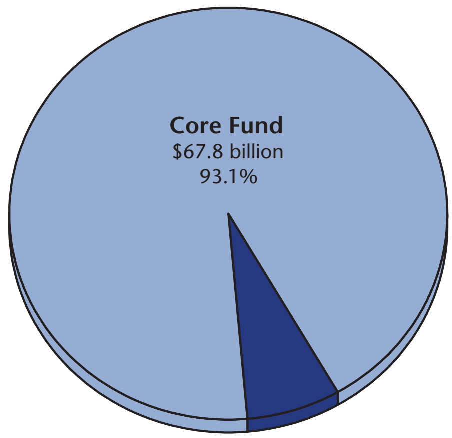
As shown in Figure 3, the Investment Board manages assets of the Wisconsin Retirement System in two funds:

- The Core Retirement Investment Trust Fund is a fully diversified, balanced fund that is invested for the long term in domestic and international stocks and bonds, real estate, private equity and debt, and other investments. At least one-half of all Wisconsin Retirement System participants' pension fund contributions are deposited to the Core Fund. The assets in the Core Fund totaled $67.8 billion as of December 31, 2009, and included the assets of several other employee benefit programs, which totaled $2.9 billion. The largest of these programs is the accumulated sick-leave conversion credit program.

- The Variable Retirement Investment Trust Fund is an equity (stock) fund for which returns are typically more volatile than the Core Fund. At the end of 2009, when its assets totaled $5.0 billion, 19.3 percent of Wisconsin Retirement System participants had elected to have 50.0 percent of their pension fund contributions deposited to the Variable Fund.

Figure 3

Wisconsin Retirement System Funds
December 31, 2009



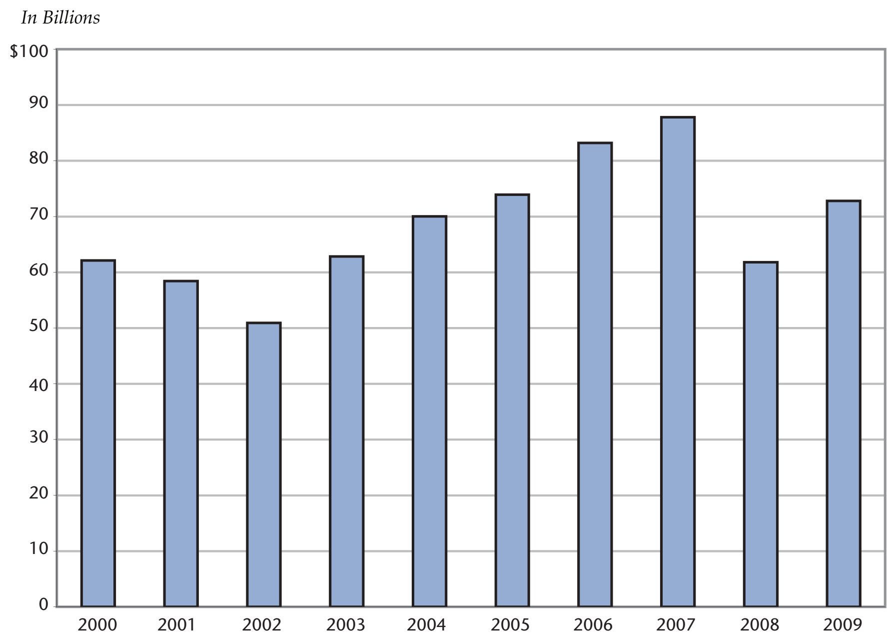
The value of Wisconsin Retirement System assets fluctuated over the past decade and was $72.8 billion on December 31, 2009.

The Investment Board's basic investment objective for the Wisconsin Retirement System is to provide earnings that, along with contributions from employers and participants, will be sufficient for the system to pay projected pension benefits over time. As shown in Figure 4, the combined value of the Core and Variable funds has fluctuated significantly over the past ten years. After declining in 2001 and 2002, their combined value increased to $87.8 billion in 2007 and then declined to $61.8 billion in 2008, when both funds experienced their largest one-year losses to date. However, both funds rebounded strongly the following year, and their combined value on December 31, 2009, was $72.8 billion: a 17.2 percent increase since 2000, but a 17.1 percent decrease from the decade's peak in 2007.

Growth or decline in absolute terms does not necessarily reflect how well assets are being managed, in part because returns are affected by factors that are outside the Investment Board's control. For example, the value of U.S. stocks fell significantly in response to terrorist attacks and corporate accounting scandals in 2001 and 2002, and the S&P 500, which tracks the value of 500 U.S. companies and is widely believed to best represent the stock market as a whole, lost more than one-half of its value between October 2007 and February 2009 as financial and credit markets collapsed worldwide.

Figure 4

Wisconsin Retirement System Assets
As of December 31



Moreover, objectives other than growth—such as liquidity to meet cash flow needs, internal investment management rather than reliance on external advisors, risk tolerance levels, and statutory or other restrictions on allowable investments—play a significant role in the development of an investment management strategy and must also be considered in an evaluation of the Investment Board's effectiveness. We therefore assessed its performance by comparing one-, three-, five-, and ten-year returns for the Core Fund and the Variable Fund to benchmarks established by the Board of Trustees.

For additional perspective on the Investment Board's overall strategies and asset allocation decisions, we also:

- compared the Core Fund's performance to the performance of nine other large public pension funds; and

- reviewed recent efforts by the Investment Board to reduce the effects of market volatility and better position the Core Fund for unfavorable economic conditions.

Investment Management and Performance Benchmarks

Annual asset allocation decisions affect the composition of each fund.

Each year, the Investment Board refines its investment strategy for both the Core Fund and the Variable Fund within the general investment policies and restrictions set forth in ch. 25, Wis. Stats. As part of this process, the Board of Trustees, the Executive Director, and senior investment staff, in consultation with an asset allocation consultant, make decisions that affect the composition of each fund. Risks are weighed against expected returns, and investments are diversified among various asset classes in an effort to achieve consistent performance under a wide range of economic conditions.

Management decisions address active and passive portfolio management, as well as the extent to which funds will be managed externally or by Investment Board staff.

In addition, decisions are made each year to balance the costs and risks of various portfolio management strategies. For example, active portfolio management seeks to outperform the market as a whole through the manager's choice of individual investments on a company-by-company basis. It therefore requires significant resources that increase investment costs. In contrast, passive portfolio management seeks to match the returns of a market segment or index by mirroring its composition, and therefore requires little company-specific investment research and is less-costly to administer. The Investment Board also makes decisions about external and internal investment management responsibilities. External managers can supplement internal staff resources and provide additional expertise, but external management is expensive and can reduce control or limit oversight in individual investment decisions. Until recently, the Investment Board was statutorily required to limit external management to 20.0 percent of each of the retirement funds, excluding commingled investment instruments such as index funds or private equity and real estate partnership funds. However, this limit was effectively removed by 2007 Wisconsin Act 212.

One-, three-, five-, and ten-year benchmarks are established to monitor performance over time relative to the markets.

To measure performance, the Investment Board establishes benchmarks each year for the Core Fund and the Variable Fund, as well as for each asset class and investment portfolio. These benchmarks represent the market-based results the Investment Board will attempt to exceed annually and for three-, five-, and ten-year periods. Whenever possible, they are based on industry-recognized indices, such as the Russell 1000, which tracks the performance of the 1,000 largest U.S. equity securities and represents approximately 90.0 percent of the U.S. equity market. Each benchmark is approved by the Board of Trustees in consultation with its benchmarking consultant. The Investment Board focuses primarily on the five-year return in assessing the success of its management strategies for the Core Fund and in determining staff bonuses.

In addition to the market-based benchmarks, the Investment Board is also concerned with meeting the long-term investment assumption, or actuarial expectation, for the Core Fund established by the Wisconsin Retirement System's consulting actuary in conjunction with the Investment Board and the Department of Employee Trust Funds, which administers the Wisconsin Retirement System. The actuarial expectation for the Core Fund's investment returns is based on its general mix of assets and, because of the nature of public retirement systems, typically involves a longer-term perspective than the ten years the Investment Board uses to monitor and evaluate investment performance. The actuary regularly compares actual performance to investment expectations and may adjust the investment assumption for variances. From 1992 through 2003, the actuarial assumption for the Core Fund was an average annual long-term return of 8.0 percent. At the end of 2003, the actuary recommended a reduction in the actuarial investment assumption to 7.8 percent.

Fund Composition

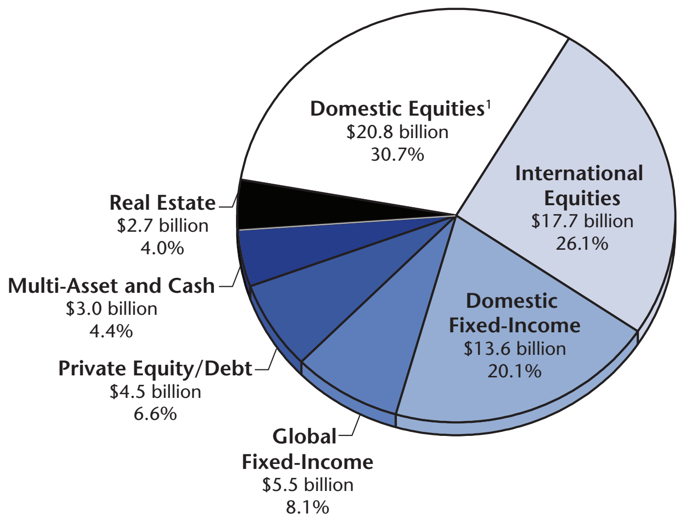
Domestic and international equities represent the two largest asset classes for the Core Fund.

The Core Fund's assets are allocated and diversified among a wide variety of domestic and international investment classes, including stocks and other equity investments, bonds and other fixed-income securities, real estate, private equity and debt, and other investments. As shown in Figure 5, 30.7 percent of the Core Fund's assets as of December 31, 2009, were invested in domestic equities, which are the common stock of U.S. companies. Domestic equities were valued at $20.8 billion and managed through 19 portfolios that were diversified among small, medium, and large companies. International equities represented 26.1 percent of the Core Fund's assets as of December 31, 2009, and were valued at $17.7 billion. That amount includes $3.9 billion invested in emerging markets in Asia, Eastern Europe, and Latin America.

Domestic and global fixed-income investments accounted for 28.2 percent of the Core Fund's assets at the end of 2009. Domestic fixed-income securities were valued at $13.6 billion and included $11.0 billion in U.S. government bonds and investment-grade corporate bonds purchased in public markets; $2.1 billion in Treasury Inflation Protection Securities (TIPS), which provide a hedge against inflation; and $528.0 million in high-yield fixed-income securities that offer higher rates of return but carry a greater risk of default than investment-grade securities. Global fixed-income investments included $4.0 billion in global bond portfolios, which encompass both U.S. and foreign debt obligations; $524.8 million in fixed-income securities in emerging markets; and $950.5 million in high-yield fixed-income securities in emerging markets that carry a greater risk of default than investment-grade securities.

Figure 5

Asset Allocation for the Core Fund
December 31, 2009



[1] The domestic equities allocation includes $1.6 billion in equity futures, or 2.4 percent of the Core Fund, and a corresponding amount of cash that was held to fund the futures exposure as of December 31, 2009.

Two private market portfolios with a value of $499.7 million focus on investments in Wisconsin companies.

In addition:

- 6.6 percent of the Core Fund's assets at the end of 2009 were invested in private equity and private debt. These investments were valued at $4.5 billion and included leveraged buyouts; venture capital; subordinated and distressed debt, which often offers the prospect of greater returns at increased risk of loss; and two portfolios with a value of $499.7 million that focus on Wisconsin companies.

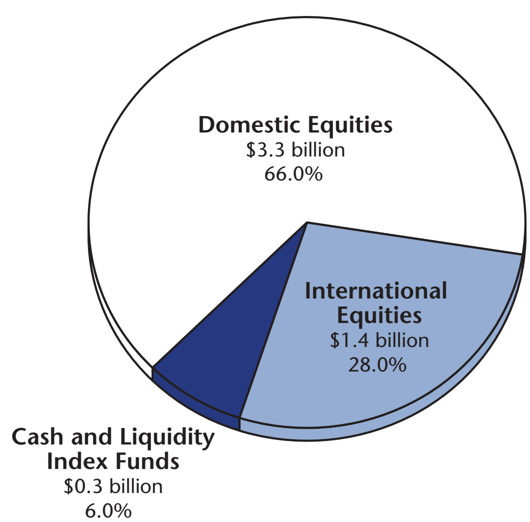
- 4.4 percent of the Core Fund's assets at the end of 2009 consisted of cash and portfolios that do not fit in traditional asset classes, including two portfolios created in 2008 and 2009—the credit beta and term structure portfolios—to take advantage of unusual market conditions. The actively managed multi-asset portfolios were valued at $1.2 billion, while $771.6 million in cash was temporarily invested in short- and intermediate-term government, commercial bank, and corporate debt obligations until permanent investments could be found, and $984.3 million was invested in liquidity index funds to meet the cash flow needs of the Wisconsin Retirement System and allow asset allocation changes to be made while still earning returns consistent with the major equity and fixed-income indices.

- 4.0 percent of the Core Fund's assets at the end of 2009 were invested in real estate, including office buildings, retail properties, multi-family properties, warehouses, and other properties owned directly by the Investment Board, as well as investments in joint ventures and partnerships that acquire and manage real estate investments, investments in publicly traded real estate investment trusts (REITs), and private commercial real estate mortgages. These investments included domestic and international holdings in countries such as Germany, Japan, and South Korea and were valued at $2.7 billion.

As shown in Figure 6, the Variable Fund's asset mix as of December 31, 2009, included 66.0 percent domestic equities, 28.0 percent international equities, and 6.0 percent cash and liquidity index funds. Appendix 2 summarizes the asset allocations for the Core Fund and Variable Fund over the past three years.

Figure 6

Asset Allocation for the Variable Fund
December 31, 2009



Performance Relative to Benchmarks

The Investment Board uses benchmarks to measure the performance of individual investment portfolios and asset classes, as well as both the Core Fund and the Variable Fund as a whole. During the period we reviewed, one-, three-, five-, and ten-year benchmarks fluctuated significantly based on changing market returns for each period. For example, the Core Fund's one-year benchmark was 9.6 percent for 2007, -24.8 percent for 2008, and 19.9 percent for 2009. Its three-, five-, and ten-year benchmarks likewise varied.

Both funds exceeded their ten-year benchmarks in each of the past three years.

As shown in Table 3, both the Core Fund and the Variable Fund exceeded their ten-year performance benchmarks in 2007, 2008, and 2009, but performance relative to shorter-term benchmarks fluctuated. However, following significant losses in 2008, both funds exceeded their one-year benchmarks in 2009.

Except for real estate, all asset classes exceeded their one-year benchmarks during 2009.

As noted, each benchmark is approved annually by the Board of Trustees in consultation with its benchmarking consultant. Appendix 3 compares the performance of each investment class to benchmarks for one-, three-, five-, and ten-year periods ending December 31, 2009. All asset classes except for public equities missed their one-year benchmarks in 2008, but all asset classes except for real estate exceeded their one-year benchmarks during 2009. Furthermore, the Core Fund exceeded its five-year benchmark in 2009, although it lagged its three-year benchmark, while the Variable Fund lagged its three- and five-year benchmarks in 2009.

Table 3

Investment Performance Relative to Benchmarks[1]
For Periods Ending December 31

	Core Fund		Variable Fund	
	Average Annual Rate of Return	Benchmark	Average Annual Rate of Return	Benchmark
One-Year Performance and Benchmarks				
2007	8.7%	9.6%	5.6%	7.3%
2008	-26.2	-24.8	**-39.0**	-39.0
2009	**22.4**	19.9	**33.7**	32.0
Three-Year Performance and Benchmarks				
2007	**11.0%**	10.7%	10.4%	10.9%
2008	-2.4	-1.9	-8.9	-8.4
2009	-0.6	-0.4	-4.9	-4.8
Five-Year Performance and Benchmarks				
2007	**13.9%**	13.5%	15.0%	15.3%
2008	2.6	2.7	-1.6	-1.2
2009	**4.3**	4.1	1.8	1.9
Ten-Year Performance and Benchmarks				
2007	**8.4%**	7.9%	**7.2%**	6.5%
2008	**3.8**	3.4	**0.4**	-0.2
2009	**4.3**	3.9	**0.9**	0.5

[1] Returns that met or exceeded benchmarks are highlighted.

Public Equities Performance

In 2007, both funds' underperformance was largely attributable to the performance of public equities.

In this evaluation, we reviewed the primary contributors to the excess or underperformance of the retirement funds during 2007, 2008, and 2009 in comparison to the established benchmarks. In 2007, both funds' underperformance compared to their benchmarks was largely attributable to the performance of public equities assets, which provided a one-year return of 7.1 percent, compared to the Investment Board's benchmark of 8.8 percent for that asset class. On December 31, 2007, the Investment Board held $54.7 billion in 30 public equity portfolios, of which 8 were externally managed quantitative funds; that is, they were managed with a blend of active and passive management strategies as the fund managers attempt to track an index but also to outperform it by means of various quantitative analyses.

Although some internally managed public equity portfolios also underperformed, seven of the eight externally managed quantitative funds underperformed their one-year benchmarks by an average of 4.8 percentage points and ended 2007 with assets of $16.9 billion. While these seven portfolios provided mixed results in 2008 and 2009, the Investment Board has since either terminated or reduced its investments in all of them as it decreased its quantitative fund exposure, rebalanced from equities to fixed-income investments, and funded other strategies.

Despite substantial losses in the public equities markets in 2008, which contributed significantly to large negative returns that year, the Core Fund's public equities holdings exceeded their one-year benchmark by 0.2 percent, although they lost $19.7 billion of their value. The Variable Fund, which held a different equity mix than the Core Fund, met its one-year benchmark although it lost 39.0 percent of its value.

The Investment Board's small-cap portfolio returned 61.7 percent in 2009.

The Core Fund's strong performance in 2009 can be attributed in part to the investment results of two internal equity portfolios. The internal small-cap portfolio, which was valued at $476.5 million on December 31, 2009, exceeded its one-year benchmark by 34.5 percentage points and returned 61.7 percent in 2009. In contrast, this portfolio underperformed its one-year benchmark by 22.9 percentage points and lost 59.7 percent of its value in 2008. Some of the small-cap portfolio's improved performance in 2009 resulted from efforts to better manage the volatility of its returns by increasing the average size of small-cap companies included in the portfolio. Returns were also enhanced by some of the larger holdings in small-cap equities that returned approximately 500 percent during the year, as well as larger allocations to some of the better-performing market sectors represented in the benchmark.

The Investment Board established internally managed global equities sector portfolios in 2010.

The internally managed international equities portfolio, which was valued at $2.4 billion on November 30, 2009, returned 42.6 percent and exceeded its benchmark by 11.0 percentage points during the first 11 months of 2009. In 2008, it underperformed its one-year benchmark by 4.3 percentage points and lost 47.9 percent. Stock selection by Investment Board staff accounted for much of this portfolio's strong performance in 2009. In December, the international equities portfolio was converted to a transition portfolio to temporarily hold investments as the Investment Board changed its investment strategy, and effective January 1, 2010, it was converted—along with the internal domestic large-cap portfolio and the domestic sector portfolios—into a global large-cap portfolio and ten global sector portfolios.

The domestic sector portfolios had been established in 2008 to focus on specific sectors of the economy, such as health care, financial, energy, and technology, and they collectively held $703.7 million on December 31, 2009. During 2008 and 2009, six of the ten domestic sector portfolios were actively managed by Investment Board staff, and four were passively managed. All six of the actively managed portfolios exceeded their one-year benchmarks in 2008, but only two did so in 2009. Given the recent changes and the transition into global sector portfolios, it is too early to evaluate the long-term success of this strategy.

Real Estate Performance

Real estate significantly underperformed in 2008 and 2009.

After strong performances in 2005 and 2006, real estate significantly underperformed its one-year benchmarks in 2008 and 2009. Although real estate represents a relatively small share of the Core Fund's total assets, in 2008 this asset class lost 10.1 percent of its value, compared to a one-year positive benchmark of 5.3 percent. Real estate lost 30.6 percent of its value in 2009, compared to a benchmark of -22.1 percent.

Investment strategies for a large portion of the Investment Board's real estate investments involved leverage by investing borrowed funds, which either amplified negative returns or resulted in total losses. At the end of 2008, 70 of 99 real estate investments were leveraged, including 47 with loan balances equal to 50.0 percent or more of the value of the real estate assets. During 2008, as the credit crisis intensified and the funding needed to maintain the leverage was no longer available, several of these assets were either sold at depressed prices or experienced substantial reductions in value, both of which resulted in significant losses for the Core Fund. Consistent with the entire domestic real estate market, the value of most of the Investment Board's real estate investments made between 2006 and 2008 has declined significantly, but those that were highly leveraged fared the worst. For example, two real estate investments funded with $124.8 million from 2006 through early 2008 were valued at less than $1.0 million at the end of 2009.

The Investment Board has taken steps to address the variability of real estate returns.

The Investment Board has taken steps to address the variability of its real estate returns. In 2008 and 2009, three real estate portfolios that had been managed internally by two different portfolio managers were merged, and one senior portfolio manager was selected to head the real estate group with the expectation of providing a more consistent investing approach. In addition, investment guidelines were modified to require the Investment Board's real estate consultant to review the selection of new external real estate managers or the adoption of new strategies, and to clarify the thresholds at which new investments must be approved by the Chief Investment Officer and the Executive Director. Although the difficulties and losses encountered by the real estate group's leveraged investments carried over into 2009, they were more than offset by strong performance of the Core Fund's other asset classes, which, as noted, all exceeded their one-year benchmarks.

Other Performance Factors

The inclusion of a 2.0 percent cash allocation in the Core Fund's 2008 benchmark, but not in its asset allocation plan, contributed to underperformance in 2008, when cash outperformed most other investments. In years when other investments had outperformed cash, the discrepancy had a positive effect on the Core Fund's performance compared to its benchmark. Effective January 1, 2009, the Investment Board adjusted the Core Fund's benchmark to equal actual cash being held at a fund level, up to a limit of 0.5 percent.

The Core Fund's performance also was negatively affected by the timing of some rebalancing moves in 2008. The Investment Board's mandatory rebalancing policy at that time required the asset mixes of both retirement funds to be reviewed at month-end and adjusted by trading whenever a public market asset class deviated more than 10.0 percent from the target approved by the Board of Trustees. This rebalancing is intended to maintain both a disciplined investing approach and an asset mix consistent with long-term targets. In September 2007, the mandatory rebalancing policy was expanded to also allow discretionary rebalancing at any time the Chief Investment Officer and senior management believe conditions are favorable for selling appreciated investments, buying those that are undervalued, or otherwise adjusting the asset mix to its target.

As part of two discretionary rebalancing efforts in October 2008, the Investment Board purchased $1.8 billion in domestic and international equity futures and sold a corresponding amount of futures in 10-year U.S. Treasury notes. A financial futures contract is an exchange-traded agreement to buy or sell a financial instrument at an agreed-upon price and time in the future. At the time the rebalancing occurred, it seemed desirable to keep the asset mix closely aligned with the target allocation of investments in the Core Fund's benchmark, and both decisions could be supported by market conditions and data. However, because the value of public equities continued to decline, the futures that were purchased in October 2008 would have been available at a much lower price if the rebalancing had been delayed until it was triggered by the mandatory policy.

Recent rebalancing moves both negatively and positively affected performance.

In contrast, rebalancing and asset allocation decisions contributed to the Core Fund's strong performance in 2009. Early in the year, as the value of equities markets continued to decline, the Investment Board allocated funds that had been targeted for public equities to cash and fixed-income investments, which at that time were experiencing stronger performance than equities. The Investment Board gradually shifted that allocation to equities by April 2009, which took advantage of the subsequent rebound in equities markets.

In addition, two internally managed fixed-income portfolios provided particularly strong returns in 2009: the $3.8 billion government credit portfolio returned 7.4 percent, compared to a one-year benchmark of 4.5 percent, and the $2.9 billion global fixed-income portfolio returned 6.3 percent, compared to a one-year benchmark of 2.5 percent. Both portfolios benefited from increasing their investment in investment-grade corporate debt in anticipation of a recovery in the credit markets.

The newly created credit beta portfolio provided a one-year return of 56.7 percent in 2009.

The newly created credit beta portfolio provided a one-year return of 56.7 percent in 2009, compared to a benchmark of 30.0 percent, and accounted for the majority of excess returns earned by the multi-asset class. This portfolio is externally managed and was implemented in the fourth quarter of 2008 to take advantage of the historically wide spread in yields between U.S. Treasury securities and U.S. corporate credit, such as corporate bonds and mortgage obligations. The strategy proved successful as the credit markets returned to more typical yield spreads during 2009.

Withdrawal Restrictions by External Managers

In 2008, two external managers imposed withdrawal restrictions on approximately 20 percent of Wisconsin Retirement System assets.

In addition to performance challenges, the Investment Board also encountered liquidity issues in 2008, when two external managers imposed withdrawal restrictions on retirement fund investments. First, in October 2008 the external manager of a $323.0 million emerging markets debt portfolio—Grantham, Mayo, Van Otterloo & Co. LLC—restricted the Investment Board's withdrawals to 5.0 percent of the portfolio's value and subjected it to a 2.0 percent redemption fee. The external manager imposed the restrictions to address liquidity concerns related to the debt investments it held for its clients. In October 2009 this external manager removed its withdrawal restrictions.

Second, the Investment Board's largest external manager—Barclays Global Investors (BGI), which was acquired by BlackRock, Inc., in late 2009—limited its clients' withdrawals from their accounts primarily because of liquidity needs of its securities-lending cash collateral pools. Most of the Investment Board's BGI investments involved index funds, but BGI loaned many of the securities in these funds to other investors and reinvested the cash collateral it received in higher-yielding securities. The reinvested securities included structured investment vehicles and subprime mortgage securities investments that came under pricing pressure beginning in 2007. In December 2008, the majority of $15.0 billion the Investment Board had invested with BGI in 11 portfolios was not readily available for withdrawal. Restrictions remained on at least a portion of these investments until BlackRock removed them in October 2010.

Withdrawal restrictions caused challenges for the Investment Board and much of the investment industry, but they did not have a significant effect on the timing of the Investment Board's reallocation of funds for new strategies. The Investment Board also has renegotiated its contract with BlackRock to include more control over the external manager's collateral reinvestment guidelines for future investments, which are now similar to the guidelines the Investment Board dictates for a securities lending program managed by its custodial bank, The Bank of New York Mellon Corporation.

Comparison to Other Public Pension Funds

Table 4 shows average annual investment returns for the Core Fund and nine other public pension funds for periods ending December 31, 2009. Comparisons with other large public pension funds provide a perspective on the relative effectiveness of the Investment's Board's investment strategies and asset allocation decisions, and we have compared the Core Fund's returns to those of nine other large public pension funds since 2001. Nevertheless, it remains important to note that performance can be affected by differences in cash flow needs, asset mixes, investment styles, risk tolerance levels, and statutory or other restrictions on allowable investments. Moreover, the equities option Wisconsin offers its retirement system participants through the Variable Fund, which is unique among public pension funds, can affect investment decisions related to the Core Fund, and therefore can also affect comparisons.

Table 4

Comparison of Pension Funds' Overall Average Annual Rates of Return
For Periods Ending December 31, 2009

	One-Year		Three-Year		Five-Year		Ten-Year	
Pension Fund	Return	Rank	Return	Rank	Return	Rank	Return	Rank
Wisconsin Investment Board Core Fund	22.4%	1	-0.6%	2	**4.3%**	**4**	4.3%	2
Washington State Investment Board[1]	7.0	10	-1.3	5	**5.3**	**1**	4.6	1
Minnesota State Board[1]	20.6	3	-0.7	3	**4.4**	**2**	3.4	5
New Jersey Division of Investments	20.1	5	0.5	1	**4.4**	**2**	2.6	10
Virginia Retirement System[1]	18.1	6	-2.0	7	**3.9**	**5**	3.9	3
Florida State Board	21.1	2	-1.0	4	**3.8**	**6**	3.2	8
Pennsylvania Public School Employees' Retirement System	12.4	8	-3.3	9	**3.6**	**7**	3.8	4
New York State Teachers Retirement System[1]	16.7	7	-2.7	8	**3.3**	**8**	3.4	5
Teachers Retirement System of Texas	20.3	4	-1.5	6	**3.2**	**9**	3.3	7
California Public Employees Retirement System	12.1	9	-3.4	10	**3.0**	**10**	3.2	8

[1] Returns originally provided are net of costs because gross returns were not available. To better compare these net returns with the gross returns provided by the other pension funds, the net returns have been increased by 0.25 percent for each period to account for an approximation of the annual costs paid by these funds.

The Core Fund's most recent five-year average annual return ranked fourth among the ten public pension funds we compared.

The Core Fund's one-, three-, and ten-year returns for 2009 were at or near the top of the group, and its five-year return—which is the Investment Board's primary focus in assessing the success of its management strategies for the Core Fund and in determining staff bonuses—ranked fourth among the ten funds we compared. For the period reviewed in our last performance evaluation (report 07-10), the Core Fund's five-year return ranked fifth.

The Core Fund's strong performance in 2009 can be attributed in part to the Investment Board's decision to allocate a relatively smaller portion of its investments to two asset classes that experienced strong returns in the past but performed poorly in 2009: private equity and real estate. The three funds that reported the lowest one-year rates of return in 2009—the Washington State Investment Board, the Pennsylvania Public School Employees' Retirement System, and the California Public Employees Retirement System—held the largest proportionate allocations of private equity and real estate in 2009, while the Core fund held the third-smallest. Washington State's five-year return continued to rank near the top of the group in 2009, but Pennsylvania's five-year return dropped from first in 2006 to seventh in 2009, and California's five-year return dropped from third to tenth.

Recent Performance and Actuarial Expectations

Because assets managed by the Investment Board are intended to fund continuing pension benefits for more than 560,000 current and former state and local government employees, concerns have been raised about the potential long-term effects of the recent short-term losses for all Wisconsin Retirement System participants and employers. Although the losses of 2008 cannot be attributed to failures by the Investment Board, they will significantly affect Wisconsin Retirement System participants and employers for the next several years.

Core Fund annuitants experienced their first negative annuity adjustments in 2009 and 2010.

For example, one unique aspect of the Wisconsin Retirement System is that annual adjustments are made to annuities based on investment performance. The annual annuity adjustments for the last ten years are shown in Appendix 4. In 2009 and 2010, most retirees experienced the Core Fund's first negative annuity adjustments since the Wisconsin Retirement System was created, with a 2.1 percent reduction to monthly annuities in 2009 and a 1.3 percent reduction to monthly annuities in 2010. Retirees in the Variable Fund experienced a reduction of 42.0 percent in 2009, which was the largest decrease in the history of that fund. In contrast, retirees in several other states were not directly affected by the negative investment performance of their public pension funds, but instead received cost-of-living adjustments as authorized by their statutes. In 2010, Variable Fund annuity payments increased by 22.0 percent.

Employers have also been affected by recent investment returns. The contribution rate for most state and local employers increased from 10.4 percent of employee salaries in 2009 to 11.0 percent in 2010 and 11.6 percent in 2011, which will be the highest contribution rate charged since 1996. A study completed by the Wisconsin Retirement System's consulting actuary suggests that rates will continue to increase through 2014. The higher contribution rates will place increasing pressure on the budgets of state and local government employers, which already are facing budgeting challenges. Appendix 5 summarizes Wisconsin Retirement System contribution rates since 1982.

Ten-year returns of 3.8 percent in 2008 and 4.3 percent in 2009 suggest that the Core Fund's future investment expectations and performance need to be closely monitored.

As noted, Wisconsin Retirement System funds are invested for the long term, and actuarial expectations for the long-term earnings necessary to meet pension obligations are currently 7.8 percent. From an actuarial perspective, long-term returns are typically considered longer than ten years, and from the current system's inception in 1982 through 2009 the Core Fund has returned 10.5 percent. However, the ten-year returns of 3.8 percent in 2008 and 4.3 percent in 2009 suggest that careful review of future investment expectations and performance will be important to ensuring the continued long-term health of the Wisconsin Retirement System. Appendix 6 summarizes the annual returns for the Core and Variable funds and their benchmarks since 1982.

Before the recent global financial crisis, the 7.8 percent investment expectation for the Core Fund was more conservative than those used by two-thirds of other states' public pension funds, based on a 2010 study completed by the Pew Center on the States. However, in response to recent market changes, several states' public pension funds have reduced or are considering reducing their actuarial expectations. The Investment Board and the Department of Employee Trust Funds regularly work with the Wisconsin Retirement System's consulting actuary to assess the continuing appropriateness of the investment expectation in light of changes in the Investment Board's investment strategies and future expectations for the markets as a whole. They are currently assessing the continuing appropriateness of the 7.8 percent investment expectation, as well as other factors that can affect the future funding needs of the Core Fund, such as the growth in wages of public employees. For example, the limited wage growth that many public employees have experienced over the last several years may reduce the size of future pension benefits, which may offset some of the increased funding pressures that the recent investment losses are causing. It is unclear when or if the consulting actuary will recommend a change in the actuarial investment expectation for the Core Fund. However, maintaining a reasonable investment expectation is critical to helping ensure the overall health of the Wisconsin Retirement System.

Future assessments of the status of the Wisconsin Retirement System could also be affected by changes in accounting standards. The Governmental Accounting Standards Board (GASB) is currently considering changes to the requirements for measuring and reporting pension benefits and liabilities for financial reporting purposes, including how investment expectations are factored in to these measurements. Both the Department of Employee Trust Fund and the Investment Board will need to closely monitor any changes that GASB makes to pension accounting and reporting requirements.

National studies generally rate the Wisconsin Retirement System as well-funded and well-managed. The Wisconsin Retirement System is also better positioned for the future than the pension funds of other states that have not consistently required employers to make their required contributions. However, to help ensure the continued success of the Wisconsin Retirement System, the Legislature will need timely information on developments that could significantly affect its overall health and operations, including changes in actuarial expectations and their implications for the system.

☑ Recommendation

We recommend the Department of Employee Trust Funds and the State of Wisconsin Investment Board provide a status report to the Legislature by May 31, 2011, on their current assessment of the appropriate actuarial investment expectation for the Core Fund and the ability of the Investment Board to meet the expectation in the short- and long-term future.

Changes in Investment Strategy

A "risk parity" strategy will shift some Core Fund assets from equities to less-volatile investments and may attempt to increase returns by using leverage.

The Investment Board has recently chosen to use the increased authority it was granted under 2007 Wisconsin Act 212 to pursue a new investment strategy that seeks to reduce the risks associated with recent market volatility while maintaining sufficient earnings to meet the Core Fund's long-term investment goals. The strategy, known as "risk parity," has two components:

- an asset allocation plan that that will gradually decrease investments in equities while increasing investments in asset classes that are expected to be less volatile; and

- the use of leverage by investing in futures or other derivatives in order to magnify the returns less-volatile investments are expected to generate.

In January 2010, the Board of Trustees approved the first year of a three-year plan that reduces the Core Fund's asset allocation targets from 55.0 percent equities in 2009 to 53.0 percent equities in 2010, and that potentially targets only 43.0 percent of Core Fund assets for equities in 2012. As shown in Table 5, the plan could result in Treasury Inflation Protection Securities and other fixed-income assets constituting 55.0 percent of the Core Fund's assets by 2012. The plan also allocates funds for the Investment Board to establish its first hedge fund portfolio. Moreover, it explicitly allows the Investment Board to leverage up to 4.0 percent of the Core Fund's value for investment purposes in 2010, and up to 20.0 percent of the Core Fund's value could be leveraged through the use of futures or other derivatives by 2012.

Key steps in the plan are subject to modification and periodic approval by the Board of Trustees, and Investment Board staff are authorized to delay implementation of the plan or reduce leveraging from planned levels if market conditions are unfavorable. As of October 2010, the Investment Board had not implemented the use of leverage allowed in the plan.

Table 5

Core Fund Asset Allocation Targets

Asset Class	2009 Target Allocation	2010 Target Allocation[1]	2011 Potential Allocation[1]	2012 Potential Allocation[1]
Equities	55.0%	53.0%	49.0%	43.0%
Fixed-Income	26.0	26.0	30.0	35.0
Treasury Inflation Protection Securities (TIPS)	3.0	7.0	13.0	20.0
Private Equity	6.0	6.0	6.0	7.0
Real Estate	6.0	6.0	7.0	7.0
Multi-Asset[2]	4.0	6.0	7.0	8.0
Allocation Totals	**100.0%**	**104.0%**	**112.0%**	**120.0%**
Core Fund Leverage		**4.0%**	**12.0%**	**20.0%**

[1] Represents targets only. The plan could change subject to actions by staff or the Board of Trustees.

[2] The 2010 target allocation represents the first step in establishing a hedge fund portfolio that would potentially hold 4.0 to 5.0 percent of the Core Fund's assets by 2012 and involve up to 20 external managers.

Leverage is not a new strategy for the Investment Board or most other pension fund managers. It has been used for years to manage individual private equity, real estate, hedge fund, and derivative investments and in securities lending programs. In the past, the Investment Board's use of leverage has both helped and harmed the investment performance of funds under its management. As noted, the leverage used in many real estate investments contributed to the Core Fund's strong performance in 2005 and 2006 but significantly reduced returns in 2008 and 2009.

The risks of leverage increase with the ratio of leveraged investments.

Because leverage multiplies losses as well as gains, its risks increase with the ratio of leveraged investments. Two failed private firms that misused leverage—Lehman Brothers Holdings Inc. in 2008 and Long Term Capital Management in 1998—were leveraged at ratios of 44-to-1 and 25-to-1, respectively. In contrast, the Investment Board's current risk parity plan allows it to leverage up to 4.0 percent of the Core Fund's value, or a ratio of 1.04-to-1 in 2010. The ratio could potentially increase to 1.2-to-1 if 20.0 percent of the Core Fund's value were leveraged in 2012.

The merits of risk parity strategies are subject to debate by investment professionals and academics.

Critics of the Investment Board's risk parity strategy have argued that it shifts the Core Fund's long-term risk exposure from volatility in equity markets to other risks, including those associated with leverage. Moreover, a research paper prepared by a partner for a global investment firm in March 2010 asserted that some of the risk parity projections are overly optimistic because they ignore potential over-valuations for asset classes that would be leveraged, such as government bonds, and noted that much of the research that is the basis for risk parity strategies has focused on the past 30 years, which include a period of strong performance for bonds and which ended with a decade of poor returns for stocks (Ben Inker, "The Hidden Risk of Risk Parity Portfolios," White Paper, GMO LLC, March 2010). The research paper also expressed concerns that its complexity makes this type of strategy difficult to analyze and may make the identification of unexpected risks more challenging.

As an additional step in evaluating a risk parity strategy, the Board of Trustees hired a consultant in 2010 to further analyze alternatives for reducing risk while minimizing the loss of returns. The consultant concluded that a strategy involving a moderate use of leverage could help the Investment Board achieve that objective.

Although the merits of risk parity strategies remain subject to debate by investment professionals and academics, there seems to be agreement that key risks and challenges need to be effectively managed and that investors who adopt these strategies must be prepared to accept short-term underperformance relative to more traditional investment strategies during some periods—such as in a strong equities market—in exchange for less volatility over the long term. Liquidity and leverage issues must also be well thought out to ensure that leveraged returns justify the cost of leverage and that cash is effectively managed to avoid forced liquidations of assets in the event of unexpected losses.

The Investment Board is taking a gradual approach to implementing its risk parity strategy.

The Investment Board acknowledges that risks are associated with its risk parity strategy and indicates it is taking steps to address them before a decision is made to implement the strategy. For example, one of the reasons for gradual implementation is to reduce the timing risk of fully implementing the strategy when it would be less beneficial, such as at the same time equity markets improved (if they were to do so). A gradual approach also provides time for the Investment Board to modify its operational infrastructure to effectively manage risk parity, and it has worked in 2010 to develop a cash monitoring tool to help manage the liquidity risk associated with this and other future strategies.

Risk Management and Oversight

Over the past three years, the Investment Board has experienced more rapid change than at any other point in its history. The enactment of the investment modernization legislation and the Investment Board's increased budget and position authority have allowed it to double the dollars it manages internally; develop new opportunistic investment portfolios and strategies to take advantage of unique market conditions; pursue additional leveraged investment strategies; and expand into hedge funds, which often employ advanced and aggressive investment strategies.

New investment strategies will require increased oversight and management of risk.

With these changes comes an even greater need for the effective oversight and management of the risks associated with its investment strategies. The Investment Board's primary mechanism for entity-wide oversight and risk monitoring is its Investment Committee, which is staffed by various investment and executive staff and meets regularly to discuss investment and risk-related issues. The Investment Board also has taken a number of additional steps in recent years to improve its risk management and oversight capabilities, including formally evaluating and documenting risks and controls in each key area of operations and establishing staff task forces to actively monitor and investigate the effect of credit and currency-related risks on its investments. Most recently, the Investment Board has been taking steps to broaden its view of risks from an entity-wide perspective, rather than separately assessing risk by operational area. As part of this effort, it is establishing a risk function that is responsible for establishing and overseeing the centralized risk management process.

Steps that will be important to the Investment Board's successful implementation of an entity-wide risk management approach include:

- establishing a centralized approach that enlists regular collaboration between all affected parties, including investment and support staff, in the assessment of risks associated with current and future investment strategies;

- ensuring that staff bonuses are regularly reviewed and appropriately aligned with managing entity-wide risk activities; and

- providing regular reports to the Board of Trustees on its risk management activities, including identifying the most significant risks, the individuals or groups responsible for managing those risks, and the activities undertaken to address them.

☑ Recommendation

We recommend the State of Wisconsin Investment Board include in its annual report to the Legislature a discussion of the steps it is taking to enhance its entity-wide risk management capabilities.

■ ■ ■ ■

The State Investment Fund ▪

The State Investment Fund is a commingled pool of the cash balances of the Wisconsin Retirement System, other funds of the State, and participating local governments. It was created in 1957 and expanded to include the Local Government Investment Pool in 1975. While the Investment Board manages the State Investment Fund, the Office of the State Treasurer is responsible for establishing the basic operating policies of the Local Government Investment Pool, which counties, municipalities, and other local units of government use to deposit cash that is not needed immediately for operations. The State typically invests tax receipts, license and program fees, federal aid, and other revenues from the General Fund and other state funds in the State Investment Fund; historically, the Investment Board has used it for short-term investments until long-term opportunities with more favorable rates become available for the Wisconsin Retirement System.

While the State Investment Fund experienced a well-publicized loss in 1995 from the improper use of derivatives, its conservative investment focus since then has helped it successfully navigate volatile markets, particularly those of 2008 and 2009. As part of this evaluation, we also reviewed General Fund and other borrowing from the State Investment Fund, as well as steps the Investment Board has taken to minimize the risk of credit default associated with its investments, including those in the Wisconsin Certificate of Deposit Program, which loans funds to Wisconsin banks.

Participation and Investment Objectives

The Local Government Investment Pool accounts for approximately one-half of State Investment Fund deposits.

At the end of 2009, the Core and Variable Trust Funds, the General Fund, 57 other state funds, and 1,289 local units of government participated in the State Investment Fund. As shown in Table 6, approximately one-half of its deposits over the past three years were made by participants in the Local Government Investment Pool.

Table 6

Annual Participation in the State Investment Fund
Average Month-End Balances
(in billions)

Participant Groups	2007	2008	2009[1]	Three-year Average Percentage
Local Government Investment Pool	$3.3	$3.7	$3.4	51.5%
State Funds	2.4	2.2	1.9	31.9
Core and Variable Funds	0.8	0.6	1.9	16.6
Total	**$6.5**	**$6.5**	**$7.2**	**100.0%**

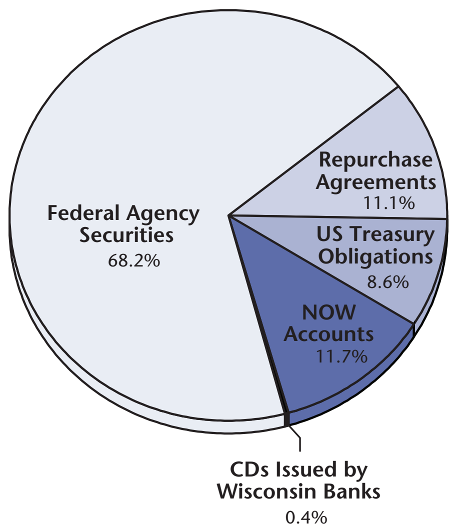
[1] The monthly average for 2009 differs from the amount shown in Figure 1, which is the total as of December 31, 2009, and excludes the portion of the Core Fund, the Variable Fund, and certain other state funds invested in the State Investment Fund.

The State Investment Fund's three primary objectives are, in order of priority, safety of principal, liquidity to fund participant withdrawals, and a competitive money-market return within the parameters of its investment guidelines. Accordingly, most of its investments are either explicitly or implicitly guaranteed by the federal government. As of December 31, 2009, 87.9 percent of the State Investment Fund was invested in a combination of U.S Treasury obligations such as T-Bills, which are backed by the full faith and credit of the federal government; the securities of federal agencies, such as the Federal Home Loan Bank, the Federal Home Loan Mortgage Corporation (Freddie Mac), and the Federal National Mortgage Association (Fannie Mae), which are backed by the federal government although not by its full faith and credit; and repurchase agreements that are collateralized by U.S. Treasury obligations or federal agency securities.

As shown in Figure 7, another 11.7 percent of the State Investment Fund's assets as of December 31, 2009, were held in Negotiable Order of Withdrawal (NOW) accounts, which are guaranteed under the Federal Deposit Insurance Corporation's (FDIC's) Transaction Account Guarantee Program, which began in response to the global financial crisis and has provided full coverage of noninterest-bearing deposit transaction accounts, regardless of their dollar amounts, since 2008. The remaining 0.4 percent of the State Investment Fund's assets were held in certificates of deposit (CDs) issued by Wisconsin banks and were covered by the FDIC on December 31, 2009.

Figure 7

Asset Allocation for the State Investment Fund
December 31, 2009



Performance Relative to Benchmarks

The State Investment Fund has consistently exceeded its benchmarks.

In 2009, the State Investment Fund's returns exceeded all of its benchmarks, as shown in Table 7. They have done so consistently during the entire period we reviewed, in part because the Investment Board has avoided riskier investments, including securities backed by pools of mortgages or other types of assets that have resulted in losses or liquidity constraints for other states. For example, apart from one security issued by the Department of Veterans Affairs, the State Investment Fund held no mortgaged-backed or asset-backed securities in 2008, and it formally eliminated these securities from its investment guidelines in June 2008 to reflect the State Investment Fund's conservative focus.

Table 7

State Investment Fund Performance[1]
For the Period Ending December 31, 2009

Period	Average Annual Rate of Return	Investment Benchmark
1-year	**0.5%**	0.2%
3-year	**2.7**	2.2
5-year	**3.3**	2.9
10-year	**3.1**	2.8

[1] Returns that met or exceeded benchmarks are highlighted.

The State Investment Fund has benefited from its ability to extend average maturities.

Returns have also benefited from the Investment Board's ability to extend the average maturity of the State Investment Fund's investments. It locked in higher interest rates in 2007 and 2008, during a declining interest rate environment, and purchased longer-term securities with higher interest rates in 2009 after the Federal Reserve indicated an intention to maintain a low federal funds rate for an extended period of time: the maturity of the federal agency securities held by the State Investment Fund was increased almost 60.0 percent by the Investment Board, from an average of 76 days in May and June 2009 to an average of 121 days two months later.

The State Investment Fund's allocation to federal agency securities has also contributed to its success.

Finally, the State Investment Fund's allocation to federal agency securities rather than T-Bills has also contributed to its success. The investment guidelines allow between 50.0 and 100.0 percent of the State Investment Fund to be invested in any combination of U.S. Treasury obligations, federal agency securities, repurchase agreements, or FDIC-insured bank deposits, while investment performance is measured relative to a benchmark that reflects the returns of 90-day T-Bills and the 30-day Federal Reserve Certificate of Deposit Composite Index, weighted 70 percent and 30 percent respectively. However, for the past decade the Investment Board has maintained approximately one-half of the State Investment Fund's holdings in federal agency securities, while T-Bills have generally ranged from only 0.0 to 5.0 percent of holdings. The federal agency securities are nearly as secure as T-Bills but have yielded higher returns. For example, their yield advantage averaged approximately

0.25 percentage points over a ten-year period ending in 2006, before increasing to approximately 0.50 percentage points in 2007 and 0.75 percentage points in 2008 during the credit crisis. However, the yield advantage that federal agency securities had been providing decreased significantly after the federal government took control of Fannie Mae and Freddie Mac at the end of 2008 and currently remains at an insignificant level.

Interfund Borrowing

The Secretary of the Department of Administration is authorized by s. 20.002(11), Wis. Stats., to temporarily reallocate surplus moneys among statutory funds within the State Investment Fund, subject to various restrictions. The borrowing fund is charged interest equal to the earnings rate of the State Investment Fund, and for most funds the temporary reallocations cannot exceed $400.0 million. However, beginning at the end of FY 2008-09 and extending through the 2009-11 biennium, 2009 Wisconsin Acts 11 and 28 increased the General Fund's borrowing limit from 5.0 percent to 7.0 percent of total GPR appropriations. The General Fund is also permitted to borrow an additional 3.0 percent for up to 30 days. At the end of FY 2008-09, the General Fund limit—including the additional 3.0 percent—was approximately $1.4 billion, as shown in Table 8. The General Fund has never exceeded its borrowing limit, but the additional 3.0 percent of borrowing authority was used once to fund the State's operations during our review period.

Table 8

General Fund Borrowing from the State Investment Fund

Fiscal Year	Borrowing Limit	Largest Borrowed Amount
2006-07	$1,058,000,000	$ 547,039,000
2007-08	1,104,000,000	648,410,000
2008-09	1,379,000,000	1,018,864,000

Moreover, when the State transferred $200.0 million from the Injured Patients and Families Compensation Fund to the Medical Assistance Trust Fund during the 2007-09 biennium, as required by 2007 Wisconsin Act 20, the Injured Patients and Families Compensation Fund borrowed from the State Investment Fund because it did not have sufficient cash and investments to readily liquidate without disrupting the portfolio. It borrowed up to $156.0 million and paid $2.6 million in interest to the State Investment Fund between October 2007 and February 2010. In July 2010, the Wisconsin Supreme Court ruled that the transfer was unconstitutional and remanded the case to the Dane County Circuit Court to order the Secretary of the Department of Administration to repay the $200.0 million to the Injured Patients and Compensation Fund, together with lost earnings and interest charged by the State Investment Fund.

The Medical Assistance Trust Fund has also borrowed increasing amounts from the State Investment Fund, primarily because of the timing of the receipts of transfers from other state funds. The Medical Assistance Trust Fund's borrowing reached a high of $352.2 million in June 2009. Other funds have borrowed smaller amounts, and less frequently, from the State Investment Fund in recent years.

Risk Insurance

Beginning in 1989, the Investment Board contracted with a private insurance company—Financial Security Assurance Inc.—to insure certain deposits in the Local Government Investment Pool for reimbursement if principal is lost as the result of a credit default. In our 1995 evaluation of the Investment Board (report 95-16), we recognized that the insurance provided a level of assurance to some investors but questioned whether its costs could be justified by the limited protection available.

Local Government Investment Pool risk insurance was terminated on February 15, 2009.

On August 15, 2008, the insurer announced its intention to exit the insurance business that covered the Local Government Investment Pool and delivered a termination notice to the Investment Board, stating that any investments acquired on or after February 15, 2009, would no longer be insured. The last Local Government Investment Pool investment covered under the policy matured on April 6, 2009.

The Investment Board and the Office of the State Treasurer sought but could not obtain similar risk insurance from other providers. Some participants in the Local Government Investment Pool expressed concerns to staff of both the Investment Board and the Office of the State Treasurer. However, because the risk insurance had covered only certain investments that represented a very small portion of the Local Government Investment Pool's assets, the effect of the termination has been minimal. Moreover, participation has remained strong, in part because of the conservative nature of the State Investment Fund and the unlikelihood of a significant credit default.

Wisconsin CD Program

The Wisconsin CD Program, which is currently administered under a contract with Bankers' Bank, was created in 1987 within the State Investment Fund in order to provide an effective vehicle to loan funds to Wisconsin banks. As shown in Table 9, this program included 419 nonnegotiable CDs issued by 126 banks with a value of $500.0 million at the end of 2008, the maximum amount allocated to the program.

Table 9

Wisconsin CD Program Holdings
As of December 31, 2008

Date of Maturity	Number of CDs	Value (in millions)
Within 3 months	109	$138.3
4 to 6 months	144	172.6
7 to 12 months	164	187.3
Longer than 12 months	2	1.8
Total	**419**	**$500.0**

In response to growing concerns about the economy and the financial health of some Wisconsin banks, the State Investment Fund began holding CDs with shorter maturities beginning in early 2009, and the Investment Board reevaluated the credit exposure of all State Investment Fund participants as a result of the investments in the CD program. It concluded that although the State Investment Fund's FDIC coverage includes $250,000 for each individual Wisconsin Retirement System and Local Government Investment Pool participant, there was potential for loss of state funds if a participating bank defaulted on a large CD.

During 2009, the Investment Board deposited State Investment Fund cash into NOW accounts.

Consequently, the Investment Board decided in May 2009 to temporarily discontinue new CD investments and instead began depositing funds from maturing CDs into NOW accounts, which are currently guaranteed under the FDIC's Transaction Account Guarantee Program. As of December 31, 2009, $27.5 million was invested in CDs and $387.2 million was deposited in NOW accounts at a total of 100 banks.

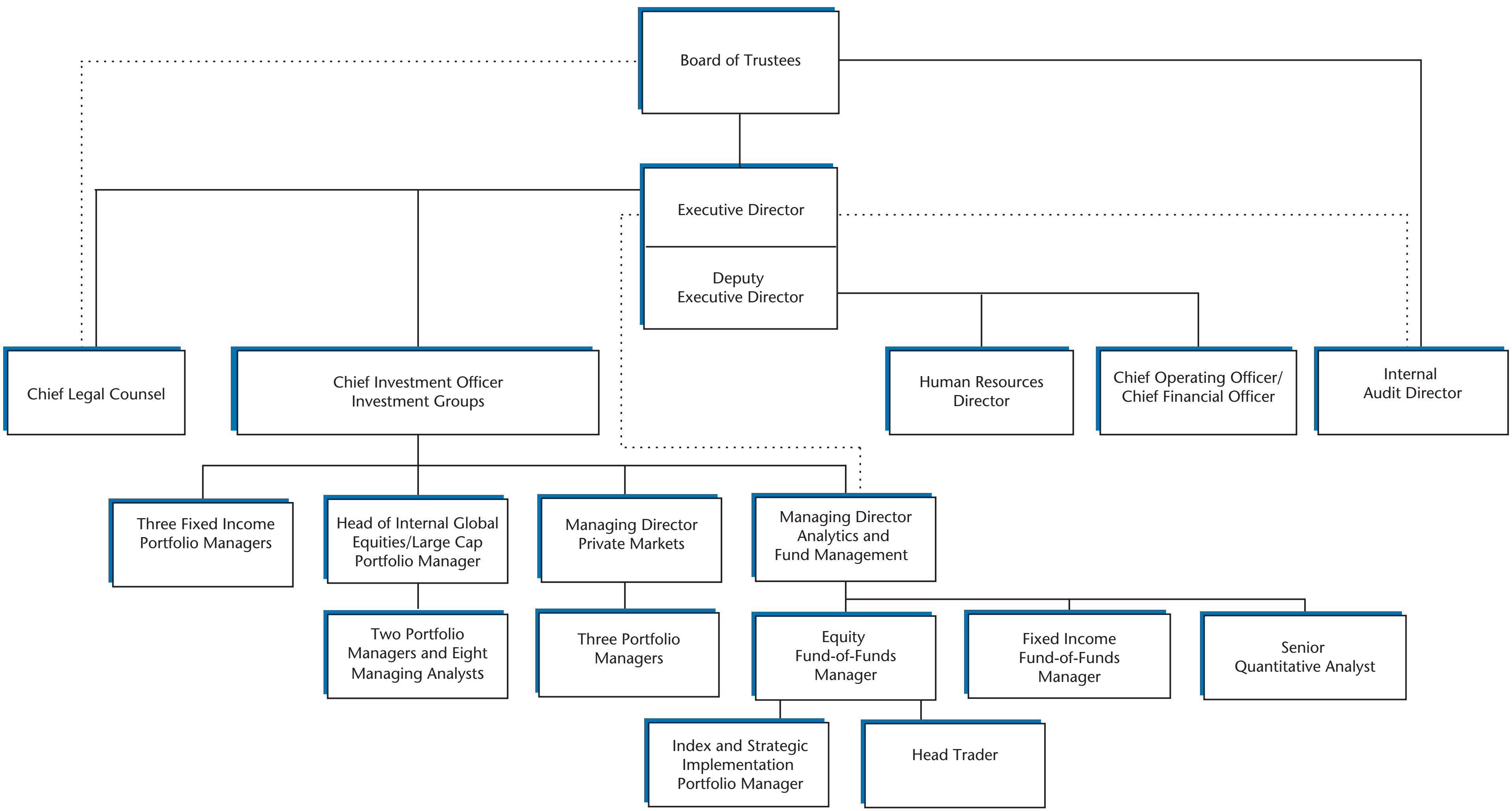
The FDIC's Transaction Account Guarantee Program will expire in December 2010, and at that time NOW accounts will no longer be fully insured. In anticipation, the Investment Board is currently working to revise its contract with Bankers' Bank and require banks participating in the Wisconsin CD program to meet higher minimum thresholds than had been required in the past.

■ ■ ■ ■

Appendix 1

Investment Board Organization Chart

As of September 2010



Appendix 2

Three-Year Comparison of Core Fund and Variable Fund Asset Allocations

Core Fund Assets

	12/31/09[1]		12/31/08[1]		12/31/07		3-Year Change	
	Amount (in millions)	Percentage	Amount (in millions)	Percentage	Amount (in millions)	Percentage	Amount (in millions)	Percentage
Equities	**$38,459**	**56.7%**	**$29,863**	**51.7%**	**$47,526**	**58.9%**	**-$9,067**	**-19.1%**
Domestic	20,808	30.7	16,001	27.7	29,572	36.6		
International	13,747	20.2	12,131	21.0	15,166	18.8		
Emerging Markets	3,904	5.8	1,731	3.0	2,788	3.5		
Fixed-Income	**19,046**	**28.1**	**17,800**	**30.8**	**23,273**	**28.8**	**-4,227**	**-18.2**
Investment Grade	10,978	16.2	9,974	17.3	13,090	16.3		
TIPS	2,094	3.1	2,036	3.5	2,634	3.3		
High Yield	528	0.8	442	0.8	678	0.8		
Global	3,970	5.8	4,127	7.1	5,262	6.5		
Emerging Debt	525	0.8	488	0.8	682	0.8		
High Yield/Emerging Hybrid	951	1.4	733	1.3	927	1.1		
Private Markets	**7,275**	**10.8**	**7,746**	**13.4**	**7,387**	**9.1**	**-112**	**-1.5**
Real Estate	2,683	4.0	3,451	6.0	3,843	4.7		
Real Estate Mortgages	45	0.1	78	0.1	134	0.2		
Private Equity/Alternative	4,144	6.1	3,894	6.7	3,066	3.8		
Wisconsin Private Debt	403	0.6	323	0.6	344	0.4		
Multi-Asset and Cash	**3,009**	**4.4**	**2,399**	**4.1**	**2,550**	**3.2**	**459**	**18.0**
UBS Multi-Asset	596	0.9	561	0.9	900	1.1		
Liquidity Index Funds	984	1.4	90	0.2	255	0.3		
Credit Beta	461	0.7	364	0.6	0	0.0		
Term Structure	196	0.3	0	0.0	0	0.0		
SIF and Custodial Cash[2]	772	1.1	1,384	2.4	1,395	1.8		
Total Assets	**$67,789**	**100.0%**	**$57,808**	**100.0%**	**$80,736**	**100.0%**	**-$12,947**	**-16.0**

Variable Fund Assets

	12/31/09		12/31/08		12/31/07		3-Year Change	
	Amount (in millions)	Percentage	Amount (in millions)	Percentage	Amount (in millions)	Percentage	Amount (in millions)	Percentage
Equities	**$4,673**	**92.4%**	**$3,861**	**96.6%**	**$6,669**	**94.4%**	**-$1,996**	**-29.9%**
Domestic	3,283	64.9	2,744	68.6	5,274	74.6		
International	1,080	21.4	941	23.6	1,178	16.7		
Emerging Markets	310	6.1	176	4.4	217	3.1		
Multi-Asset and Cash	**382**	**7.6**	**134**	**3.4**	**399**	**5.6**	**-17**	**-4.3**
Liquidity Index Funds	329	6.6	55	1.4	164	2.3		
SIF and Custodial Cash[2]	53	1.0	79	2.0	235	3.3		
Total Assets	**$5,055**	**100.0%**	**$3,995**	**100.0%**	**$7,068**	**100.0%**	**-$2,013**	**-28.5**

[1] Equities, fixed-income, and cash holdings have been adjusted to reflect true exposure from futures contracts as of 12/31/08 and 12/31/09.

[2] Represents cash on hand for liquidity needs, as well as temporarily uninvested cash balances from all the portfolios. Core Fund cash excludes $1,192 million and $1,644 million held to fund futures exposure as of 12/31/08 and 12/31/09, respectively.

Appendix 3

Performance of the Investment Board's Individual Asset Classes[1]

Asset Class	Period Ending December 31, 2009	Actual Performance	Investment Benchmark	Excess/ Deficiency
Equities	1-year	**35.6%**	33.8%	1.8%
	3-year	**-4.8**	-4.8	0.0
	5-year	**2.5**	2.4	0.1
	10-year	**1.5**	0.8	0.7
Fixed-Income	1-year	**10.5**	7.7	2.8
	3-year	**7.1**	6.4	0.7
	5-year	**5.5**	4.9	0.6
	10-year	**7.3**	6.8	0.5
Real Estate	1-year	-30.6	-22.1	-8.5
	3-year	-10.0	-1.3	-8.7
	5-year	4.0	6.2	-2.2
	10-year	**7.8**	7.8	0.0
Private Equity	1-year	**-6.0**	-8.3	2.3
	3-year	**1.3**	0.4	0.9
	5-year	**14.1**	10.1	4.0
	10-year	9.0	10.5	-1.5
Multi-Asset	1-year	**37.3**	20.4	16.9
	3-year	**2.3**	-0.8	3.1
	5-year	**5.8**	3.9	1.9
	Since Inception (March 2003)	**10.5**	8.4	2.1

[1] Returns that met or exceeded benchmarks are highlighted.

Appendix 4

Wisconsin Retirement System Effective Rates and Annuity Adjustments[1]

2000–2009

	Core Fund			Variable Fund		
Year	Investment Earnings	Effective Rate	Annuity Adjustment	Investment Earnings	Effective Rate	Annuity Adjustment
2000	-0.8%	10.9%	5.7%	-7.2%	-7.0%	-11.0%
2001	-2.3	8.4	3.3	-8.3	-9.0	-14.0
2002	-8.8	5.0	0.0	-21.9	-23.0	-27.0
2003	24.2	7.4	1.4	32.7	34.0	25.0
2004	12.8	8.5	2.6	12.7	12.0	7.0
2005	8.6	6.5	0.8	8.3	9.0	3.0
2006	15.8	9.8	3.0	17.6	18.0	10.0
2007	8.7	13.1	6.6	5.6	6.0	0.0
2008	-26.2	3.3	-2.1	-39.0	-40.0	-42.0
2009	22.4	4.2	-1.3	33.7	33.0	22.0
10-year Compounded Average	4.3	7.7	2.0	0.9	0.6	-5.0

[1] Annuity adjustments take effect with the April annuities that are paid on May 1, based on the previous year's performance. Adjustments occur only if the amount changes the Core Fund annuity at least 0.5 percent or the Variable Fund annuity at least 2.0 percent.

Annuity adjustments are generally 4.0 to 6.0 percent less than effective rate adjustments made to active and inactive participant accounts to account for the investment return assumption factored in to the annuities, and other actuarial adjustments. A larger 11.0 percent difference occurred with the 2009 annuity adjustment because of other carry-over and timing adjustments factored in to the actuary's calculations.

Appendix 5

Wisconsin Retirement System Contribution Rate History

	General and Teacher				Executives and Elected Officials				Protective with Social Security				Protective without Social Security			
Active Participants as of 12/31/09				242,821				1,453				20,279				2,740
	Employer	**Employee**	**BAC[1]**	**Total[2]**	**Employer**	**Employee**	**BAC[1]**	**Total[2]**	**Employer**	**Employee**	**BAC[1]**	**Total[2]**	**Employer**	**Employee**	**BAC[1]**	**Total[2]**
2011	5.1%	5.0%	1.5%	11.6%	9.4%	3.9%	0.0%	13.3%	8.9%	5.8%	0.0%	14.7%	12.2%	4.8%	0.0%	17.0%
2010	4.8	5.0	1.2	11.0	8.7	3.2	0.0	11.9	8.6	5.5	0.0	14.1	11.3	3.9	0.0	15.2
2009	4.5	5.0	0.9	10.4	8.5	3.0	0.0	11.5	8.1	5.0	0.0	13.1	10.6	3.2	0.0	13.8
2008	4.6	5.0	1.0	10.6	8.5	3.0	0.0	11.5	8.2	5.1	0.0	13.3	10.8	3.4	0.0	14.2
2007	4.6	5.0	1.0	10.6	8.5	3.0	0.0	11.5	8.2	5.1	0.0	13.3	10.8	3.4	0.0	14.2
2006	4.5	5.0	0.9	10.4	8.4	2.9	0.0	11.3	8.1	5.0	0.0	13.1	10.7	3.3	0.0	14.0
2005	4.4	5.0	0.8	10.2	8.3	2.8	0.0	11.1	8.0	4.9	0.0	12.9	10.7	3.3	0.0	14.0
2004	4.2	5.0	0.6	9.8	8.1	2.6	0.0	10.7	7.6	4.5	0.0	12.1	10.6	3.2	0.0	13.8
2003	4.0	5.0	0.4	9.4	8.1	2.6	0.0	10.7	7.1	4.0	0.0	11.1	9.8	2.4	0.0	12.2
2002	3.8	5.0	0.2	9.0	8.6	3.1	0.0	11.7	7.1	4.0	0.0	11.1	10.4	3.0	0.0	13.4
2001	3.8	5.0	0.2	9.0	9.4	3.9	0.0	13.3	6.9	3.8	0.0	10.7	10.7	3.3	0.0	14.0
2000	4.1	5.0	0.5	9.6	9.6	4.1	0.0	13.7	7.2	4.1	0.0	11.3	11.8	4.4	0.0	16.2
1999	4.4	5.0	0.8	10.2	9.8	4.3	0.0	14.1	8.0	4.9	0.0	12.9	12.8	5.4	0.0	18.2
1998	4.8	5.0	1.2	11.0	10.2	4.7	0.0	14.9	8.5	5.4	0.0	13.9	13.2	5.8	0.0	19.0
1997	5.0	5.0	1.4	11.4	10.2	4.7	0.0	14.9	8.9	5.8	0.0	14.7	13.6	6.2	0.0	19.8
1996	5.1	5.0	1.5	11.6	10.1	4.6	0.0	14.7	9.2	6.0	0.1	15.3	14.2	6.8	0.0	21.0
1995	4.8	5.0	1.2	11.0	11.1	5.5	0.1	16.7	9.6	6.0	0.5	16.1	14.6	7.2	0.0	21.8
1994	4.8	5.0	1.2	11.0	11.1	5.5	0.1	16.7	9.7	6.0	0.6	16.3	14.9	7.5	0.0	22.4
1993	4.8	5.0	1.2	11.0	11.1	5.5	0.1	16.7	9.7	6.0	0.6	16.3	14.9	7.5	0.0	22.4
1992	4.8	5.0	1.2	11.0	11.1	5.5	0.1	16.7	9.8	6.0	0.7	16.5	14.9	7.5	0.0	22.4
1991	4.7	5.0	1.1	10.8	11.1	5.5	0.1	16.7	9.8	6.0	0.7	16.5	14.9	7.5	0.0	22.4
1990	4.6	5.0	1.0	10.6	11.0	5.5	0.0	16.5	10.0	6.0	0.9	16.9	15.4	8.0	0.0	23.4
1989	4.9	5.0	1.0	10.9	11.2	5.5	0.0	16.7	10.1	6.0	1.0	17.1	15.4	8.0	0.0	23.4
1988	4.9	5.0	1.0	10.9	11.2	5.5	0.0	16.7	10.8	6.0	1.0	17.8	16.5	8.0	0.0	24.5
1987	5.0	5.0	1.0	11.0	10.6	5.5	0.0	16.1	11.2	6.0	1.0	18.2	17.0	8.0	0.0	25.0
1986	5.4	5.0	1.0	11.4	10.8	5.5	0.0	16.3	11.0	6.0	1.0	18.0	17.6	8.0	0.0	25.6
1985	5.8	5.0	0.0	10.8	11.0	5.5	0.0	16.5	10.8	6.0	0.0	16.8	18.2	8.0	0.0	26.2
1984	5.8	5.0	0.0	10.8	11.0	5.5	0.0	16.5	10.8	6.0	0.0	16.8	18.2	8.0	0.0	26.2
1983	5.8	5.0	0.0	10.8	11.0	5.5	0.0	16.5	10.8	6.0	0.0	16.8	18.2	8.0	0.0	26.2
1982	5.5	5.0	0.0	10.5	5.6	5.5	0.0	11.1	14.8	6.0	0.0	20.8	14.8	8.0	0.0	22.8

[1] The benefit adjustment contribution (BAC) is primarily a combination of two rates. Section 40.05(2m) Wis. Stats. requires a BAC for the General and Teacher and Protective with Social Security categories. The BAC is also used for all categories to reflect one-half of the increase or decrease in contribution rates when the employee contribution rate is at or above the rates specified in s. 40.05(1)(a) Wis. Stats.

[2] Reported contribution rates exclude prior service contribution rates, which vary by employer and have ranged from 0.0% to 2.7% on average per year.

Appendix 6

Wisconsin Retirement System Performance[1]

	Core Fund			Variable Fund		
Year	Actual Performance	Investment Benchmark	Excess/ Deficiency	Actual Performance	Investment Benchmark	Excess/ Deficiency
1982	27.3%	27.7%	-0.4%	22.2%	N/A[2]	N/A[2]
1983	12.5	13.3	-0.8	**24.7**	23.1%	1.6%
1984	**12.8**	12.3	0.5	5.8	6.3	-0.5
1985	**27.5**	23.8	3.7	**32.7**	30.9	1.8
1986	**14.5**	14.0	0.5	11.5	17.1	-5.6
1987	2.2	3.0	-0.8	-1.1	3.0	-4.1
1988	**14.4**	13.6	0.8	**21.7**	18.4	3.3
1989	19.2	19.9	-0.7	22.6	27.0	-4.4
1990	**-1.5**	-1.7	0.2	-11.3	-8.6	-2.7
1991	20.5	22.8	-2.3	27.1	31.9	-4.8
1992	**9.7**	5.9	3.8	**10.7**	7.1	3.6
1993	**15.0**	12.2	2.8	**16.5**	14.7	1.8
1994	-0.6	-0.1	-0.5	0.8	1.7	-0.9
1995	23.1	24.4	-1.3	25.6	29.2	-3.6
1996	**14.4**	12.7	1.7	**19.8**	18.6	1.2
1997	17.2	17.4	-0.2	21.6	22.8	-1.2
1998	14.6	15.5	-0.9	**17.5**	17.4	0.1
1999	**15.7**	13.9	1.8	**27.8**	23.2	4.6
2000	**-0.8**	-1.4	0.6	**-7.2**	-8.8	1.6
2001	**-2.3**	-4.5	2.2	**-8.3**	-12.9	4.6
2002	-8.8	-8.2	-0.6	-21.9	-19.9	-2.0
2003	**24.2**	24.0	0.2	**32.7**	32.1	0.6
2004	**12.8**	12.1	0.7	12.7	13.4	-0.7
2005	**8.6**	8.0	0.6	**8.3**	8.0	0.3
2006	**15.8**	14.6	1.2	**17.6**	17.6	0.0
2007	8.7	9.6	-0.9	5.6	7.3	-1.7
2008	-26.2	-24.8	-1.4	**-39.0**	-39.0	0.0
2009	**22.4**	19.9	2.5	**33.7**	32.0	1.7

[1] The Wisconsin Retirement System was established in its current form, effective January 1, 1982. Returns that met or exceeded benchmarks are highlighted.

[2] Benchmark returns are unavailable for the first quarter of 1982.

SWIB State of Wisconsin Investment Board

November 9, 2010

Ms. Janice Mueller
State Auditor
Legislative Audit Bureau
22 East Mifflin Suite 500
Madison, WI 53703

Dear Ms. Mueller:

Thank you for the opportunity to review the management audit of the State of Wisconsin Investment Board (SWIB). It provides a clear picture of the complex challenges SWIB is managing after a decade of upheaval in the financial markets. We agree with the two recommendations in the report.

In my view, your report confirms what national studies and benchmark reports have also concluded: that the Wisconsin Retirement System (WRS) and State Investment Fund are well managed, provide competitive returns and have avoided some major issues that have crippled a number of other public funds across the country.

Wisconsin Retirement System is in Sound Financial Condition

As a result of the worst financial crisis since the 1930s, the market values of pension funds around the globe fell considerably in 2008. As one of the world's largest pension funds, WRS investments are, of course, significantly affected by major changes in market direction. Although the rebound continues, markets have not yet fully recovered and the effects of 2008 market losses will continue to be felt by the WRS for several years.

Because of the WRS design, consistency of employer contributions and value added by SWIB's portfolio managers, the WRS weathered the 2008 financial crisis in far better condition than many of its peers. Unlike any other public pension system, both the risks and rewards of investment returns are shared among all WRS participants: public employers, employees and retirees. Over the long term, this has stabilized contribution rates while meeting commitments to retired employees.

The effects on WRS participants of the 2008 market collapse (which includes small increases in contribution rates and small reductions in monthly annuity payments) are unwelcome, especially in these difficult economic times. However, the sharing of investment gains and losses among all participants has kept the WRS in relatively strong financial condition. This suggests that even under the most difficult market conditions the WRS design is far more sustainable than that of many other public plans that are now substantially underfunded and not on a path to meet future liabilities.

We have implemented several strategies and are considering further measured steps to help ensure the future financial health of the trust funds in good and bad markets. As your report recommends, we will keep the Legislature informed as we proceed.

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SWIB Adds Value at Low Cost

Since 2007 we have more than doubled the share of WRS investments managed by SWIB staff and reduced the share managed by outside investment firms. By early 2011 we expect the internal management share to exceed 50%, almost double the average for large public pension funds.

The trust funds have benefited from the Legislature's support for added resources to enable SWIB to expand internal management. The net annual cost savings from internal management exceeds $26 million annually and is growing. A recent report by CEM Benchmarking, Inc. determined that SWIB paid $22 million less to manage the Core Retirement Trust Fund in 2009 than our peers spent for similar services for a similar level and mix of assets. The report cited SWIB's greater reliance on internal management and lower rates paid for the outside services we still use.

More importantly, as of December 31, 2009 (the end of the period covered by the report), Core Fund investment returns exceeded their one-, five- and ten-year performance benchmarks. A major conclusion that can be drawn from your report is that SWIB's overall performance is exceeding most goals and ranks in the upper tier of its peers.

Your report effectively describes the future challenges that the WRS and SWIB face and the importance of re-examining fundamental actuarial and investment return assumptions to better assure the financial health of the WRS. We have begun that process with the Employee Trust Funds Board and expect to complete that review by May 31, 2011, as recommended in your report.

State Investment Fund Provides Safety, Liquidity and Competitive Returns

We are pleased the report confirms the State Investment Fund (SIF) has maintained its record of safety, liquidity and competitive returns through perhaps the most difficult interest rate and credit environment in the last 80 years. As noted in your report, a key to this success is that the SIF avoided riskier investments, including mortgage-backed securities that generated significant problems for short-term investment funds in other states.

In addition to safety and daily access to funds, the SIF is providing a rate of return to local governments, the State and the WRS that exceeds market benchmarks. For the year ending December 31, 2009, its return ranked first out of 177 government funds in the iMoneyNet Government Fund Index.

In summary, we appreciate the work of the audit team to clearly present these complex topics and we agree with the report's constructive recommendations.

Sincerely,

Keith Bozarth
Executive Director

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