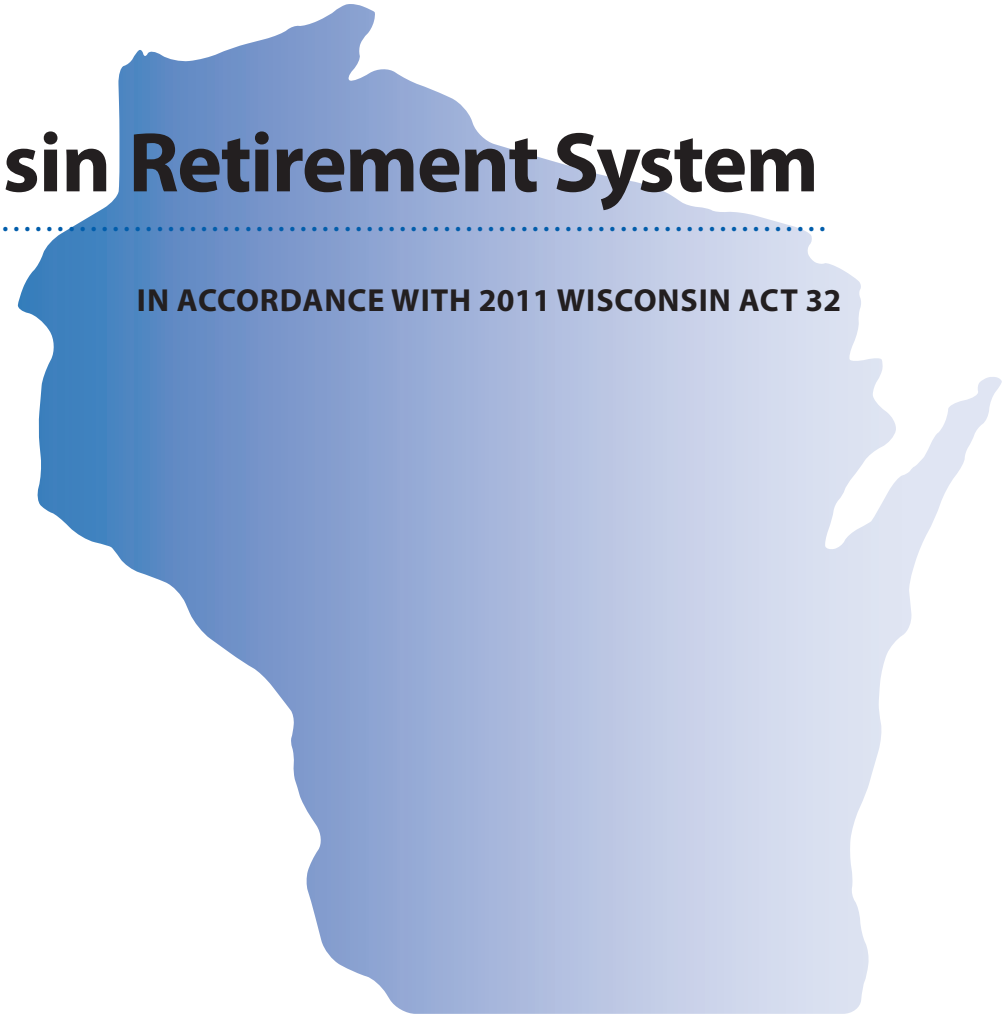
STUDY OF THE

Wisconsin Retirement System

IN ACCORDANCE WITH 2011 WISCONSIN ACT 32



WISCONSIN DEPARTMENT OF ADMINISTRATION

etf WISCONSIN DEPARTMENT OF EMPLOYEE TRUST FUNDS

OSER SERVING PEOPLE WHO SERVE WISCONSIN

Submitted by the Department of Administration,
the Department of Employee Trust Funds,
and the Office of State Employment Relations

June 30, 2012

STATE OF WISCONSIN
Department of Employee Trust Funds
Robert J. Conlin
SECRETARY

Department of Administration
Mike Huebsch
SECRETARY

Office of State Employment Relations
Gregory L. Gracz
DIRECTOR

June 30, 2012

THE HONORABLE SCOTT WALKER
GOVERNOR
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THE HONORABLE ALBERTA DARLING
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Dear Governor Walker, Senator Darling and Representative Vos:

2011 Wisconsin Act 32 requires the Secretary of the Department of Employee Trust Funds the Secretary of the Department of Administration and Director of the Office of State Employment Relations to study the structure of the Wisconsin Retirement System and benefits provided under the system, and report the findings and recommendations to the Governor and the Joint Committee on Finance no later than June 30, 2012.

Specifically, Act 32 requires the study to address: 1) establishing a defined contribution plan as an option for participating employees; and 2) permitting employees to not make employee required contributions, and limiting retirement benefits for employees who do not make employee required contributions to a money purchase annuity.

The Executive Summary outlines the topics of analysis and highlights the key findings. The report provides policy and actuarial analysis.

We respectfully submit the attached report for your review.

Sincerely,

Robert J. Conlin
Secretary
Department of Employee Trust Funds

Mike Huebsch
Secretary
Department of Administration

Gregory L. Gracz
Director
Office of State
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WISCONSIN DEPARTMENT OF
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June 30, 2012

The Honorable Scott Walker
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The Honorable Alberta Darling
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317 East, State Capitol
Madison, WI 53702

The Honorable Robin Vos
Co-Chair, Joint Committee on Finance
309 East, State Capitol
Madison, WI 53702

Dear Governor Walker, Senator Darling and Representative Vos:

I am pleased to report that the study submitted today by the Department of Administration, Department of Employee Trust Funds and Office of State Employment Relations reflects that the State of Wisconsin's retirement system is currently in a strong fiscal position. Unlike every other state and many municipal government systems, Wisconsin's pension liability is fully funded at this time. It is my hope and belief that the system remains strong into the future.

However, as I watch the global and national economic situations, I am fully aware that Wisconsin is not in a bubble nor protected from potential challenges and economic downturns that may arise. We cannot fully anticipate what is coming in the near and more distant future. The fitfulness of the national economic recovery and the global economic uncertainty are just a couple of the issues that could impact the ongoing viability of any retirement system.

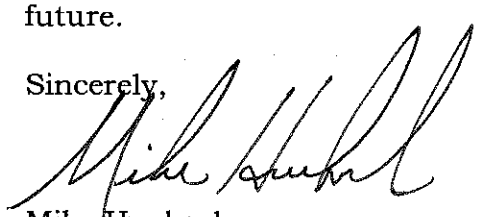
We must remain diligent in frequently reviewing the system to ensure that Wisconsin's taxpayers and the Wisconsin Retirement System annuitants are protected from future significant fluctuations in the economy.

In addition, Wisconsin does not operate in a labor bubble. Taxpayers deserve to have the best and hardest working employees working for them. The state employee workforce of the 21st Century may be more attentive to the portability of benefits and freedom offered by other retirement options. We need to be aware of the competition

for an excellent workforce from other public and private employers. We should regularly review our retirement system to be certain we provide benefits that serve the taxpayers as well as attract and maintain a high quality workforce.

We have reason to be proud of the Wisconsin Retirement System and its current condition. To ensure its ongoing viability we will continue to monitor the structure and benefits provided by the system to place us in the strongest position for the future.

Sincerely,



Mike Huebsch
Secretary

STATE OF WISCONSIN
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June 30, 2012

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Dear Governor Walker, Senator Darling and Representative Vos:

The attached study, prepared in accordance with 2011 Wisconsin Act 32, demonstrates that the Wisconsin Retirement System (WRS) remains a strong, viable retirement system. The WRS is designed to balance the interests of taxpayers, governmental employers, public employees, and retirees and to provide reasonable retirement benefits in an efficient, sustainable way. The system's continued strength is a credit to those policymakers who have ensured that the benefit program is carefully designed and who have maintained funding discipline over the years. In addition, the system has benefited greatly from vigorous oversight. That oversight includes independent audits and regular actuarial reviews to maintain proper funding, careful study of any proposed changes to the system, and a professionally managed investment program overseen by the State of Wisconsin Investment Board.

While all pension plans face challenges due to the global economic climate, Wisconsin taxpayers do not face those challenges alone. Under the unique design of the WRS, public employees and retirees assist in meeting those challenges through higher contributions and reduced pension payments. The solid foundation upon which the WRS has been built means that it is well-positioned to fulfill its intended purposes long into the future.

Sincerely,

Robert J. Conlin
Secretary
Wisconsin Department of Employee Trust Funds

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Executive Summary

The Wisconsin Retirement System (WRS) is an efficient and sustainable retirement system. According to the analysis prepared by Gabriel, Roeder, and Smith (the independent consulting actuary for the WRS), the WRS is insulated from large swings in annual contribution rates or funding levels due to the plan's cost-sharing and risk-sharing features. For example, since the market collapse of 2008, annuities have been reduced by almost $3.2 billion. As a result, the WRS was able to weather much of the financial storm.

Key Findings

Current Status of the WRS Defined Benefit (DB) Plan

- **Stable and Highly Funded:** WRS funding has remained steady over the last 20 years. The WRS funding ratio has consistently remained above 90% during the last 20 years and has been nearly 100% since 2004.

- **Low Variation in Contribution Rates over the Long Term:** The contribution rate for general-classification employees has been between 10% and 12% of covered payroll for the last 20 years. The rate dipped below 10% in the late 1990s and early 2000s.

- **Cost to Taxpayers has Decreased:** Between 2002 and 2010, an average of 11% of WRS pension revenue came from taxpayer-funded employer contributions, 13% from employee contributions (which at that time were usually paid by employers on behalf of the employee as a part of negotiated compensation), and 76% from investment earnings. The cost to taxpayers decreased by half with the passage of Act 32 in 2011, which prohibited employers from paying the employee share of pension contributions. Savings for state and local governments are estimated to be $690 million per year when fully implemented. The WRS has one of the lowest pension system costs for taxpayers in the nation.

- **Low Risk to Taxpayers:** WRS members bear approximately 75% of the risk associated with the Core Fund. Taxpayers bear 25% of the risk for the Core Fund. WRS members bear 100% of the risk associated with the Variable Fund. Taxpayers bear 0% of the risk associated with the Variable Fund. The WRS contains many pension policy best practices, such as a disciplined funding model and risk-sharing mechanisms that have allowed it to minimize the risks for taxpayers.

- **Benefit Levels are Lower than Most Major Public Plans:** The formula multiplier for general employees is 1.6%, which is lower than the average 1.95% multiplier reported in the Wisconsin Legislative Council's most recent comparative study of major public employee retirement systems.

Study Item One: Establishing an Optional Defined Contribution (DC) Plan

- **DC Plan Advantages for Employers:** The primary advantages of a DC plan for the employer include no investment risk, stable contributions and the ability to control cost by lowering benefit levels, if necessary. Many of these features are available in the current WRS benefit structure.

- **Zero Risk for Taxpayers:** A conventional DC plan, such as a 401(k) plan, has zero risk for taxpayers. However, there are DC plans structured to provide minimum guaranteed annuities for participants. The core elements of this type of DC plan are already represented in the WRS, through the money purchase component.

- **Portability:** The primary advantages of an optional DC plan for the employee include portability. The WRS has features that partially address portability concerns. For employees who terminate WRS employment before minimum retirement age, their account values continue to earn interest over time and they can withdraw the employee contributions and the accrued interest by taking a separation benefit. If they are eligible, at minimum retirement age, those former employees may take a retirement benefit.

- **Individual Choice Over Investments:** A DC plan might allow for investment decisions by individual WRS members. However, empirical data shows that DB plans are much more beneficial for the vast majority of individuals, due to professionally-managed investments with pooled assets. The WRS has features that partially address investment choice concerns. The Variable Fund is an investment option for employees that allows for more risk. For employees who are interested in an optional DC plan with choice of different investment packages and increased portability, the Department of Employee Trust Funds (ETF) provides for one through the supplemental Deferred Compensation Program.

- **Decreased Benefits and Increased Costs:** Actuarial analysis indicates that to provide a benefit equal to the current WRS plan, an optional DC plan would require higher contributions than employers and employees currently pay. Studies conducted by other public retirement plans also show higher administrative costs to manage a DC plan than a DB plan.

- **Possible Lower Investment Returns for the WRS:** Numerous studies have shown that as the number of participants in an optional DC plan increases, more contributions are diverted from the DB plan and the greater the effect on the ability to invest, because of reduced economies of scale as well as restricting investment in certain asset classes.

- **Loss of Death and Disability Benefits:** In order to have benefits equal to what the WRS now provides, participants electing a DC option would need to purchase additional protection for death or disability prior to retirement. The existing WRS plan provides for death and disability benefits, both of which are especially important for protective service occupation employees, who typically utilize those benefits more than other employees.

Study Item Two: Permitting Employees to Opt Out of Employee Required Contributions and Receive the Money Purchase Annuity

- **Possible Plan Qualification Issues with the IRS:** Actuarial and legal analysis indicates that, depending upon how this option is structured, it could raise multiple Internal Revenue Service (IRS) tax qualification issues for the WRS, including those related to cash or deferred arrangements.

- **Significantly Decreased Benefit:** Participants electing this option would receive a much lower benefit at retirement than under the current WRS plan. Individuals who opt out of employee contributions would be at a higher risk of not having enough money available to live on after retirement.

- **Possible Lower Investment Returns:** Reducing overall contributions would decrease the system's cash flow position, requiring a more liquid asset allocation and potentially resulting in lower investment returns.

- **Potential for Negative Effects on Contribution Rates for Participants Remaining in the DB Plan:** The WRS' structure is actuarially designed for regular contributions from employees and employers to appropriately fund future annuities. If new employees opt-out of contributions, there is a risk of destabilization of the Trust Fund. It could then have the unintended effect of raising contribution rates for existing employees in the DB plan.

- **Participants Would Need To Purchase Death and Disability Benefits:** Participants opting out of contributions would need to purchase additional protection for death or disability benefits prior to retirement.

Study Recommendation

Given the current financial health and unique risk-sharing features of the WRS, neither an optional DC plan nor an opt-out of employee contributions should be implemented in Wisconsin at this time. Analysis included in this study from actuaries, legal experts, financial experts, and information from similar studies conducted in other states show that there are significant issues for both study items in terms of the actual benefit provided and potential for negative effects on administrative costs, funding, long term investment strategy, contribution rates, and individual benefits.

Study Purpose and Scope

This report fulfills a directive of 2011 Wisconsin Act 32, which states that the Secretary of Administration (DOA), the Director of the Office of State Employment Relations (OSER) and the Secretary of the Department of Employee Trust Funds (ETF) shall study the structure of the Wisconsin Retirement System (WRS) and benefits provided under the system. The study is to specifically address the following issues:

- Establishing a defined contribution plan as an option for participating employees, as defined in section 40.02 (46) of the statutes; and

- Permitting employees to not make employee required contributions under section 40.05 (1) (a) of the statutes and limiting retirement benefits for employees who do not make employee required contributions to a money purchase annuity calculated under section 40.23 (3) of the statutes.

Act 32 directed that findings and recommendations of the study be reported to the Governor and the Legislature's Joint Committee on Finance no later than June 30, 2012.

Act 32 provides for review of two specific plan changes. Regarding the feasibility of any other plan design changes, further research and actuarial analysis beyond the scope of this study would be needed. The WRS is a complex system incorporating a broad range of employers and types of employees. Any changes to existing WRS plan design and construction should be thoroughly examined through actuarial analysis to ensure there are no unintended negative effects to a system that has been historically sound and stable.

Acknowledgements

ETF, DOA and OSER received input from outside professional sources to assist in the research and compilation of the results. These include Gabriel Roeder & Smith (GRS), ETF's consulting actuary that conducted an actuarial analysis of the Act 32 directive and Ice Miller, LLP, which provided guidance regarding Internal Revenue Code compliance. ETF also received State of Wisconsin Investment Board (SWIB) input relating to potential effects on WRS trust fund investment management strategies. Great-West Retirement Services provided administration and industry data for defined contribution plans. The governing boards of the WRS provided thoughtful commentary on the research and development phases of the study.

Types of Retirement Plans

There are several types of retirement plans used in the United States today. These plans are categorized by the Internal Revenue Service in the Internal Revenue Code. References to plans in this study are based on the IRS definitions. The purpose of this section is to clarify the general concepts of the types of retirement plans that are addressed in the study. Within those plan types, there are many variations in structure and complexity. In some cases, retirement plans contain aspects of multiple types of retirement plans. It is not possible to define all the subtypes of retirement plans. For example, many governmental entities offer defined benefit plans, but the benefits, mechanisms, complexity, and structure can vary greatly from plan to plan. The following is a general explanation of the broader types of retirement plans:

Defined Benefit (DB)

DB plans provide pension benefits based on a formula that is fixed, and therefore "defined." The formula is usually based on the worker's salary, typically shortly before retirement—often smoothing the highest final average earnings over a specified time. Contributions may be variable or fixed. Variable contributions are adjusted periodically to reflect the performance of investments, whereas fixed contributions are set as a percentage of payroll for both the employee and employer. A DB plan offers a worker a predictable income after retirement, providing high levels of stability for the employee. Governmental entities commonly provide DB plans. Governmental DB plans are regulated by section 401 (a) of the Internal Revenue Code. There are many different types of DB plans that incorporate DC plan concepts. The WRS is classified as a DB plan by the Internal Revenue Service.

Cash Balance

Cash balance plans are a sub-type of traditional DB plan, using DC plan components. Cash Balance plans require the employer to make annual contributions to assure that plan assets will be sufficient to pay the promised benefits. The retirement contributions do not include future accrual of benefits or the effects of future salary increases. The employee accrues an account balance that is used to fund a pension. The Cash Balance plan does not use a pension value based on the employee's projected final salary. Cash Balance plans benefit workers who leave employment after a relatively short time, whereas those who remain for longer careers will usually receive lower pensions than traditional DB plans. The money purchase feature of the WRS combines the element of a Cash Balance plan within its retirement benefit structure.

Defined Contribution (DC)

In the United States, 26 U.S.C. § 414(i) specifies a DC plan as a "plan which provides for an individual account for each participant and for benefits based solely on the amount contributed to the participant's account, and any income, expenses, gains and losses, and any forfeitures of accounts of other participants which may be allocated to such participant's account." Unlike DB plans, which specify the level of retirement income, DC plans specify the level of contributions. The retirement benefit provided in a DC plan depends on the performance of the contributions and investment earnings accumulated over the course of the employee's career, as well as the amount contributed. Unlike a defined benefit

plan, DC plan contribution levels do not change based on actuarial necessity to guarantee a defined benefit. Contribution levels are decided by individuals that must actively manage their assets, estimate their longevity, and costs associated with old age. The investment risks associated with a DC plan are solely the responsibility of the individual, allowing for the possibility of higher volatility in investment performance from year to year. The dollar amount of the benefit is not known until the employee retires and is not guaranteed. The most widely-used type of DC plans in the private sector are governed by section 401 (k) of the Internal Revenue Code, although Individual Retirement Accounts (IRAs) are also a type of DC plan. While not as prevalent as DB plans, public sector DC plans are governed by section 401 (a) of the Internal Revenue Code.

Hybrid

The Internal Revenue Service classifies hybrid plans as those entities that provide both a DB and a DC plan for each employee as part of the primary retirement benefit. There are variations among types of hybrid plans. However, they generally share investment risk between employees and employers, provide a lower guaranteed retirement benefit, and include a separate DC plan that does not guarantee any returns. However, the term "hybrid" is frequently used to describe DB plans that have some DC characteristics. The WRS, with its money purchase (cash balance) option, is sometimes informally referred to as a hybrid plan. However, the WRS is not considered a hybrid plan by the Internal Revenue Service.

Section 1: Pension Trends

The "three-legged stool" metaphor has often been cited when discussing sources of retirement income. The legs of the stool are: an employer-sponsored pension plan, Social Security, and personal savings (or an additional defined contribution plan).[1] The stool metaphor illustrates the interdependence of the sources of retirement income. All three legs are important for a stable retirement. Employer sponsored pensions and Social Security benefits are considered the two most predictable "legs" of the stool. The strength of the third leg, personal retirement savings, varies according to individual practice. In theory, a deficiency in any leg of the stool affects the overall stability of the retirement savings plan and consequently an individual's ability to terminate employment with enough income to ensure a financially secure retirement.

Retirement Readiness

In 2011, the Center for Retirement Research at Boston College found that Americans collectively have a $6.6 trillion deficit in achieving adequate retirement income. The $6.6 trillion represents the gap between the total assets in pensions and retirement savings that American households ages 32-64 *have today*, and what they *should have now* to maintain living standards in retirement. The figure is more than five times the U.S. federal deficit in fiscal year 2011.

The 2011 annual retirement survey conducted by the Transamerica Center for Retirement Studies found that 44% of American workers have not yet developed any strategy to reach their retirement goals. Only half of those who do have a strategy have factored in healthcare costs, and only 20% considered long-term care insurance. A recent study by the Employee Benefit Research Institute (EBRI) found similar results:

- only 45% of workers are saving for retirement at all; and
- 23% of those 65 and older currently live in families that depend on Social Security benefits for 90% or more of their income.

According to a 2011 *Wall Street Journal* analysis, households with a pension plan in addition to a 401(k) account had significantly smaller retirement savings gaps. Researchers there found the median household headed by a person aged 60 to 62 relying on Social Security and a 401(k) (DC plan) account has less than one-quarter of what is needed to maintain standard of living in retirement.[2] In contrast, households that have maintained a combination of Social Security, a 401(k) account, and a traditional DB plan, have 95% of what they need in retirement income to maintain their standard of living.[3]

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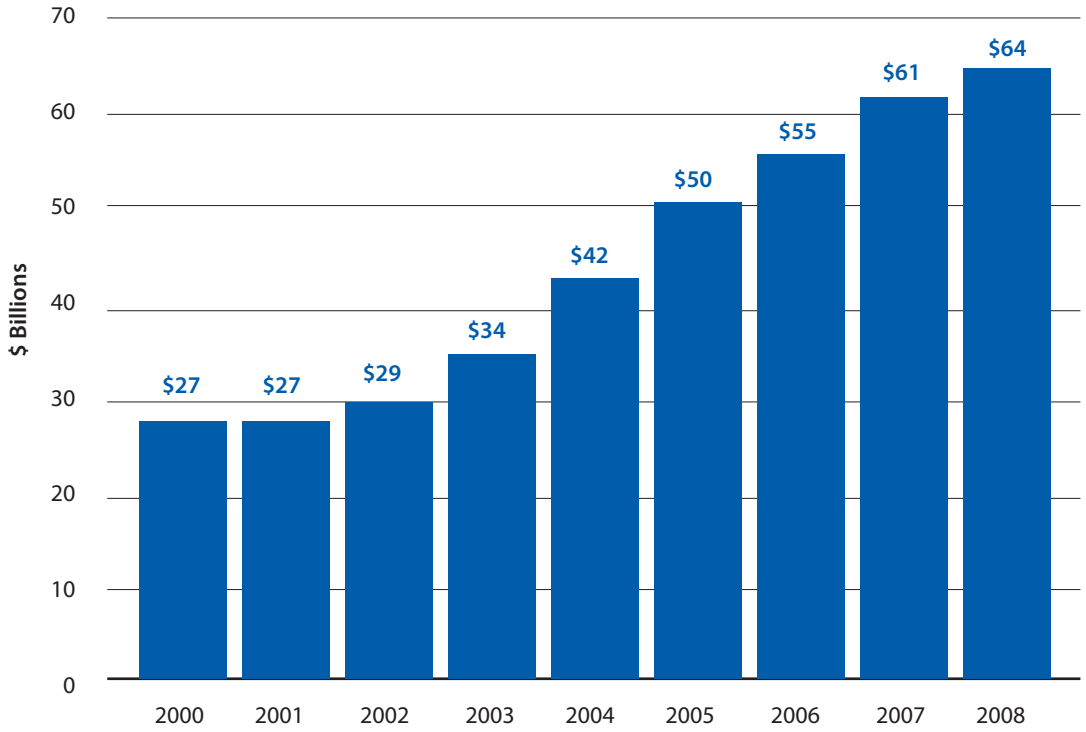
[1] Originally, defined contribution plans, such as a 401(k) style plan, were created to supplement the traditional employer sponsored defined benefit pension plans.
[2] The analysis found that households in the group have a median 401 (k) balance of just $149,400, far less than the $636,673 the analysis found was needed to maintain standard of living. Only 8% of households with a 401(k) account have that amount.
[3] "Retiring Boomers Find 401(k) Plans Fall Short," February 19-20, 2011.

Challenges in Public Pension Funding

In 2010, the PEW Center on the States reported that the annual bill to fully fund all 50 states' pension liabilities increased 135% between 2000 and 2008. The table below shows the increase in contributions needed to fully fund state pensions. The required contributions rose from $27 billion in 2000 to $64 billion in 2008.

50-State Total Required Contribution in $ Billions



Between 1999 and 2008, the overall funding of public pensions in the nation went from an average 102% to around 84%, a decline of $452 billion. Add further a $555 billion gap for retiree health care and other benefits, and plans are facing what is now over a $1 trillion funding shortfall.[4]

Although termed "required contributions," some states have treated such contributions as optional. The PEW Center on the States estimates that in fiscal year 2008, states should have provided $64.4 billion to fund their pension plans, but ended up contributing just $57.7 billion.[5]

Wisconsin law requires that pension contributions be made by public employers and employees, and maintained in a trust fund solely for pension purposes. This requirement has played a large part in the WRS maintaining over a 90% funded status for the past 20 years, and near 100% funding since 2004. This achievement is shared by only a few other public pension systems (the state retirement systems in Florida, Idaho, New York and North Carolina). In fiscal year 2010, Wisconsin was the only state in the nation with 100% funding status.[6]

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[4] *The Trillion Dollar Gap: Underfunded State Retirement Systems and the Roads to Reform,* PEW Center on the States, February 2010.
[5] *The Trillion Dollar Gap: Underfunded State Retirement Systems and the Roads to Reform,* PEW Center on the States, February 2010.
[6] Pew Center on the States, "The Widening Gap Update." June, 2012.

Section 2: Peer Retirement Systems

In response to the financial crisis of the past several years, media attention and public focus on public pensions has increased significantly. Legislation has been enacted, and actuarial studies have been conducted to manage growing public pension liabilities and underfunding issues. Proposals include replacing DB with DC plans, increasing employee contribution rates, raising the retirement age, changing formula benefit calculations, and repealing mandatory cost of living adjustments (COLAs) for retirees.

Recent Legislative Changes to Public Retirement Systems

There have been many changes to government retirement systems in recent years. Many of the states that have undergone changes to their retirement systems have suffered from underfunding issues or a dramatic increase in contribution rates that represents a burden on both employees and employers. Plans have found that large savings can be achieved by changes to COLAs for pension recipients and implementing a disciplined funding model. For example, Gabriel, Roeder, Smith, & Company estimates that a 3% compounding COLA will add 26% to the cost of a retirement benefit.[7]

Since 2009, a total of 43 states have made a wide variety of changes to their public retirement systems. The PEW Center on the States found that in 2010, 18 states took action to reduce pension liabilities, either through reducing benefits or increasing employee contributions. Eleven states made similar changes in 2009 and eight states in 2008. Between 2001 and 2010, 14 states reduced benefits, 6 increased contributions, and 19 states implemented both.[8] The National Association of State Retirement Administrators (NASRA) identified state public pension systems that have made changes that restore or preserve plan sustainability since 2011. Of those states, 19 increased employee contributions, 12 made COLA related changes, and 15 made changes related to retirement age.[9]

Legislatures of nine states have enacted an optional defined contribution plan for employees of large public retirement systems since 2000. States that have implemented optional DC plans include Colorado, Florida, Montana, New York, North Dakota, Ohio, South Carolina and Utah. While many of these plans have been in place for a relatively short time, data provided by these plans shows that new employees choose the optional DC plans at a rate from 2% to 25%.

Two states, West Virginia and Nebraska, have enacted legislation to transition their retirement systems from a DC plan back to some form of a DB plan in response to cost and benefit concerns for members and employers.

While the WRS is a sustainable system that has experienced relatively low volatility, and no underfunding issues, Wisconsin recently joined the ranks of states making pension-related changes

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[7] Gabriel, Roeder, Smith, & Company, GRS Insight, April 2011.
[8] "Pension and Retiree Health Care Reform in the States," available at: http://www.pewcenteronthestates.org/initiatives_detail.aspx?initiativeID=61599
[9] NASRA, *"Selected Approved Changes to State Public Pensions to Restore or Preserve Plan Sustainability,"* May 2012.

by implementing 2011 Wisconsin Act 32[10] to reduce taxpayer costs. Among other changes, Act 32 eliminated the option for employers to "pick-up" or pay their employees' contributions, and changed the contribution structure. Act 32 instituted formula benefit changes and required changes in benefit calculations. In effect, Act 32 cut the pension plan cost to taxpayers approximately in half.[11] The WRS structure does not grant COLAs, but does include a unique risk-sharing dividend adjustment mechanism for pension recipients based on investment returns.[12]

Actuarial Studies Conducted by Peer Retirement Systems

Many large public employee retirement systems have conducted their own actuarial studies of possible DB plan structural changes. We have not found any studies conducted by peer retirement systems, nor any legislation authorizing employees to opt out of required contributions in a DB plan. The following studies analyzed offering optional DC plans:

- A **Pennsylvania** Commission analyzed the "exposure to *liability* on the part of the Commonwealth and school employers arising out of providing employees a choice between and/or a right to convert to either a DB or DC plan, including any liability for poor investment performance in a DC plan and possible contract impairment issues." The commission concluded that "establishment of a DC plan, either as a supplement, or as an alternative, to the existing DB plans, will increase the potential liability of the Systems…" In addition, the commission stated there "are contract impairment and due process issues in connection with the establishment of a DC plan."

- A **Colorado** study found "that employees who remain in employment until they are eligible for early retirement, generally are better off under the current PERA defined benefit plan than they would be under a defined contribution plan. Viewed from this perspective, the PERA defined benefit plan provides greater retirement security than a defined contribution plan having the same employer and employee contribution rates. Employees who terminate before age 50 generally are better off under a defined contribution plan than under the current PERA defined benefit plan".

Most actuarial studies have focused on switching entirely to a DC plan. A summary of a few such states follows:

- **Minnesota** released a study last year on switching to a DC plan, with the following key findings:
    1. **High Transition Costs –** Mercer's actuarial analysis indicated there would be a $2.76 billion transition cost to Minnesota over the next decade if Minnesota moved from a DB to DC plan for new hires. These transition costs are similar to those found in studies done by other states such as Nevada, Kansas, Rhode Island, New Mexico, and Missouri.
    2. **Long-term Costs Higher –** Mercer found that with a funding structure of 5% employer and 5% employee contributions, the ongoing cost of the existing Minnesota DB plans would be less than the cost of a future replacement DC plan.

[10] Act 32 repealed the WRS aspects of Wisconsin Act 10 and recreated them.
[11] Future contribution rates for both employees and employers will rise due to Act 32 changes that increase money purchase benefits.
[12] See Section 3 for a description of the risk-sharing dividend adjustment mechanism.

3. **Higher Liabilities –** Employees exiting the DB plan would decrease the funding available, requiring higher contributions.
4. **Smaller Retirement Accounts –** DC plans run the risk of providing inadequately- funded retirement incomes that may lead to higher public assistance costs.
5. **Higher Fees –** DC's grant many individual employees more control over investments, but individuals usually incur higher investment fees and lower returns.
6. **Lower Efficiency –** DB plans can provide the same level of income at roughly half the cost of a DC plan because of DB's superior investment returns and ability to pool longevity risk.

- In March 2011, **California Public Employees' Retirement System** (CalPERS) published a report examining the effect of closing the DB plan and opening a replacement DC plan. The report suggested that closing a DB plan and replacing it with a DC plan will cost employers more and offer employees lower benefits.

- **New York City's** 2011 report, "A Better Bang for New York City's Buck," found that DB pension plans can deliver the same retirement income at nearly 40% lower cost than a DC plan. The report identified three sources from which the DB plan provides savings:

  1. **Superior investment returns –** the pooled assets in a DB plan result in higher investment returns as a result of the lower fees that stem from economies of scale, but also because the assets are professionally managed. The City's investment returns save from 21 percent to 22 percent;
  2. **Better management of longevity risk –** pensions pool longevity risks of a large number of individuals and can determine and plan for mortality on an actuarial basis. New York City's DB plans save between 10 percent and 13 percent compared to a typical DC plan; and
  3. **Portfolio diversification –** Unlike DC plans, DB pension assets can be invested for optimal returns whereas DC investments in 401(k)s, by comparison, are advised to rebalance by downshifting into less risky and lower-returning assets as they age. The report finds that this ability to maintain portfolio diversity in the City's DB plans saves from 4 percent to 5 percent.

Section 3: A Description of the Wisconsin Retirement System

The Department of Employee Trust Funds (ETF) is the Wisconsin state agency that administers benefit programs for the State of Wisconsin and most local government employers. The Wisconsin Retirement System (WRS) is ETF's largest program, providing DB plan retirement benefits for more than 577,000 current and former state and local government employees via more than 1,500 employers in 2011. Federal law, state statutes, state administrative code, and the common law of fiduciaries regulate ETF's programs. The agency is overseen by an independent governing board and WRS trust funds are held on behalf of ETF benefit program members and employers. ETF administers the WRS according to Chapter 40 of Wisconsin State Statutes and has a fiduciary responsibility to administer the trust solely for the benefit of WRS participants.

Other ETF-administered programs include health insurance, life insurance, long-term and short-term disability, employee reimbursement accounts, commuter benefits, long-term care insurance, deferred compensation and the accumulated sick leave conversion credit program. ETF also serves as the state's designated Social Security reporting agent for Wisconsin public employers. These benefit programs are not a part of the Act 32 study mandate and will not be addressed in this study. However, the Wisconsin Deferred Compensation Program (a supplemental defined contribution plan currently offered to employees of participating employers) is briefly discussed.

Participation in the WRS by eligible employees is mandatory for retirement benefits, but optional for other programs. The Department collects contributions, but does not invest assets in the trust funds created for these programs. The State of Wisconsin Investment Board (SWIB), a separate state agency, professionally manages the investments of the WRS trust funds.

There are five Boards of Trustees associated with ETF. The Boards set policy and review the overall administration of the benefit programs provided for state and local government employees. The thirteen-member ETF Board has oversight responsibility for the Department.

The five governing Boards are:

- Employee Trust Funds Board (13 members);
- Teachers Retirement Board (13 members);
- Wisconsin Retirement Board (9 members);
- Group Insurance Board (11 members); and
- Deferred Compensation Board (5 members).

ETF is responsible for:

- Collecting all money due to the trust funds;
- Calculating and ensuring appropriate disbursement of all benefit payments from the trust funds;
- Providing information to, and answering inquiries from, participating employees and employers; and
- Establishing the controls, systems, and procedures necessary to ensure the appropriate administration and security of the trust.

Statutory Purpose of ETF and the WRS

The purpose of the WRS is set forth by the Legislature in the core provisions of Chapter 40 of the Wisconsin Statutes:

Creation – Protecting Employees from Financial Hardships
"A 'public employee trust fund' is created to aid public employees in protecting themselves and their beneficiaries against the financial hardships of old age, disability, death, illness and accident, thereby promoting economy and efficiency in public service by facilitating the attraction and retention of competent employees, by enhancing employee morale, by providing for the orderly and humane departure from service of employees no longer able to perform their duties effectively, by establishing equitable benefit standards throughout public employment, by achieving administrative expense savings and by facilitating transfer of personnel between public employers." (Wis. Stat. § 40.01 (1)).

Purpose – Establishment of a Public Trust with Fiduciary Responsibility to its Participants
"The public employee trust fund is a public trust and shall be managed, administered, invested and otherwise dealt with solely for the purpose of ensuring the fulfillment at the lowest possible cost of the benefit commitments to participants…and shall not be used for any other purpose. Revenues collected for and balances in the accounts of a specific benefit plan shall be used only for the purposes of that benefit plan…and shall not be used for the purposes of any other benefit plan." (Wis. Stat. § 40.01 (2)).

Membership and Coverage

Employers

Wisconsin public employers are eligible to participate in the WRS. The system covers employees of the State of Wisconsin and employees of local government employers who elect to participate, and Milwaukee Public School District teachers. Employees of the City of Milwaukee and Milwaukee County are covered under different pension systems. Some employers are required by law to participate in the WRS (e.g. all state agencies and all Wisconsin school districts). For other public employers, participation is optional. An employer's resolution to participate in the WRS is irrevocable. The majority of employers in the WRS are local government employers. As of December 2011, 27% of all employers were state government employers and 73% were local government employers. Currently there are more than 1,500 employers participating in the WRS, including 59 state agencies.

Employees

All eligible employees of a participating employer must be enrolled in the WRS. When an employee becomes a WRS participant, the employee is enrolled into one of four participant categories based on the job classification:

- General;
- Elected Officials and Appointed State Executives;
- Protective with Social Security Coverage; and
- Protective without Social Security Coverage.

As of December 31, 2011, there were 577,988 participants in the WRS, including:

- 169,229 retired members;
- 260,711 active employees; and
- 148,048 inactive members.

Contributions and Trust Fund Investment Management

The underlying financing principle of the WRS provides that the funds generated from three sources—employer contributions, employee contributions and investment earnings—together must be sufficient to meet all of the present and long-term future liabilities (retirement benefit commitments) of the system. Investment earnings provide the most significant portion of WRS funding with percentages averaging 76% from 2002-2010 and going as high as 90% of revenues in 2009.[13]

Required contributions

Both employers and employees are required to contribute a percentage of the employee's salary to the WRS. Employee contributions are deposited to the Employee Accumulation Reserve and employer contributions to the Employer Accumulation Reserve and invested by the State of Wisconsin Investment Board. Contribution rate change recommendations are made by the WRS consulting actuary, after an annual analysis of the funding requirements needed to meet the cost of estimated future retirement benefits accrued during the year by current employees.

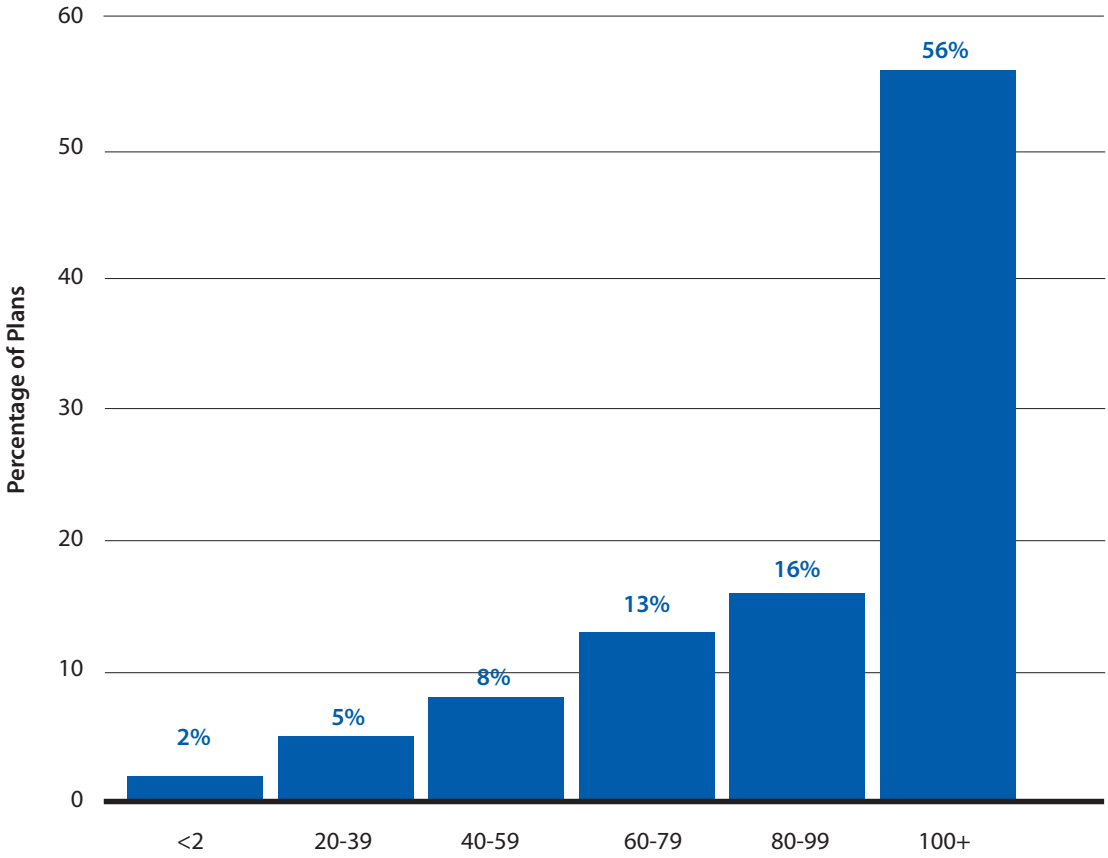
This annual review provides an ongoing mechanism for monitoring and adjusting the financial condition of the system over the long term. This long-term perspective allows financial goals to be achieved over time through gradual incremental adjustments to assumptions and funding. Contribution rate changes must be approved by the Employee Trust Funds Board.

For the WRS, maintaining strict discipline in the statutorily-required collection of contributions has fostered stable contribution rates and a high plan funding ratio. In contrast, some states have allowed public pension plans to implement "contribution holidays," by either freezing rates or permitting employers to defer required contributions for a period of time. However, contribution holidays can cause long-term funding difficulties and in many cases have led to significantly increased contribution rates to recover the costs of the plan. According to a 2008 survey by the Center for Retirement Research at Boston College of 126 governmental plans that implemented contribution holidays, 44% of those plans failed to make their annual required contributions in 2006.[14] The WRS does not use contribution holidays.

The following graph shows the distribution of state and local plans in 2006 by the percentage of Actuarially Required Contributions paid. Nearly half of plans did not pay all of the actuarially-required contributions.

[13] Wisconsin Retirement System Informational Paper 84, Wisconsin Legislative Fiscal Bureau, January, 2011.
[14] Public Fund Survey, 2008

2006 Distribution of State and Local Plans by % of Actuarially Required Contribution (ARC) Paid



Source: *Public Fund Survey,* 2008. Center for Retirement Research at Boston College

Employee Required Contributions

Effective July 1, 2011, Wisconsin Act 32 required employees to pay half of the actuarially required contribution rate and prohibited employers from paying any of the employee share.[15] Prior to Act 32, the employee contribution rate, also known as "participant normal cost" was set in statute by employment category and it was possible and common for employers to pay some or all of the employee's contribution on behalf of the employee. Contribution rates, expressed as a percentage of salary, vary by WRS employee category. The table below shows the contribution rates for general category employees from 1989-2012.[16] General category employees comprise about 91% of all employees in the WRS.

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[15] Exceptions include some protective employment categories, and employees who maintain coverage under a pre-Act 32 collective bargaining agreement that provided for the employer to pay the employee required contributions on behalf of its employees, as long as that agreement has not been extended, terminated, or modified. Deductions for increased WRS contributions were first reflected for most state employees' paychecks dated August 25, 2011 for biweekly payrolls or September 1, 2011 for monthly payrolls.

[16] Contribution rate tables for each employee category: http://etf.wi.gov/employers/wrs_contribution_rates.htm.

General and Teacher Participants

Year	Employer Normal Cost	Benefit Adjustment Contribution	Participant Normal Cost[17]	WRS Average Total
2012[18]	5.9	N/A[19]	5.9	11.8
2011	5.1	1.5	5.0	11.6
2010	4.8	1.2	5.0	11.0
2009	4.5	0.9	5.0	10.4
2008	4.6	1.0	5.0	10.6
2007	4.6	1.0	5.0	10.6
2006	4.5	.9	5.0	10.4
2005	4.4	.8	5.0	10.2
2004	4.2	.6	5.0	9.8
2003	4.0	.4	5.0	9.4
2002	3.8	.2	5.0	9.0
2001	3.8	.2	5.0	9.0
2000	4.1	.5	5.0	9.6
1999	4.4	.8	5.0	10.2
1998	4.8	1.2	5.0	11.0
1997	5.0	1.4	5.0	11.4
1996	5.1	1.5	5.0	11.6
1995	4.8	1.2	5.0	11.0
1994	4.8	1.2	5.0	11.0
1993	4.8	1.2	5.0	11.0
1992	4.8	1.2	5.0	11.0
1991	4.7	1.1	5.0	10.8
1990	4.6	1.0	5.0	10.6
1989	4.9	1.0	5.0	10.9

Employee-paid contributions are credited to the Employee Reserve Fund, which carries a separate balance for each participant.

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[17] In many cases, participant normal cost was "picked-up" by employers in lieu of salary increases as part of the overall contribution agreement. Wisconsin Act 32 required employees to pay 50% of normal cost.
[18] Rates do not include the increase calculated by GRS from Act 32. See GRS analysis of WRS section.
[19] In order to fund increases in WRS retirement benefits, effective in 1984, a benefit adjustment contribution ("BAC") was imposed on WRS participants. BAC was credited to the employer accumulation reserve. The BAC was eliminated by 2011 Wisconsin Act 32.

Employer Required Contributions

Employer contribution rates are determined using an actuarial method that attempts to keep employer and employee contribution rates at a relatively level percentage of payroll over the years.[20] This method determines the amount of contributions necessary to fund:

- **Current Service Cost:** the estimated amount necessary to pay for benefits earned by the employees during the current service year plus actuarial gains or losses arising from the difference between actual and assumed experience; and
- **Prior Service Cost:** the estimated amount necessary to pay for unfunded benefits that were earned prior to the employer becoming a participating employer in WRS. This includes the past service cost of benefit improvements.

Employee/Employer Voluntary Additional Contributions

Employees may supplement their own retirement accounts by making voluntary additional contributions under Wis. Stat. § 40.05 (1) (a) 5. An employer may also make voluntary additional contributions on behalf of the employee. These contributions are credited to the employee accumulation reserve, and are accounted for separately.

Trust Fund Investment Management

The assets of the WRS are managed and invested by the State of Wisconsin Investment Board (SWIB). Although the employee, employer and annuity reserve accounts are separately maintained and accounted for by ETF, SWIB does not actually manage the retirement system's assets according to these account categories. Instead, SWIB pools all WRS assets and manages them as part of either the Core Retirement Investment Trust (Core Fund) or the Variable Retirement Investment Trust (Variable Fund). The Core Fund is the larger of the two funds with almost $72 billion as of December 31, 2011. The Variable Fund totaled $5.2 billion, as of December 31, 2011. Investment earnings provide the most significant revenue source of the WRS with percentages averaging 76% from 2002-2010 and going as high as 90% of revenues in 2009.[21]

Core Fund

All participants have at least half, if not all, of their retirement contributions on deposit in the Core Fund. Some may also choose to place half of their retirement contributions into the Variable Fund. The basic objective of the Core Fund is to earn an optimum, long-term return while taking acceptable investment risk. Initially, the Core Fund mainly consisted of fixed income investments, but the percentage of stocks has increased over the years. A majority of the Core Fund is now invested in equities, but it also includes a mixture of other assets. As a result, it is a fully-diversified, balanced fund invested for the long-term needs of the retirement system. Diversification allows for more consistent performance under a wide range of economic conditions. The effect of annual Core Fund investment experience is spread out or "smoothed" over five-year increments.

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[20] This actuarial method is known as "entry age normal with a frozen initial liability."
[21] Wisconsin Retirement System Informational Paper 84, Wisconsin Legislative Fiscal Bureau, January, 2011.

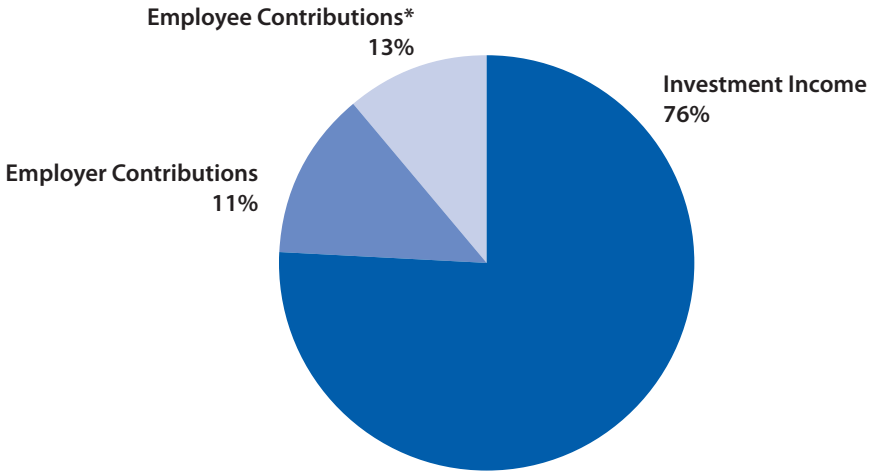
Variable Fund

Participation in the Variable Fund is voluntary and employees must elect to participate in it. This fund is invested in equity securities, primarily common stocks. The investment objective is to achieve returns equal to or above that of similar stock portfolios over a market cycle. Participants in the Variable Fund are exposed to a higher degree of risk in exchange for the possibility of greater returns. The effect of annual Variable Fund investment experience is not smoothed; returns are fully recognized in the year earned.

Cost to Taxpayers

NASRA analysis shows that the taxpayer costs associated with the WRS are a small part of Wisconsin's overall budget at both the state and local level. The portion of state and local government budgets allocated to retirement costs was only 1.26%[22]in 2009, compared to an average of 2.9% nationally.[23] The following table displays the proportions of WRS revenue from 2002 to 2010[24]:

Source of WRS Revenue from 2002–2010



* Per compensation agreements, many WRS employers paid all or most of the employees' contributions during these years. 2011 Wisconsin Act 32 prohibits employers from paying employee contributions as part of compensation agreements, unless otherwise covered by an existing agreement before July 1, 2011.

In 2010, the total amount of employee and employer contributions to the WRS was approximately $1.4 billion. Benefits paid to WRS participants was over $3.9 billion. The following table shows the sources of WRS revenue from 2002 to 2010 and the amount of benefits paid. Despite negative revenue in 2002 and 2008, the risk-sharing, funding discipline, and smoothing mechanisms of the system (discussed later in this section) allowed the WRS to maintain its fully funded status without large percentage increases in contribution rates.

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[22] This percentage also includes the spending by City of Milwaukee and County of Milwaukee on their own pension systems.
[23] U.S Census Bureau, 2010 Annual Survey of State Government Finances.
[24] Average compiled from data in Department of Employee Trust Funds comprehensive annual financial reports, 2002-2010.

Year	Investment Income	Employee [1] Contribution	Employer Contribution	Benefits Paid
2010	$8,317,435,000	$787,461,000	$679,792,000	$3,901,844,000
2009	$13,024,986,000	$736,689,000	$632,706,000	$3,822,370,000
2008	$(22,744,110,000)	$736,149,000	$630,840,000	$3,849,919,000
2007	$6,495,914,000	$705,804,000	$601,540,000	$3,542,572,000
2006	$10,962,280,000	$670,253,000	$568,970,000	$3,289235,000
2005	$5,492,548,000	$640,229,000	$538,097,000	$3,092,884,000
2004	$7,512,872,000	$605,184,000	$505,102,000	$2,882,837,000
2003	$12,043,429,000	$564,755,000	$473,187,000	$2,719,450,000
2002	$(5,880,598,000)	$526,149,000	$437,192,000	$2,689,249,000

WRS Retirement and Separation Benefits

Retirement Benefits

The objective of a WRS retirement benefit is to provide a benefit that, when combined with Social Security benefits, would produce a total retirement income to protect WRS members from the financial hardships of old age.

WRS retirement benefits are pre-funded by employee and employer contributions (contributed during the employees' working years), plus investment earnings.[25]

A participant may apply for a WRS retirement benefit after meeting all retirement benefit eligibility requirements. A retirement benefit is normally a lifetime annuity with several annuity options to choose from at the time of retirement.[26] Two separate retirement benefit calculations are completed when a participant applies for retirement: a formula benefit annuity calculation, which is a defined benefit calculation and a money purchase annuity calculation, which is a defined contribution calculation. The participant receives the higher benefit amount resulting from the two benefit calculations. In calendar year 2010, approximately 50% of those new retirees receiving an annuity retired with formula benefit while approximately 50% of 2010 new retirees receiving an annuity retired with a money purchase benefit. These percentages vary from year to year as the results of the calculations are based on individual employment history and investment experience, which vary for each participant, but are actuarially accounted for in contributions to the system during the individual's working years.

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[1] Per compensation agreements, many WRS employers paid all or most of the employees' contributions during these years. 2011 Wisconsin Act 32 prohibits employers from paying employee contributions as part of compensation agreements, unless otherwise covered by an existing agreement before July 1, 2011.

[25] Voluntary employer and employee contributions can also be made to the WRS.

[26] Participants whose monthly retirement benefit would be less than $168 per month (in 2011) may only receive a lump sum retirement benefit.

Separation Benefits

A separation benefit is a lump sum payment of the employee contributions in the retirement account, plus accumulated interest. The separation benefit will also include any voluntary additional contributions. An employee taking a separation benefit forfeits all service and employer contributions credited to the account and the account is closed. These forfeitures tend to reduce the overall costs of the plan.

If a participant terminates WRS employment before reaching minimum retirement age (55 years for general category employees; 50 years for protective category employees), the individual has the option to take a separation benefit or leave his or her funds in the WRS. Once a participant becomes eligible for a retirement benefit, however, he or she is not eligible for a separation benefit.[27]

Money Purchase Benefit Annuity

A WRS money purchase benefit is a defined contribution calculation. It is based on the employee's money purchase account balance and age at retirement. The employee's money purchase account is comprised of employer and employee contributions to the account, plus accumulated interest. The balance is multiplied by an age reduction factor, also known as a "money purchase factor," which is based the employee's age at retirement, to determine the initial monthly benefit amount.

Examples of a Money Purchase Benefit Calculation
The following is an example of a money purchase benefit calculation with various money purchase account balances. The retirement age used is 65. Also, it is assumed there is a spouse age 62, and that the participant chose the most commonly selected option.[28]

Money Purchase Balance [29]	Money Purchase Factor (based on age)	Monthly Benefit	Annual Benefit
$100,000	.00681	$566.59	$6,799.08
$150,000	.00681	$849.88	$10,198.56
$200,000	.00681	$1,133.18	$13,598.16
$250,000	.00681	$1,416.48	$16,997.76
$300,000	.00681	$1,699.77	$20,397.24
$350,000	.00681	$1,983.07	$23,796.84
$400,000	.00681	$2,266.36	$27,196.32

[27] Employees who begin employment with a WRS employer after July 1, 2011 are subject to a vesting requirement of 5 years of creditable service. Additionally, there was a vesting requirement for WRS members between 1989 and 1998.
[28] There are various options available to WRS members at retirement based on their individual circumstances; however, the 100% named survivor with 180 benefits guaranteed is the most elected option. See etf.wi.gov for more information on retirement options.
[29] Includes the employee and employer contributions, and the accumulated interest at the date of retirement.

For the individuals who began receiving a money purchase annuity in 2010 the average money purchase account balance at the time of retirement was $411,361, the average age was 60, and the average years of creditable service was 21.[30] The average annual benefit was $33,738. The majority of individuals who retired in 2010 who were not yet eligible for Social Security benefit (under age 62) took an accelerated benefit which gives them a projected Social Security amount until age 62 at which point their WRS annuity is reduced by the amount of their estimated Social Security benefit amount. This accounts for a higher average initial retirement benefit, but is actuarially constructed to be cost neutral to the system with the reduction of WRS benefits at age 62.

In common usage, the WRS tends to be described as a "hybrid" plan due to the money purchase feature. Although this component is a defined contribution principle, the IRS still classifies the WRS as a defined benefit plan, not a "hybrid" plan.

Formula Benefit Annuity

A WRS formula benefit annuity is a defined benefit calculation. The pension amount is calculated based on the employee's years of service, final average monthly earnings (FAE), a formula factor that varies by employee category and an age reduction factor (if applicable). The age reduction factor is based on the individual's age and the statutory normal retirement age for his/her employment category. A public concern of many DB plans is "spiking" of the FAE to increase annuity benefits. The WRS mitigates this concern by averaging the three highest years of earnings to calculate the FAE. This is consistent with recommended best practices by the National Institute on Retirement Security.[31]

Examples of Formula Benefit Calculations
The table below is an example of a formula benefit for a general category employee (the majority of WRS members) with different years of service, who is retiring at age 65 with a spouse, age 62. The final average earnings (FAE) used for this example is $4,166. This equates to $50,000 annually for the individual's 3 highest years of earnings. The individual began employment after 1999.

Years of Service	FAE	Formula [32] Factor	Age Reduction Factor	Monthly Benefit	Annual Benefit
15	$4,166	.016	1.00	$872.86	$10,474.32
20	$4,166	.016	1.00	$1,163.81	$13,965.77
25	$4,166	.016	1.00	$1,454.77	$17,457.21
30	$4,166	.016	1.00	$1,745.72	$20,948.65
35	$4,166	.016	1.00	$2,036.67	$24,440.09

[30] Years of service is not used in the money purchase calculation, however, contributions and interest accumulate over the course of an employee's career.
[31] *"Lessons from Well-Funded Public Pensions: An Analysis of Plans that Weathered the Financial Storm,"* NIRS. 2011.
[32] Based on employment category. General category employees have a formula factor of for service performed after 1999 of 1.6%. Service before 2000 has a formula factor of 1.765% applied.

For the individuals who began receiving a formula annuity in 2010 the average FAE at the time of retirement was $4,874, the average age was 61, and the average years of creditable service was 16. The average annual benefit was $24,224. As with the money purchase benefit, the majority of individuals who retired in 2010 who were not yet eligible for Social Security benefit (under age 62) took an accelerated benefit which gives them a projected Social Security amount until age 62 at which point their WRS annuity is reduced by the amount of their estimated Social Security benefit amount. This accounts for a higher average initial retirement benefit, but is actuarially constructed to provide a neutral cost to the system with the reduction of WRS benefits at age 62.

For most employees, the amount available to a participant from a formula benefit annuity cannot exceed 70% of the participant's FAE. However, for protective category employees (e.g. police and fire fighters), the formula annuity cannot exceed 65% for those covered by Social Security, or 85% for those not covered by Social Security.

Income Replacement for WRS Members

An income replacement ratio is a person's gross income after retirement, divided by his or her gross income before retirement. An adequate income replacement is a ratio that maintains the pre-retirement standard of living after retirement. Social Security replaces a larger portion of pre-retirement income at lower wage levels. However, the needs of each person vary greatly from individual to individual.

A study by Aon Consulting and Georgia State University[33] suggests that for a wage earner who retires at 65 with a spouse age 62, and makes $50,000 annually, the recommended replacement ratio from employer sources and Social Security is 81%. The study further notes that the lower the pre-retirement income the higher the income replacement ratio needs to be to maintain the same standard of living. When Social Security benefits are combined with a WRS pension, a typical WRS career public employee retiring with 30 years of service can expect an income of about 60% to 85% of his or her previous gross earnings.[34]

For the example WRS member in the above WRS benefit calculations, the approximate Social Security monthly benefit is $1,261[35] which, when combined with the WRS benefit, provides for a total income replacement ratio of 72% for a 30-year career WRS employee.[36] The ratio varies for each WRS member due to earnings history, employment history, benefit option chosen, and individual experience of each WRS member.

WRS: Sharing Investment Risk and Reward

The "risk sharing" nature of the WRS, which is fairly unique among public employee pension systems, has helped keep WRS funding relatively stable and capable of paying retirement benefit promises. Participants benefit from positive investment returns and share the risk of negative investment returns. Taxpayers do not bear all of the risk of the WRS. For example, retirees have had their pensions reduced by over $3 billion in the past several years.

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[33] "Replacement Ratio Study," Aon Consulting and Georgia State University, 2008.
[34] Zimmerman, A. "Wisconsin Retirement System," Informational Paper 84. Wisconsin Legislative Fiscal Bureau, 2011.
[35] Projected estimate calculated with the Social Security Administration's Online Quick Calculator, ssa.gov.
[36] WRS member with an FAE of $4,166, 30 years of service, age 65, spouse age 62, all service after 1999, and selected the 100% continued to named survivor with 180 payments guaranteed option.

Changes in employer and employee contribution rates, for example, are linked to trust fund investment performance. In essence, when returns are high, contribution rates can be decreased; when low, rates may have to be increased. Rate changes are determined each year and are effective the following January. The table below shows the relationship between Core Fund investment returns and ETF effective rates and ETF annuity adjustments.

Year	SWIB Investment Return	ETF Effective Rate	ETF Annuity Adjustment
1986	14.5%	12.7%	7.6%
1987	2.2%	14.0%	6.7%
1988	14.4%	10.2%	4.1%
1989	19.2%	18.1%	11.3%
1990	-1.5%	8.6%	3.6%
1991	20.4%	12.1%	6.3%
1992	9.7%	10.2%	4.4%
1993	15.0%	11.0%	4.9%
1994	-0.6%	7.7%	2.8%
1995	23.1%	11.3%	5.6%
1996	14.4%	12.5%	6.6%
1997	17.2%	12.8%	7.7%
1998	14.6%	13.1%	7.2%
1999	15.7%	24.1%	17.1%
2000	-0.8%	10.9%	5.7%
2001	-2.3%	8.4%	3.3%
2002	-8.8%	5.0%	0.0%
2003	24.2%	7.4%	1.4%
2004	12.8%	8.5%	2.6%
2005	8.5%	6.5%	0.8%
2006	15.8%	9.8%	3.0%
2007	8.8%	13.1%	6.6%
2008	-26.2%	3.3%	-2.1%
2009	22.4%	4.2%	-1.3%
2010	12.3%	4.8%	-1.2%
2011	1.4%	1.5%	-7.0%

Note that despite three consecutive years of losses from 2000 to 2002, ETF subsequently provided positive Core effective rates (applied to money purchase account balances), increased Core annuities, and changes in contribution rates were slight.

WRS annuity adjustments are linked to trust fund investment performance as well. The WRS, by law, does not guarantee post-retirement cost-of-living adjustments (COLAs), a strategy frequently used by other public retirement plans for inflation protection. WRS annuity increases are solely dependent on WRS trust fund investment performance. When there is a shortfall in the annuity reserve, previously-

granted WRS annuity increases must be recouped from retirees who previously received them. Conversely, when there is an excess in the annuity reserve, increases can be provided to all.[37] WRS annuities were reduced in 2012 for the fourth year in a row.[38] Investment returns are smoothed over a five-year period, so it is likely that there will be negative adjustments to annuities in 2013, as the remaining losses from 2008 investment returns are phased in.

Pension Reductions (in millions)

Year	Present Value
2008	$753.4
2009	$416.9
2010	$350.1
2011	$1,666.8
Total Reductions	**$3,187.2**

Generally speaking, cost concerns for traditional DB plans have not focused on contribution rates, but more on liabilities that exceed assets. This is a problem for a traditional DB plan that does not make actuarially required contributions. However, in the case of the WRS, the cost concern related to plan liabilities is much smaller than those faced by a traditional DB plan. The risk sharing and the priority of making the required contributions mitigate the liabilities for taxpayers. WRS members bear approximately 75% of the risk of the Core Fund.[39] Taxpayers bear approximately 25% of the risk of the Core Fund (see Appendix B). For the Variable Fund, WRS members assume 100% of the risk.

WRS Annuities

In 2010, ETF paid more than $3.9 billion to 160,160 retired persons, disabled retirees, and beneficiaries of WRS participants. In addition:

- The average annual pension paid was approximately $23,800;
- The median annual pension paid was $20,880;
- 86% of benefit recipients have a Wisconsin address; and
- The average age of a WRS participant at retirement in 2010 was 60.6 years.

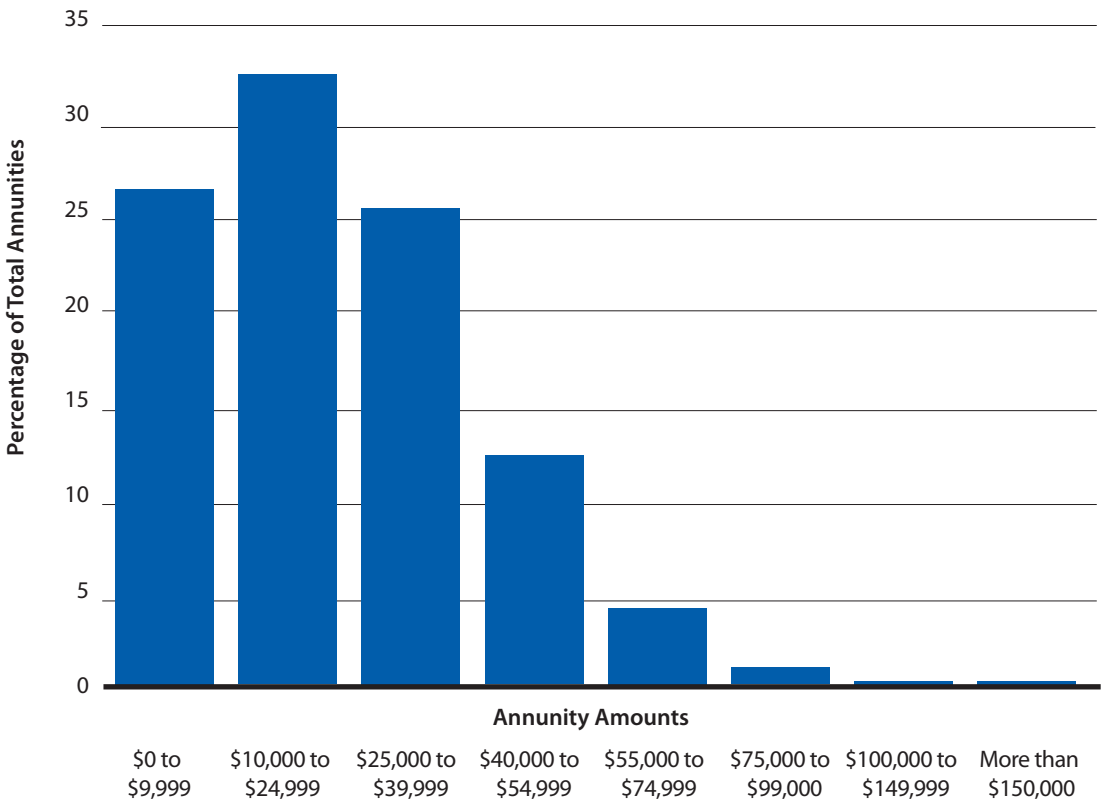
The table and graph on the next page show the amount of annuities in number and percentage by the annual amounts paid in 2010.

[37] Surpluses in the annuity reserve account can develop due to several factors. These include: (1) investment earnings in the annuity reserve above the assumed rate; (2) earnings generated by carryover surpluses from the previous year (3) gains from mortality experience (reduced life expectancy); and (4) windfall gains from changes in actuarial assumptions governing the operation of the retirement system.

[38] In the WRS, post-retirement annuity adjustments are authorized under s. 40.27(2) and s. 40.28(2) of the Wisconsin Statutes. These adjustments represent the payment to retirees of investment earnings in the Core Fund and Variable Fund that exceed an assumed annual rate of growth.

[39] Data and analysis on risk sharing of Trust Funds provided by the State of Wisconsin Investment Board, 2012.

2010 Annuities by Amount and Corresponding Percentage of Recipients



In most cases, WRS retirement annuities are subject to state income tax liability, depending on the date the annuity began. In contrast, 18 states either do not tax retiree income or are in the process of phasing out taxes on retiree income.[40] In calendar year 2010, ETF withheld over $9.2 million in Wisconsin income tax and almost $392.9 million in federal income tax on behalf of WRS benefit recipients.

WRS Administrative Costs

ETF administers the WRS and other benefit programs. ETF's administrative expenses for fiscal year 2011 were $27,474,300.[41] Administrative costs are financed by a separate appropriation and are allocated to the benefit plans in accordance with Wis. Stat. § 40.04. The sources of funds for this appropriation are investment earnings and third-party reimbursements received from the various programs administered by ETF. The State of Wisconsin Investment Board incurs expenses related to investing the trust funds. As authorized by Wis. Stat. § 25.187 (2), these costs are charged directly to the investment income of each fund. State general purpose revenue raised via taxes collected from Wisconsin citizens does not contribute directly to the administration of the WRS.[42]

[40] Kiplinger, 2012.
[41] This figure does not include third-party administration, investment, and benefit costs.
[42] ETF and SWIB budgets are not funded through general purpose tax revenue.

Administration of the WRS has proven to be very cost efficient. According to a recent public pension fund administration study:

- Annual per-member administrative expenses associated with WRS retirement and disability programs was $51 per member; the median per-member cost of peer systems was $79; and
- ETF employs one full-time equivalent staff person per 2,100 members, compared to the peer system median of one per 1,500 members.[43]

Long-Term Financial Stability

A 2011 National Institute for Retirement Security (NIRS) study identifies common elements of public sector DB pension plans that remained well funded despite two severe, recent economic downturns:

1. Employer contributions equal to the actuarially required contribution;
2. Employee contributions to help share in the cost of the plan;
3. Benefit improvements such as multiplier increases that are actuarially valued before adoption, and properly funded upon adoption;
4. Cost of living adjustments (COLA) that are granted responsibly. Examples: an ad-hoc COLA that is amortized quickly; an automatic COLA that is capped at a modest level;
5. Anti-spiking measures that ensure actuarial integrity and transparency in pension benefit determination;[44] and
6. Economic actuarial assumptions, including both the discount rate and inflation rate, that can reasonably be expected to be achieved over the long term.

The WRS contains all of these best practices, with an annuity adjustment mechanism that is more responsive to investment performance than an automatic COLA. The best practices incorporated in the WRS appear to have significantly contributed to the Pew Center on the States finding that the State of Wisconsin is the only state in nation that has a 100% funding status in fiscal year 2010.[45]

The Correlation between State Credit Rating and Public Retirement Plan Status

A state credit rating is a calculation that is used to represent the specific level of risk that the state brings to transactions. It represents an evaluation of a state's ability to repay obligations or its likelihood of not defaulting. A lower credit rating usually results in less favorable terms or rates for the state in borrowing money. Many aspects are used to assess the credit rating of each state. Usually, the unfunded liabilities of the state's retirement plan and the state's overall budget deficits are major factors in determining those credit ratings.[46] Currently, the State of Wisconsin enjoys a credit rating of AA by Standard & Poor's. The WRS' fully funded status is a positive asset in the calculation of the State of Wisconsin's credit rating.

WRS Economic Impact Analysis

Benefits paid by the WRS support a significant amount of economic activity in Wisconsin. Pension benefits received by retirees are often spent in the local community. This spending ripples through the economy, as one person's spending becomes another person's income, creating a multiplier effect.

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[43] "Defined Benefit Benchmarking Analysis." Fiscal Year 2011, CEM Benchmarking, Inc.

[44] The WRS has anti-spiking measures in the WRS formula calculation which averages the 3 highest years of earnings. The formula calculation of the WRS retirement benefit is consistent with this NIRS's standard. Additionally, the WRS has a money purchase calculation component.

[45] The Pew Center on the States, *The Widening Gap Update,* June 2012.

[46] *Moody's to Factor Pension Gaps in States' Ratings, 2011.*

Expenditures made by Wisconsin state and local government retirees provide a steady economic stimulus to Wisconsin communities and the state economy. In 2010, 134,497 Wisconsin residents received a total of $3.4 billion in benefits from the WRS. According to data analysis conducted by the National Institute on Retirement Security those expenditures supported 35,086 jobs that paid $1.3 billion in wages and salaries. To put these employment impacts in perspective, in 2010 Wisconsin's unemployment rate was 8.5%. The fact that WRS pension expenditures supported 35,086 jobs is significant, as it represents 1.6 percentage points in Wisconsin's labor force.

The benefits provided are also a significant source of tax revenue for Wisconsin state and local governments. Expenditures from WRS payments supported a total of $891.8 million in revenue to federal, state, and local governments. Taxes paid by retirees and beneficiaries directly out of pension payments totaled $347.2 million. Taxes attributable to direct, indirect and induced impacts accounted for $544.6 million in tax revenue.

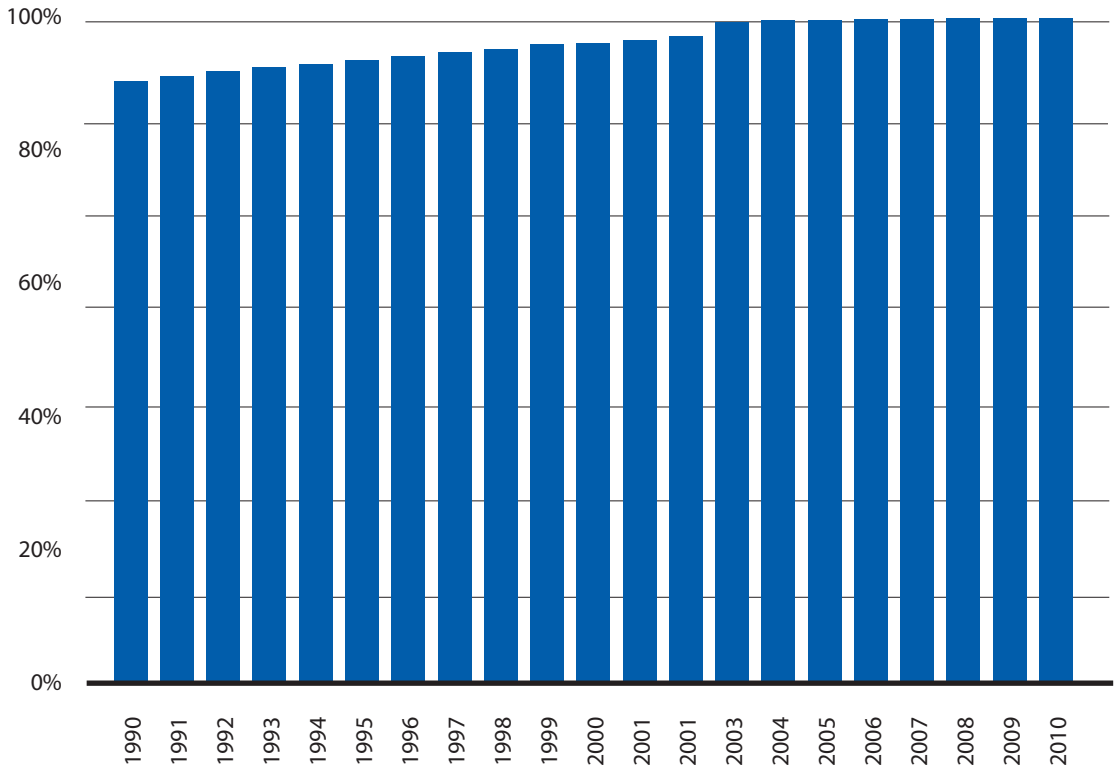
Section 4: Actuarial Analysis: Structure of the Wisconsin Retirement System

Editor's note: All content in Section 4 was supplied by Gabriel, Roeder, Smith & Company, consulting actuary of the Employee Trust Funds Board and the Department of Employee Trust Funds.

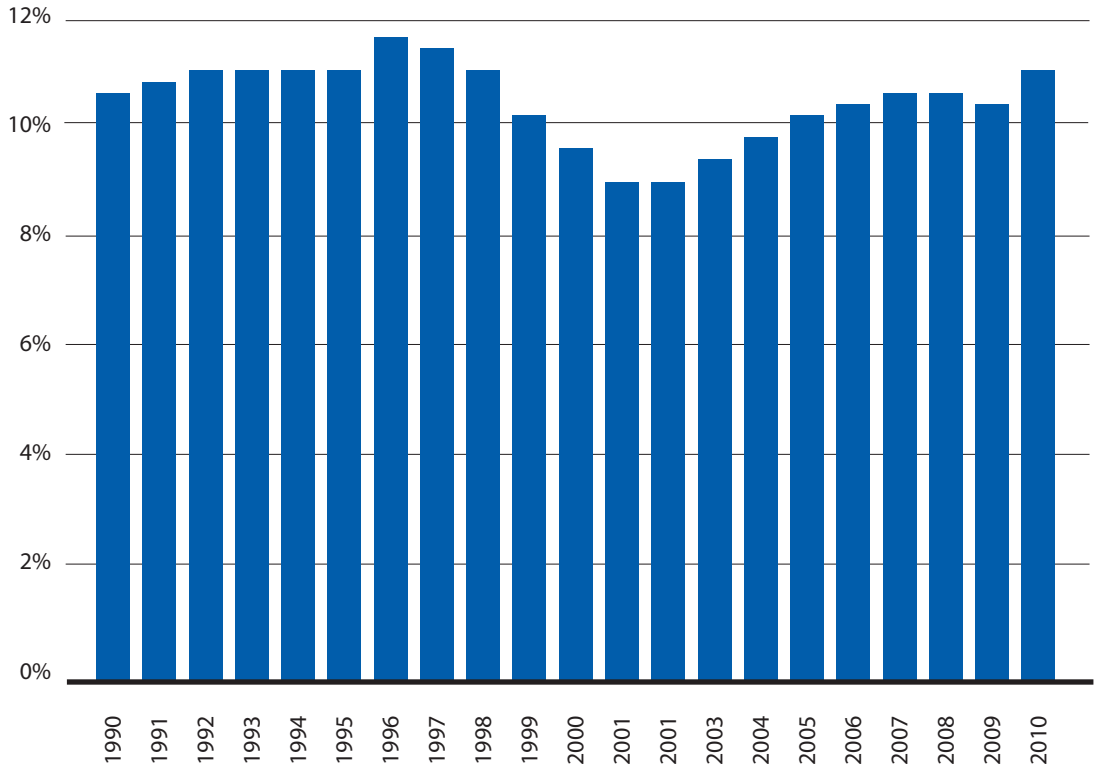
GRS Analysis - Current State of the WRS Plan

Over the past 20 years, the WRS DB plan has been well funded and has experienced stable normal costs. The charts below show the funded status and the contribution rates for the last 20 years. Over that period, the funded status of WRS remained above 90% and has been nearly 100% since 2004. Moreover, the normal cost contribution rate for general employees has ranged between 10% and 12% of covered payroll over the last 20 years, and dipped below 10% in the late 1990s and early 2000s.
The chart above shows the total normal cost contribution rate, which includes employer contributions, participant contributions, and the benefit adjustment contribution. In many cases, the employer chose to pay all three contributions. However, the amounts designated as required participant contributions were assigned to employee accounts. As such they were refundable upon termination of employment, and affected the benefit known as the "money purchase minimum."

WRS Funded Status (All Participants)



WRS Normal Cost Contribution Rate (General and Teachers)



In the 1990s asset returns averaged 10% to 15% per year, followed by the decade from 2000 to 2010 when returns averaged 0% to 5% per year. Many retirement systems experienced funding ratios of 120% to 140% in the 1990s followed by funding ratios of 60% to 70% by the end of 2010. As a result, these systems experienced contribution rates that doubled or even tripled over the last 10 years. By comparison, WRS' experience has been very stable with regard to both funding status and contributions levels. The actuarial cost method of determining contribution levels and future liabilities is a major factor in the stability of the funding and contribution levels of the WRS. The cost-sharing and risk-sharing features in the WRS including the post-retirement dividend adjustments as discussed earlier in this study also contribute this stability.

Recent Plan Changes. Provisions of 2011 Wisconsin Act 32 made changes to the WRS that resulted in greater DB benefit cost-sharing with employees and certain benefit reductions, including:

- Changing general employee contributions from 5% of salary to 50% of the total normal cost;
- Setting participant normal cost contributions for protective occupation participants to the general participant contribution rate; and
- Reducing the benefit multiplier for executive and elected participants from 2.0% to 1.6%.

The following table shows the approximate contribution levels after implementation of Act 32, based on data as of December 31, 2010. The first actual post-Act 32 rates will be based on the December 31, 2011 valuation results. These numbers will vary as a result of future actuarial valuations.

			Protective Occupation	
	General	Executives & Elected Officials	With Social Security	Without Social Security
Employer Normal Cost	6.15%	6.25%	8.75%	10.95%
Participant Normal Cost	6.15%	6.25%	6.15%	6.15%
Total Normal Cost	12.3%	12.5%	14.9%	17.1%
Unfunded Actuarial Accrued Liability (UAAL)	0.1%	0.0%	0.0%	0.3%
WRS Average Total	**12.4%**	**12.5%**	**14.9%**	**17.4%**

For general employees, Act 32 resulted in an increase in the total normal cost rate and in benefits to be provided to participants. This is because increasing the participant's contributions for total normal cost will increase the money purchase benefits for many participants, as well as the refund of contributions benefit, thereby increasing total costs.[47] However, since the employer has typically paid the participants' normal cost and the benefit adjustment contribution, the employer's net obligation will be reduced in most cases.

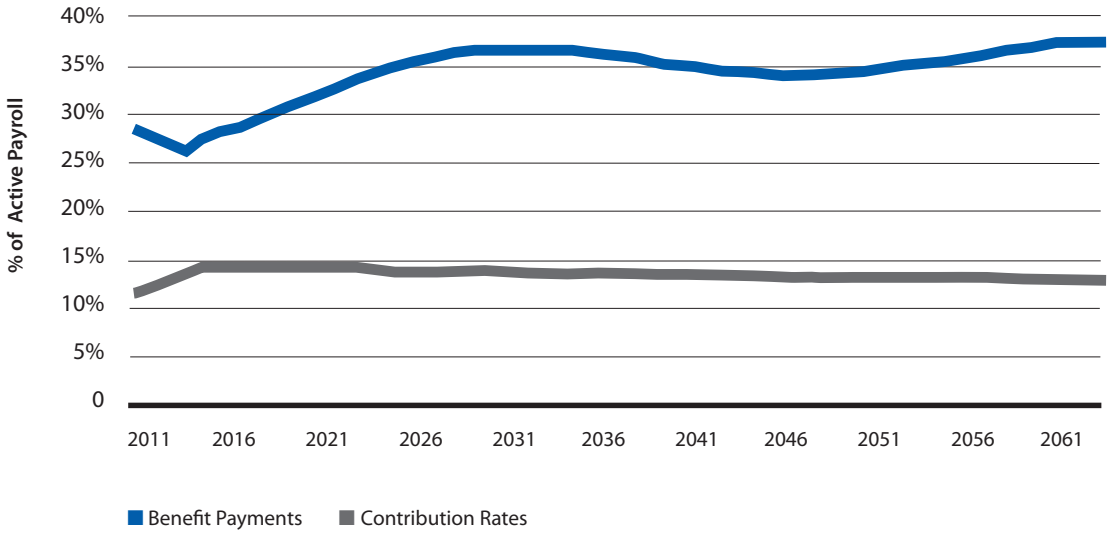
For Executive and Elected Officials, Act 32 resulted in a decrease in the total normal cost rate and in benefits to be provided to participants. This is because the benefit multiplier for future service was decreased from 2.0% to 1.6%. For Protective Occupations, the total normal cost rates remained relatively stable as benefits tend to be related more to the formula benefit than the money purchase benefit.

[47] As provided in Section 40.23(3)(a) of the statutes, the WRS retirement annuity cannot be less than the money purchase annuity. The money purchase annuity, in turn, is based on the participant's accumulated contributions (including accumulated interest) which are then matched by the employer to determine the money purchase benefit when the participant retires. Consequently, an increase in the participant's contributions also results in an increase in the employer's match for the money purchase benefit.

Projected Benefit Payments and Contributions. The chart below shows the expected benefit payments and average total contributions of the current WRS plan as a percentage of payroll over the next 50 years. Contribution rates will see a slight increase initially as the remaining asset losses from 2008 are fully recognized in the actuarial value of assets. The fact that total contributions are less than benefit payouts is to be expected in a mature, well-funded program like the WRS.

Benefit payments as a percentage of payroll decrease initially (due to the phase in of the 2008 asset losses in the post-employment adjustments and the effect on money purchase benefits) and then increase over the projection period to 35% to 40% of payroll. This increase in benefit payouts is an expected result of increased retirements by baby boomers. This does not cause a corresponding increase in WRS costs because the system has included this in its actuarial assumptions and is prefunding the costs.

Expected Benefit Payments and Contributions as a % of Active Payroll



Section 5: Actuarial Analysis: Establishing a Defined Contribution Plan as an Option for Participating Employees

Editor's note: All content in Section 5 was supplied by Gabriel, Roeder, Smith & Company, consulting actuary of the Employee Trust Funds Board and the Department of Employee Trust Funds.

Before examining the potential impact of an optional DC plan on the WRS, it would be useful to briefly discuss the pros and cons of DC plans compared with DB plans. DB and DC plans have different advantages and disadvantages, depending on whether they are viewed from the employer's or employee's perspective.

Pros and Cons of DB Plans for Employers. From the employer's perspective, DB plans help to attract and retain qualified employees by providing benefits that are accrued over the employees' careers and paid as a lifetime benefit. Moreover, in a DB plan, mortality risks are pooled over the covered employees, which significantly lowers the cost of the lifetime benefit compared to the same level of benefit provided through a DC plan.[48] In addition, disability and death benefits can be financed through the DB plan, which eliminates the need to obtain them through a commercial insurer. DB benefits also provide incentives for employees to remain with the employer over their careers, thereby lowering the costs of turnover.

A primary disadvantage of most DB plans is that contributions rates fluctuate with investment market returns, making the employer's DB contributions more volatile than contributions to DC plans. The DB plan may also have unfunded actuarial accrued liabilities, which would need to be amortized in the contribution rate. However, in rising financial markets, investment returns may help to offset employer contributions and lower unfunded liabilities. It should also be noted that WRS' current benefit design includes features, such as the dividend adjustments, that help keep contribution rates stable.

Pros and Cons of DB Plans for Employees. From the employees' perspective, DB plans are generally preferred over DC plans, especially for career employees such as teachers and those providing protective services.[49] The death and disability benefits provided by DB plans are also a strong employment incentive for those in protective occupations. In addition, the lack of exposure to investment risk and mortality risk is seen as an advantage by most employees. The disadvantages of DB plans for employees generally include a longer vesting period and limited portability when compared with a DC plan.

Pros and Cons of DC Plans for Employers. A primary advantage of DC plans for employers is the stability of employer contribution rates. Typically, in DC plans, the employer pays a fixed contribution rate to the employee's account (or matches employee contributions up to a fixed level). In return,

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[48] Gabriel, Roeder, Smith & Company, "The Advantages of Risk Pooling for Financing Retirement Benefits," GRS Insight, July 2006. Also: Beth Almeida and William Fornia, *Better Bang for the Buck: The Economic Efficiencies of Defined Benefit Plans,* National Institute on Retirement Security, August 2009.

[49] NCPERS, "The Top 10 Advantages of Maintaining Defined Benefit Pension Plans," *NCPERS Research Series,* January 2011.

the employee is responsible for selecting investments and taking on the risk that the accumulated contributions and investment earnings will be sufficient to fund lifetime benefits. However, the disadvantage of this arrangement is that the employees' DC accounts may not be sufficient to pay lifetime benefits, or provide an adequate income replacement ratio.

Pros and Cons of DC Plans for Employees. Generally, DC plans have shorter vesting periods and more portable benefits, which may be more attractive to employees who are not planning career employment.[50] In addition, some employees prefer the ability to make and manage their own investments. However, generally, when offered the choice between a DB plan and a DC plan, most governmental employees choose the DB plan, suggesting that most see limited advantages to the DC approach.[51]

The system's current features of shared investment risk and shared funding responsibility between participants and employers provide many of the advantages of a DB plan to the employee and many of the advantages of a DC plan to the employer. The stability that WRS has achieved in the past is projected to continue in the future.

Discussion of Assumptions for Optional DC Plan

Although 2011 Wisconsin Act 32 requires the study of a DC plan option for participating employees, it does not specify the DC plan's provisions. Consequently, to study the impact of a DC plan option, a variety of assumptions must be made, including:

- **One-time Election** – Since the DC plan is optional, we assume that there would be a one-time, irrevocable election to enter the DC plan. However, in our experience, despite the best of intentions, there may be pressure for multiple elections. As market returns rise and fall, there is often a strong push from both employee groups and employer groups to allow participants to change their election during adverse times. In the WRS, this effect has been seen in the operation of the variable program. This can result in a revolving door approach which chases the tail of investment markets and results in lower overall returns.
- **13% DC Election** – Based on the experience of other states, it can be assumed that approximately 13% of current and future employees elect to enter the DC plan. This is a fairly low rate and it could be difficult to justify the added expense of a DC plan if fewer employees participate.[52] We note that there is a wide variety of employee groups within the WRS.
- **25% and 50% DC Election** – To test the sensitivity of the 13% assumption, we added DC Election scenarios of 25% and 50% to the projections. However, if a very high percentage of future employees elect the DC plan, the current DB plan would essentially be a closed plan and likely be subject to shorter amortization periods, lower cash flows from contributions, lower investment returns, and higher overall costs.
- **Administered by Third Party** – Having both a DB program investments managed by SWIB and DC investments and benefits administered by a Third Party will add additional cost and complexity to the WRS. The amount of cost will vary and is discussed in greater detail in the following section.

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[50] However, while employee contributions to DC plans vest immediately, employer contributions to governmental DC plans often require vesting periods ranging from 1 to 5 years.
[51] NCPERS, "The Top 10 Advantages of Maintaining Defined Benefit Pension Plans," NCPERS Research Series, January 2011.
[52] For example, as a result of very low employee participation, at least one state retirement system still has not recovered its initial costs of providing an optional DC plan, even though the plan was established in 2002.

Comparison of Benefit Adequacy

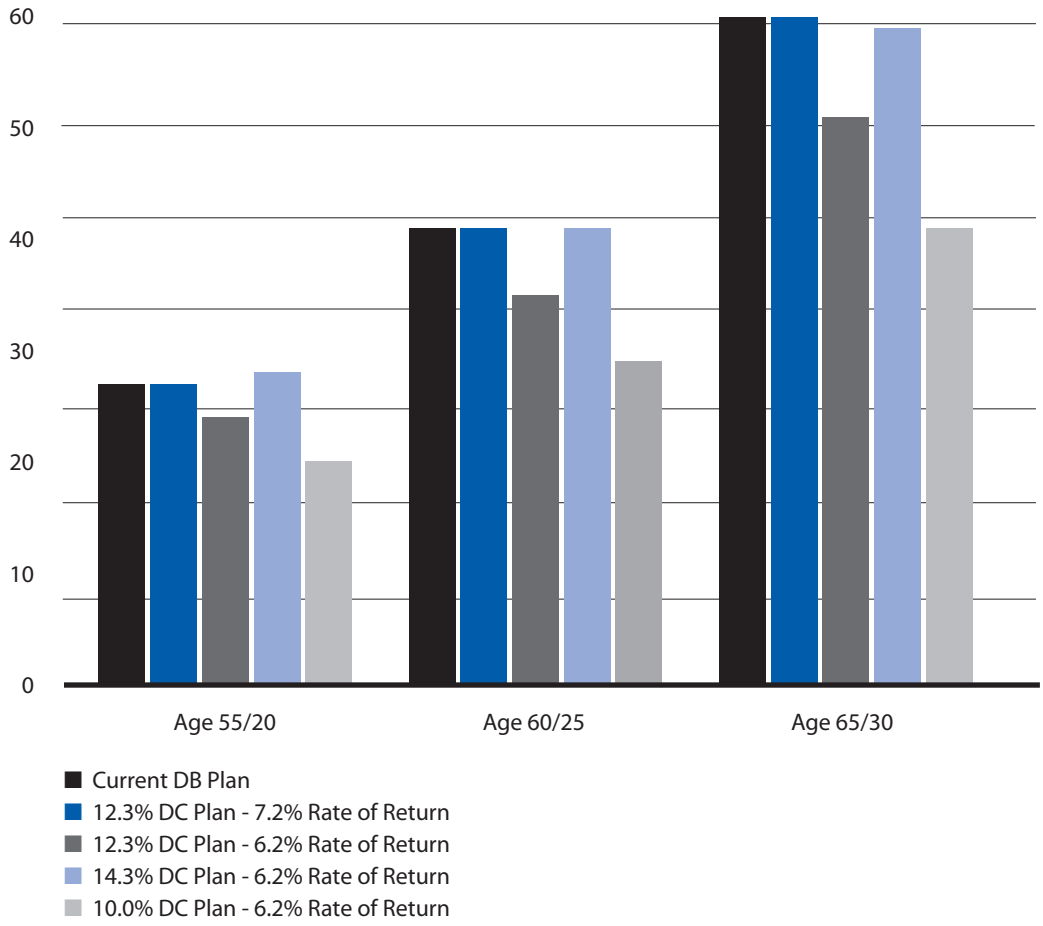
Comparing the benefit adequacy of a DB plan to a DC plan is difficult because the nature of the plans is very different. In a DB plan, the benefit is typically defined as a set monthly amount for the life of a participant. In a DC plan, the participant typically receives the lump sum value of accumulated contributions and interest, which must then sustain the participant over his or her retired lifetime. In order to compare the DC benefit to the DB benefit, we have converted the DC benefit into an annuity based upon the actuarial assumptions in the WRS.

- **Benefit 1 - Current Defined Benefit** – This is the benefit that a participant would receive under the current DB plan, i.e., the greater of the formula benefit (1.6% of pay times years of service) and the money purchase benefit (accumulated participant contributions which grow with interest, are matched by the employer, and converted to an annuity at retirement).
- **Benefit 2 - 12.3% DC Plan (7.2% Rate of Return)** – This is the benefit determined by accumulating participant and employer contributions totaling 12.3% of pay per year (i.e., the projected contributions to the DB plan after Act 32) and applying an assumed earnings rate of 7.2% per year (i.e., the current assumed interest rate in the DB plan) and then converting the balance at retirement to an annuity using the current actuarial assumptions.
- **Benefit 3 - 12.3% DC Plan (6.2% Rate of Return)** – Since participants typically earn less on their investments in a DC plan than a professionally managed DB plan as previously discussed, this benefit is determined in the same way as Benefit 2, but assumes a 6.2% rate of return instead of 7.2%. According to a recent Towers Watson study, DB plans outperformed DC plans by an average of one percentage point (i.e., 100 basis points) annually between 1995 and 2008.[53]
- **Benefit 4 - 14.3% DC Plan (6.2% Rate of Return)** – This benefit is determined in the same way as Benefit 3 above, but assumes a higher contribution rate in order to achieve a benefit approximately equal to the DB plan benefit.
- **Benefit 5 – 10.0% DC Plan (6.2% Rate of Return)** – This benefit is determined in the same way as Benefit 4 above, but assumes a lower contribution rate.

The annual benefit under these different benefit provisions were then applied to general employees and teachers with different age and service combinations to determine their initial annual benefits as a percent of final pay. The results are shown in the chart on the next page.

[53] Towers Watson, *Defined Benefit vs. 401(k) Investment Returns: The 2006-2008 Update*, December 2009.

Comparison of Initial Annual Benefit as a % of Pay (General & Teachers*)



* Executive and Elected would also have similar benefits to General participants.

Observations

It is interesting to note that the first and second bar in each age range in the chart above appear identical. That is because in the DB plan, the money purchase benefit is based on two times the value of employee contributions (6.15% x 2 = 12.3%) and in the DC plan, the account balance is based on total contributions of 12.3% of pay. That appearance is, however, a mathematical oddity. In a real situation, the bars would not be identical, because in the DB plan case, the value at retirement can be liquidated in an orderly manner over the retirees' future lifetime. In the DC plan case, the retiree would most likely elect to liquidate the account over a period longer than the life expectancy, in order to reduce the probability of running out of money. Different age and service combinations would produce different results as sometimes the formula benefit is larger than the money purchase benefit.

The third bar in each age range represents a more realistic value of the DC benefit based on a lower investment return (6.2%) than is expected under the DB plan (7.2%). (Although, once again, it

probably overestimates what the participant could actually achieve, because the participant would need to liquidate the account over a period longer than life expectancy.) The 6.2% rate of return represents an average rate of return that is 1% lower than the professionally managed DB fund. Moreover, for individuals investing in a DC plan, each person will have a different risk tolerance and the investment results could be much lower on a person by person basis. In order for the initial annual benefit under the DC plan with a 6.2% return to be roughly the same as the initial current DB benefit, annual contributions would have to increase about 2% to 14.3%. This is shown in the fourth bar in each age range.

In order to draw the above comparisons, we have expressed the value of the DC plan benefit in terms of an annuity as a percentage of pay. For this purpose, we converted the account balance to an annuity using 5% interest (the current assumption for retirees) and mortality based upon the current actuarial assumptions in the DB plan. It should be noted that if a DC plan participant wanted to convert an account balance into an annuity, the current commercial annuity purchase rates would provide for benefits much lower than those shown above. For example, a $100,000 money purchase balance at age 65 in the WRS plan would convert to an annuity of approximately $681 per month ($8,172 per year). Based on current commercial annuity purchase rates, that same $100,000 would only provide an annuity of approximately $579 per month ($6,948 per year) for males and $534 per month ($6,408 per year) for females.

It should also be noted that many employees in DC plans do not annuitize their account balances and so are at risk of outliving their benefits. In the annuity examples above, the expected lifetime of the person receiving the annuity benefit is based on an average expected lifetime (i.e., to age 85). However, about half of the population lives beyond the average expected lifetime and about 10% live to their mid 90s. Consequently, participants in DC plans who do not annuitize their account balances at retirement run a significant risk of outliving their retirement income.

In general, DC plan participants who annuitize their accounts will have lower monthly annuity amounts than DB plan participants because DC plan participants individually bear mortality risk. The WRS pools the risk of not having sufficient funds set aside to cover an annuity for the lifetime of the member. Annuity amounts are generally higher in pooled risk situations, because the risk is distributed -- some retirees die earlier than the average expected lifetime, and others live longer than expected. Because there is no risk pooling feature for individual investors, individual annuity amounts are usually set lower to cover the possibility of living past the average expected lifetime.

It might be possible to provide annuities to participants in the DC plan through the DB plan; however, this would cause the DB plan to take on the annuity mortality and some of the investment risk. Some thought could also be given to setting up a captive insurance company to provide annuity benefits to individuals electing the DC option. This could be complicated, but would not subject the DB plan to additional mortality risk.

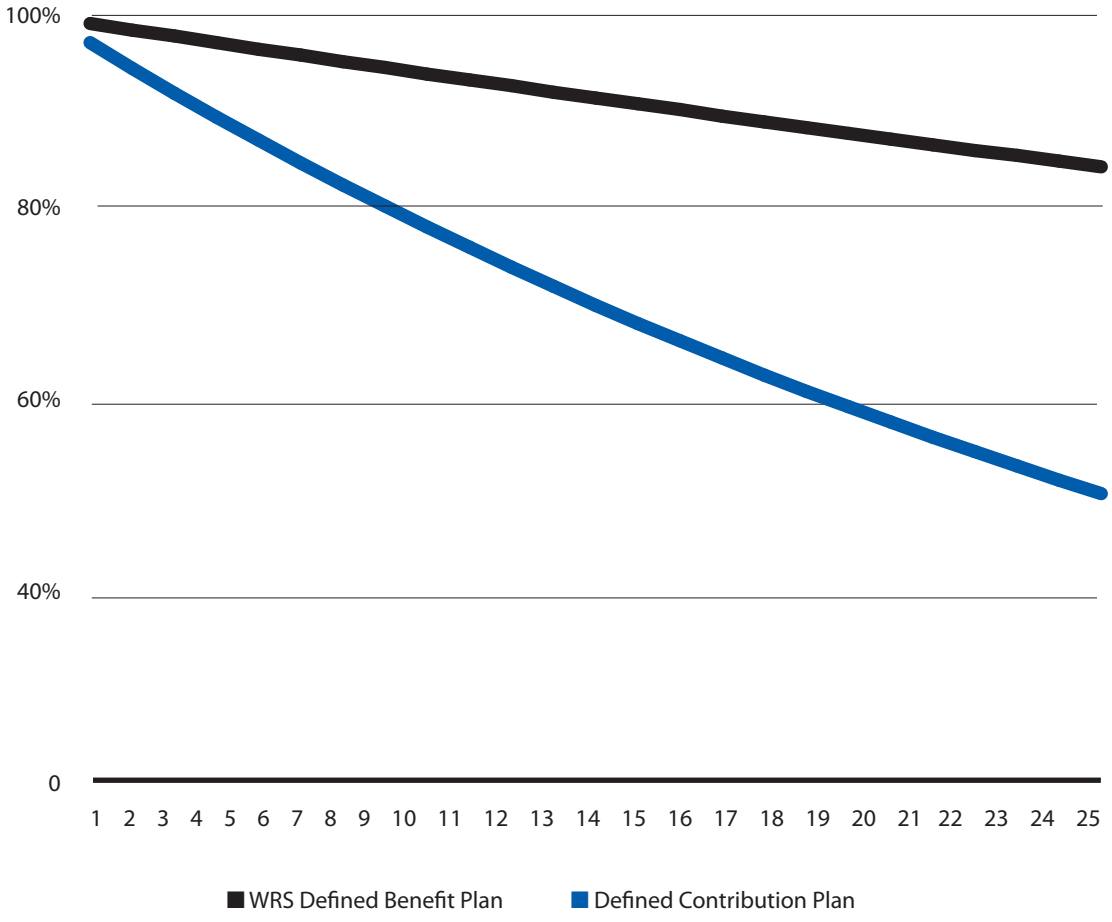
Retired participants in the WRS DB plan also receive a dividend, which provides for some inflation protection after retirement. The dividend is based on the actual return in the Core Fund over an assumed 5% rate of return. Based on the current assumed rate of 7.2%, this results in an expected dividend of approximately 2.1% per year. Over the past 40 years, the dividend has averaged just over 4% per year, while the last 10 years have averaged approximately 0.5% per year. This provides for some inflation protection after retirement.

Generally, under a DC plan, no such inflation protection would be provided. In fact, in a DC plan, individual investors are often advised to adopt more conservative investment strategies after

retirement, making even a 5.0% annual return difficult to achieve for an individual investor in the current economic climate.

The chart below compares the loss of purchasing power of the WRS Defined Benefit with an assumed dividend of 2.1% per year to a Defined Contribution benefit with no inflation protection. This chart illustrates that a participant in a defined contribution plan with no inflation protection would lose approximately half of their purchasing power after 25 years (assuming 2.8% inflation).[54] However, due to the post-retirement dividend feature of the WRS, the purchasing power of a WRS participant would be reduced by only 16% after 25 years.

Loss of Purchase Power over 25 years (assumes 2.8% inflation)

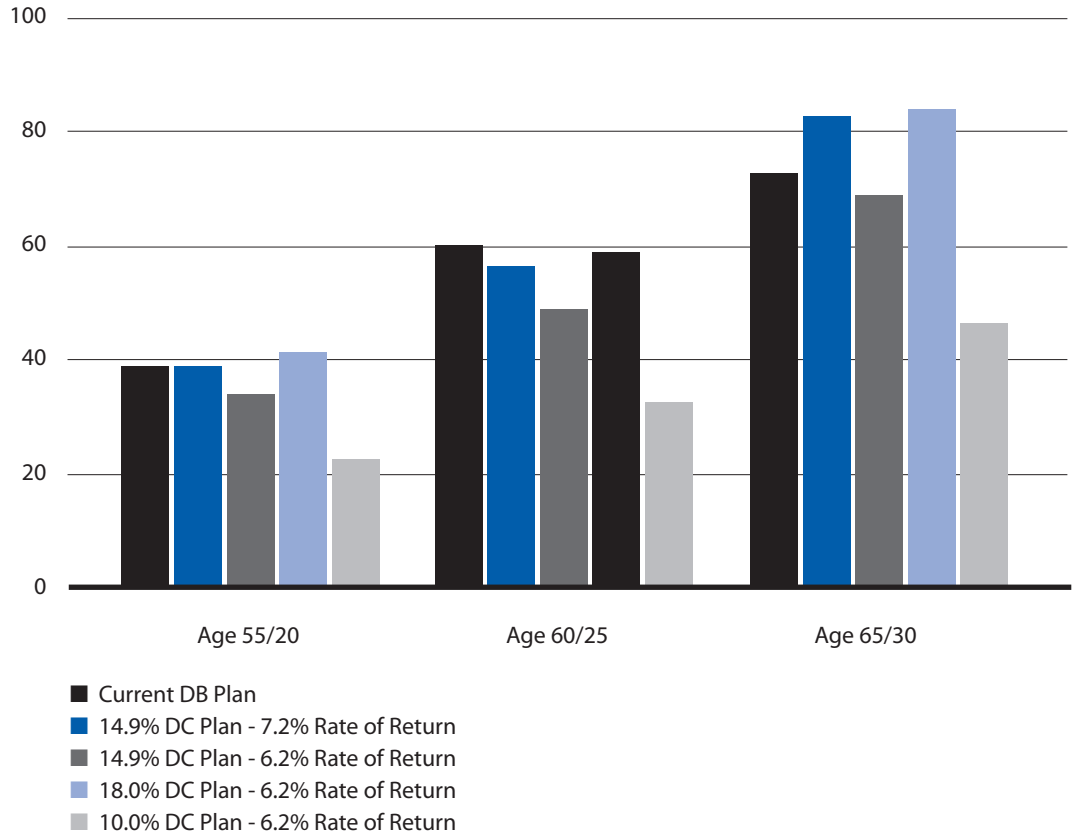


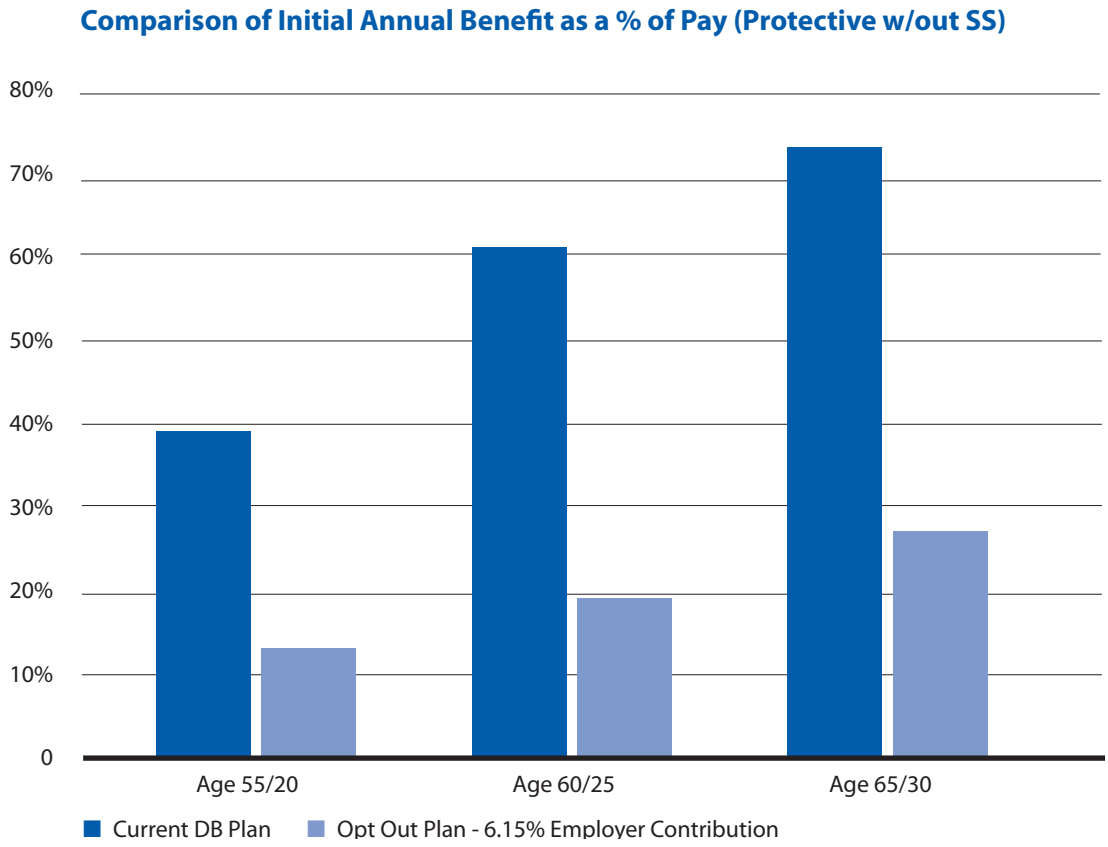
[54] The 2.8% inflation rate is based on the intermediate long-term assumption for growth in the Consumer Price Index as published in the 2012 *Annual Report of the Board of Trustees of the Federal Old-Age and Survivor Insurance and Federal Disability Insurance Trust Funds.*

The charts below show similar analyses of the annual benefits provided by DC plans for protective occupation employees who are and are not covered by Social Security. As with the earlier benefit comparison charts related to general participants and teachers, we have converted the DC benefit into an annuity based on the WRS' actuarial assumptions. The benefits examined include:

- **Benefit 1 – Current Defined Benefit** – The benefit that a protective participant would receive under the current DB plan.
- **Benefit 2 – 14.9% DC Plan (7.2% Rate of Return)** – The benefit determined by accumulating participant and employer contributions totaling 14.9% of pay per year with assumed annual investment earnings at 7.2% and then converting the accumulated balance to an annuity using current actuarial assumptions.
- **Benefit 3 – 14.9% DC Plan (6.2% Rate of Return)** – The same as Benefit 2 except investment earnings are assumed to be 6.2% per year.
- **Benefit 4 – 18% DC Plan (6.2% Rate of Return)** – This benefit assumes an 18% total DC plan contribution rate and 6.2% annual return for protective participants who are covered by Social Security. Note total DC plan contributions of 22% are assumed for protective participants who are not covered by Social Security)
- **Benefit 5 – 10% DC Plan (6.2% Rate of Return)** – The same as Benefit 3 above, but assuming a lower contribution rate.

Comparison of Initial Annual Benefit as a % of Pay (Protective w/SS)





Potential Effects of an Optional DC Plan

Withdrawal of DC Plan Funds Prior to Retirement

Generally speaking, a significant portion of DC plan distributions are not saved for retirement. Distributions that are not used for retirement savings are said to have "leaked" from the nation's retirement savings. Some lump-sum distributions are spent on current consumption, despite the existence of a 10% federal penalty tax (if taken before age 59-1/2) intended to encourage plan participants to save their distribution for retirement. According to Professor Alicia Munnell at the Center for Retirement Research at Boston College, a high percentage of employees in DC plans cash out or spend some or all of their DC accounts when they change jobs, significantly reducing the amounts available to pay retirement benefits.[55] In addition, an article published by the Employee Benefit Research Institute shows that less than 50% of people receiving a recent lump-sum distribution saved any part of their distribution in a tax-favored vehicle (IRA, other employer's plan, etc.).[56]

[55] Alicia H. Munnell and Annika Sunden, "Coming Up Short, The Challenge of 401(k) Plans," (Washington, DC: Brookings Institution Press, 2004), p. 142.
[56] Employee Benefit Research Institute, "More Detail on Lump-Sum Distributions of Workers Who Have Left a Job," Notes, July 2009.

Investment Return Risk

In side-by-side comparisons, individuals making their own investment decisions regarding their DC accounts perform worse than professionals managing DB money. Both benefit consulting firms (i.e., Towers Watson, Vanguard) and academics (i.e., the Center for Retirement Research at Boston College) have confirmed this assertion. When a company maintains both a DB plan and a DC plan with individual investment direction, over long periods the professionally managed DB plans tend to outperform the individually managed DC plans by somewhere around 1% per year. There are at least three factors that contribute to this difference:

- **Fees:** the fees charged on investments in DC plans are often higher than the fees paid to institutional DB money managers;[57]
- **Expertise:** the institutional managers' may have greater discipline and knowledge of the investment markets;[58] and
- **Available investments:** DB plans may make use of asset classes, such as private equity, that are unavailable in most DC plans.

Therefore, it may be overly optimistic to assume that the DC accounts could earn the same average return as the DB plan.

Payment Forms and Risk

Most DC plans make lump-sum distributions available to the participants. Although participants could choose to purchase an annuity from an insurance company, in practice very few do. As a result, most participants find themselves having to manage a very large amount of money once they retire. This exposes them to risks that they do not face in the traditional DB plan, which pays benefits as an annuity. Other risks include:

- Some participants can run out of money. They may misjudge how much they can spend each year, and as a result they may end up late in life with nothing left but their Social Security benefit.
- In order to avoid the possibility of running out of money, some participants may manage their funds in an ultra-conservative manner—either in the way they invest or in the amount they withdraw each year or both, giving them less to spend each year.
- Throughout the distribution period, they will be investing in "retail" investment funds which carry higher fees than WRS pays.
- Even retirees who are financially astute can become incapacitated by the conditions associated with aging, such as cognitive decline, leaving them unable to manage their funds. Or the more financially capable participant of the marriage may die, leaving the unprepared spouse with investments to manage.

These risks are minimized when plans pay annuities.

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[57] Alicia H. Munnell and M. Soto, "State and Local Pension Plans are Different from Private Plans," Center for Retirement Research, Boston College, 2007. According to this study, asset management fees averaged 25 basis points for DB plans in 2007, compared with 60 to 170 basis points for DC plans, depending on plan size and the mix of investments.

[58] Watson Wyatt Worldwide, *Pension Aspirations and Realizations: A Perspective on Yesterday, Today, and Tomorrow,* March 2007. According to this study, many DC plan participants "don't start saving soon enough, don't save enough, and don't follow sound investment principles in managing their retirement assets." The study also found that assets are more effectively managed in DB plans, in part because plan administrators work with consultants and professional asset managers to set and implement investment goals.

Risk from the Employer's Perspective

If investments perform poorly, the participants receive less, but the employers do not pay more. Under a DC plan, there is supposedly no risk that contribution rates will have to increase in the future because of adverse experience. In reality, an extended period of low returns would likely result in pressure for increased contributions to the DC plan. In the DB plan, as we have seen, a decade of poor investment results can trigger the need for higher contribution rates. By shifting to a DC plan, the State could begin diminishing this risk. However, this elimination of risk comes at a substantial cost.

Death & Disability Benefits

DC plan participants would receive smaller death and disability benefits. The value of the death and disability benefits in the DB plan would in most cases be much larger than the participant's account balance. Therefore, if employers want to continue to provide these benefits, they will have to secure additional insurance coverage. Some retirement systems that have offered a DC plan, have offered employees the current death and disability coverage that exists in the current DB plan. The current cost of death and disability benefits within the DB plan is approximately 0.65% of payroll. This cost would then need to be added on to the potential DC cost if this option were considered.

Purchasing Power Protection

Generally, under a DC plan, there is no mechanism to provide participants with protection against inflation. Therefore, future participants will be responsible for dealing with the erosion of their purchasing power during retirement. Even with the recent downturn in investment markets, the current WRS structure has provided for average annual dividends of close to 4.0% over the last 30 years and approximately 0.5% over the last 10 years.

Distribution of Benefits

Compared with DC plans, DB plans generally provide larger benefits to career employees, and they provide smaller benefits to employees who terminate after working just a few years.

Diversification of Retirement Income

The optional DC approach would result in an either/or decision for participants. Traditionally, diversification of retirement income from multiple sources (employer defined benefit, social security, participant personal savings, or defined contribution plan) has provided a solid foundation for retirement security. By not having all the "eggs in one basket", participants are protected through diversification. Participants electing the DC option (and especially those not covered by social security) would now have fewer sources of retirement income to draw upon. There are other benefit arrangements that could be studied as an alternative to the DC plan approach. However, they were not included in the Act 32 study mandate and so were outside of the project's scope. These arrangements could be examined in a separate study.

Recruitment and Retention

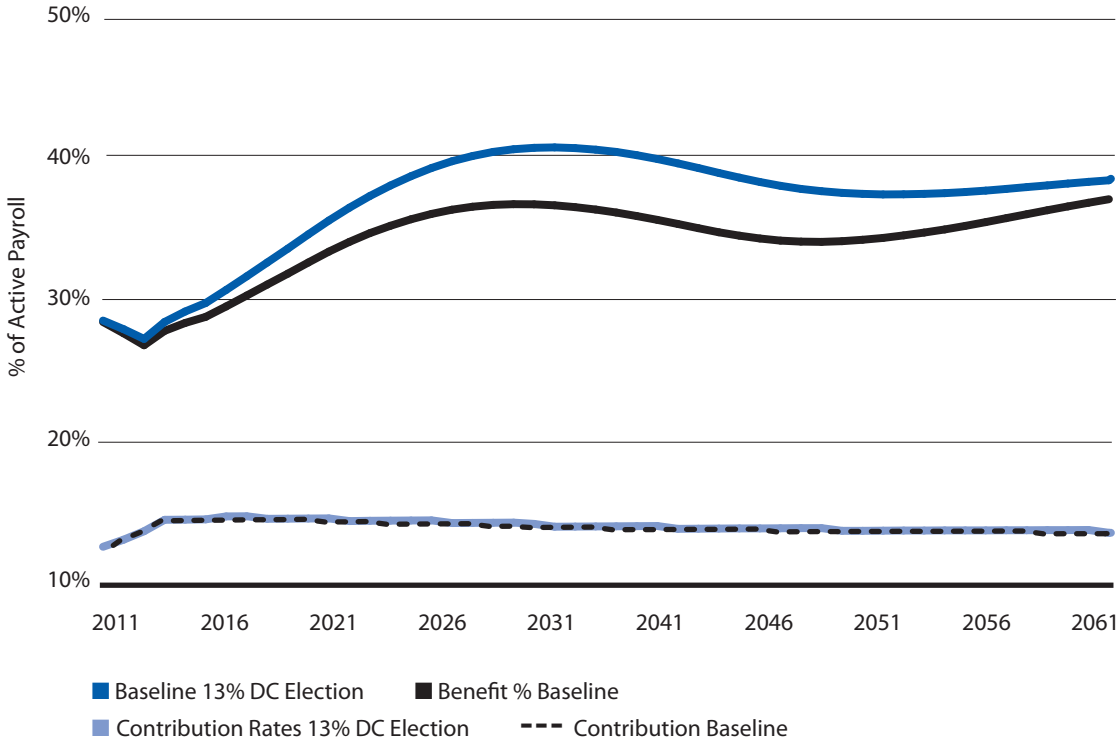
The proposed change may negatively affect recruiting qualified employees, especially teachers and protective occupation employees, since they generally have a strong preference for DB plans. Also, by

its operation, a DB plan encourages retention of employees. Leaving too early or with too little service would mean benefits would not be available until retirement age and that benefit increases based on increases in future pay would be foregone. These factors serve to encourage participants in DB plans to remain with the employer throughout their careers. This would no longer be the case under a DC plan.

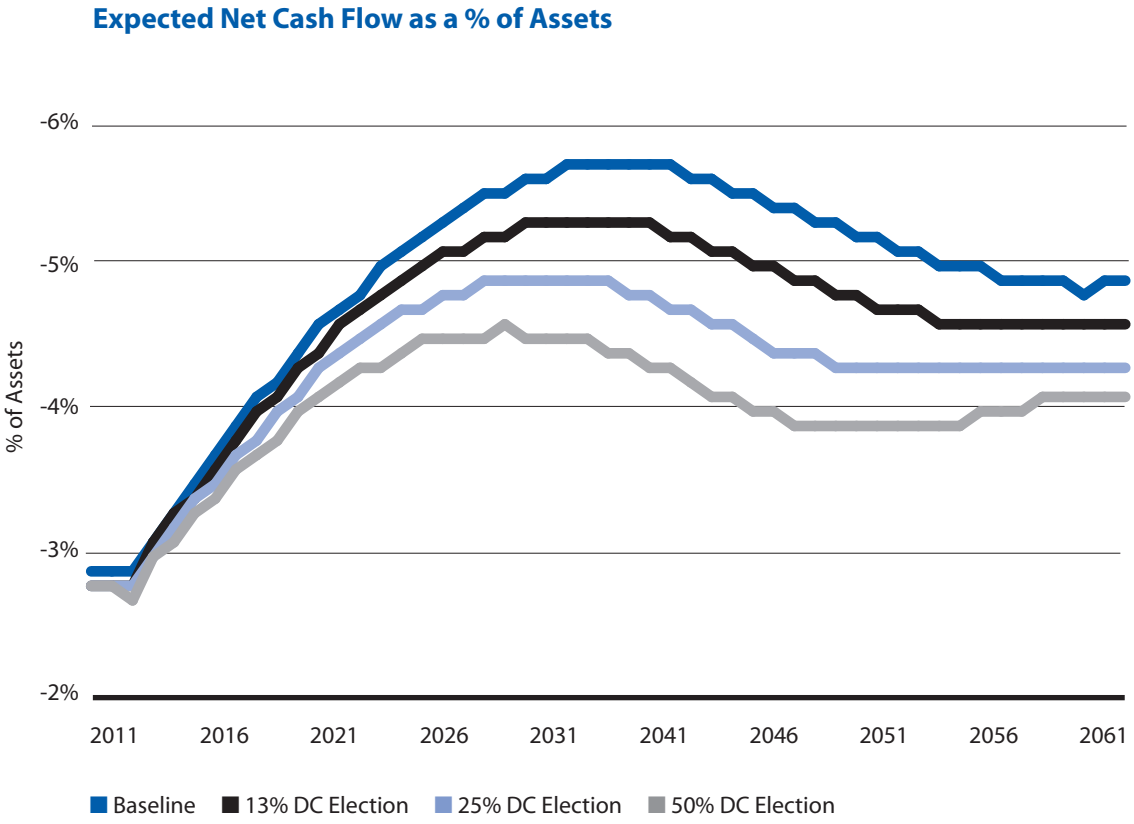
Potential Effects of an Optional DC Plan on the Current WRS Plan

The chart below shows projected benefit payments and contribution rates for the current WRS DB plan assuming 13% of new hires elect the DC plan when compared to the initial baseline projections. The contribution rates remain relatively unchanged and, as a result, the base line contributions and the 13% DC Election contributions overlap in the chart. This is because the WRS is currently very close to 100% funded. The expected benefit payments as a percent of active payroll are higher under the optional DC plan because the total payroll of the DB would be lower.

Expected Benefit Payments and Contributions as % of Active Payroll



As a result of the increase in expected benefit payments versus contributions, the difference between the two (that is, the net cash flow) will grow more negative. While a negative cash flow position is expected in a mature system, a change in the need for liquidity can impact the asset allocation and the proportion of assets that can be placed in equity markets. The next chart shows the expected net cash flow under the current program in comparison to a 13% DC election, a 25% DC election, and a 50% DC Election. We recommend that SWIB review the ability to achieve the current investment return assumption of 7.2% under alternate liquidity scenarios.



For example, if the greater liquidity needs resulted in a 20 basis point fall in the expected return (from 7.2% to 7.0%), the contribution rate would increase by approximately 0.5% of payroll. Additionally, a lower rate of return would also impact the dividend adjustment for both present and future retirees. A 20 basis point drop would decrease the expected dividend adjustment from 2.1% to 1.9% per year.

Administrative Expenses and Timing

To implement the DC plan, the WRS would have to issue an RFP for a manager of the DC plan, allowing vendors several weeks to prepare their proposals. The ETF Board would need to review and grade the proposals. In all probability, vendors would make presentations to the Board. The ETF Board might wish to employ a consultant to assist with the process. Lead time of 12 months or more would be needed to complete the project.

Multiple Benefit Structures

Implementing a DC plan would increase administrative complexity for participating employers because they could have employees under different sets of benefits. This will be much more complicated for school districts, since each class of employees could have a different set of benefits or contributions.

Section 6: Actuarial Analysis: Allowing Employees to Opt Out of Making WRS Contributions and Receive a Money Purchase Benefit

Editor's note: All content in Section 6 was supplied by Gabriel, Roeder, Smith & Company, consulting actuary of the Employee Trust Funds Board and the Department of Employee Trust Funds.

The second part of the 2011 Wisconsin Act 32 study mandate calls for a study of:

> Permitting employees to not make employee required contributions under Section 40.05 of the statutes and limiting retirement benefits for employees who do not make employee required contributions to a money purchase annuity calculated under Section 40.23(3) of the statutes.

However, as we understand the statutes, permitting employees to not make contributions potentially leads to the unintended consequence of eliminating the participating employees' benefit since the employer's contribution to the money purchase benefit is based on a match of the employee's contribution. As provided under Section 40.23(3)(a) (emphasis added):

> Except as provided in par. (b), the initial monthly amount of any retirement annuity in the normal form shall not be less than the money purchase annuity which can be provided by applying the sum of the participant's accumulated additional and required contributions, including interest credited to the accumulations, **plus an amount from the employer accumulation reserve equal to the participant's accumulated required contributions,** less any accumulated contributions to purchase other governmental service under s. 40.25 (7), 2001 stats., or s. 40.285 (2) (b) to fund the annuity in accordance with the actuarial tables in effect on the annuity effective date.

For the purposes of our analysis, we assume that the WRS statute would be amended so that for an Opt-out plan, the employer contribution rates for the money purchase annuity will be set to the employer rates,[59] which are estimated to be:

- General – 6.15%
- Executive and Elected – 6.25%
- Protective with Social Security – 6.15%
- Protective without Social Security – 6.15%

First, we note that these are the current estimated employer and employee contribution rates and that they will change from year to year based on actual experience. For example, the contribution rate for general employees is one half of the total normal cost rate.

[59] Editor's Note: The approximate contribution levels after implementation of Act 32, based on data as of December 31, 2010. The first actual post Act 32 rates will be based on the December 31, 2011 valuation results. These numbers will vary as a result of future actuarial valuations.

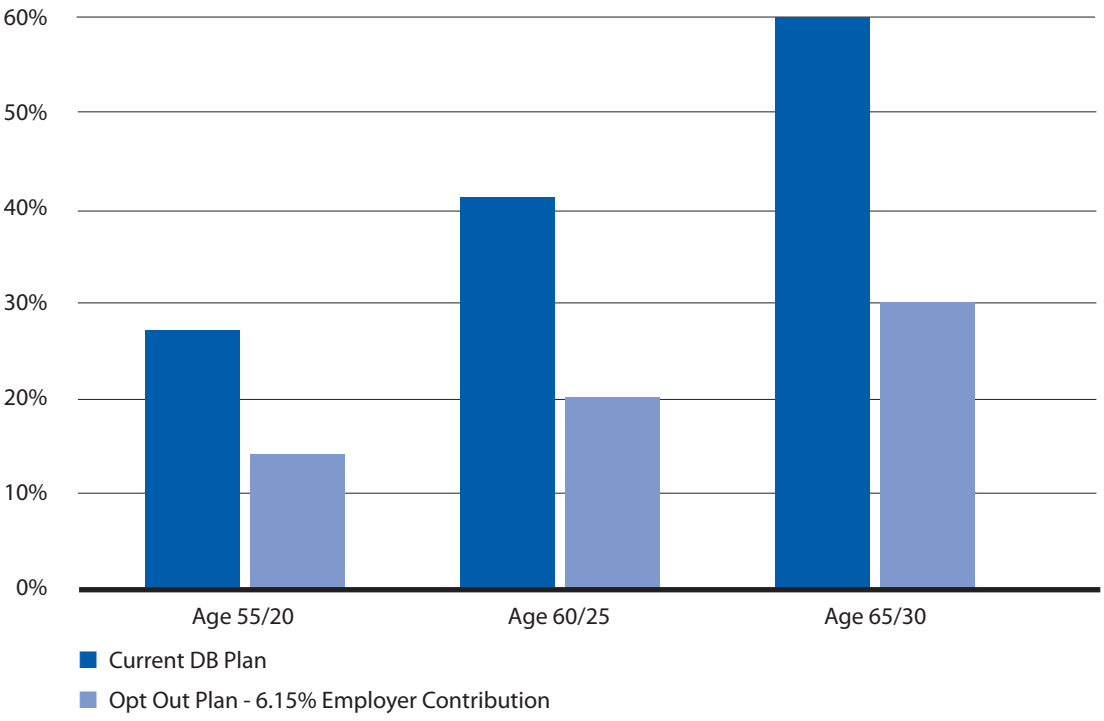
Second, since the benefit would now be based purely on the money purchase benefit and not on the formula benefit, this would essentially be a pure DC plan benefit because the money purchase benefit appears to credit the plan's actual investment earnings rather than a guaranteed rate. We recommend that the WRS seek a legal opinion whether such a benefit could be offered within the WRS, or whether a separate trust would need to be established.

Third, as discussed later in the report, under the Internal Revenue Code's "cash or deferred arrangement" (CODA) rules, the Internal Revenue Service has challenged DB plans that offer employees an election that changes their required contributions rates. We believe this is another issue that should be discussed with legal counsel before proceeding.

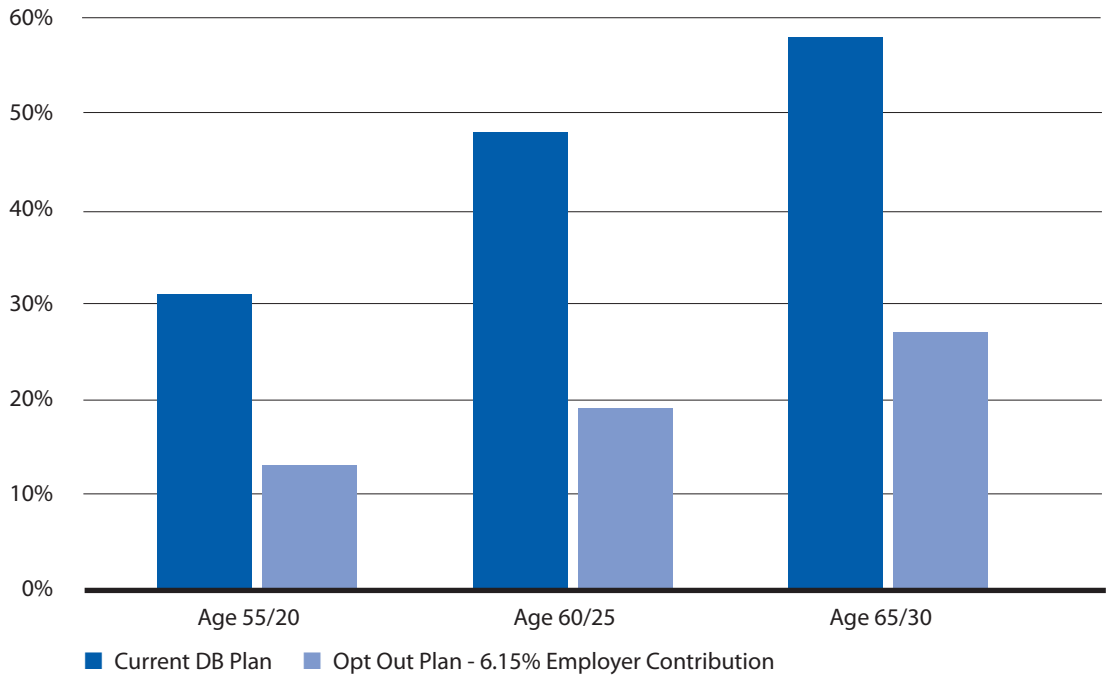
Projections of Retirement Benefit Adequacy

The charts below compare the initial annual benefits in the current DB plan to those estimated for the opt-out plan. In general, the opt-out plan benefits are one half or less than one half of the benefits provided in the current DB plan.

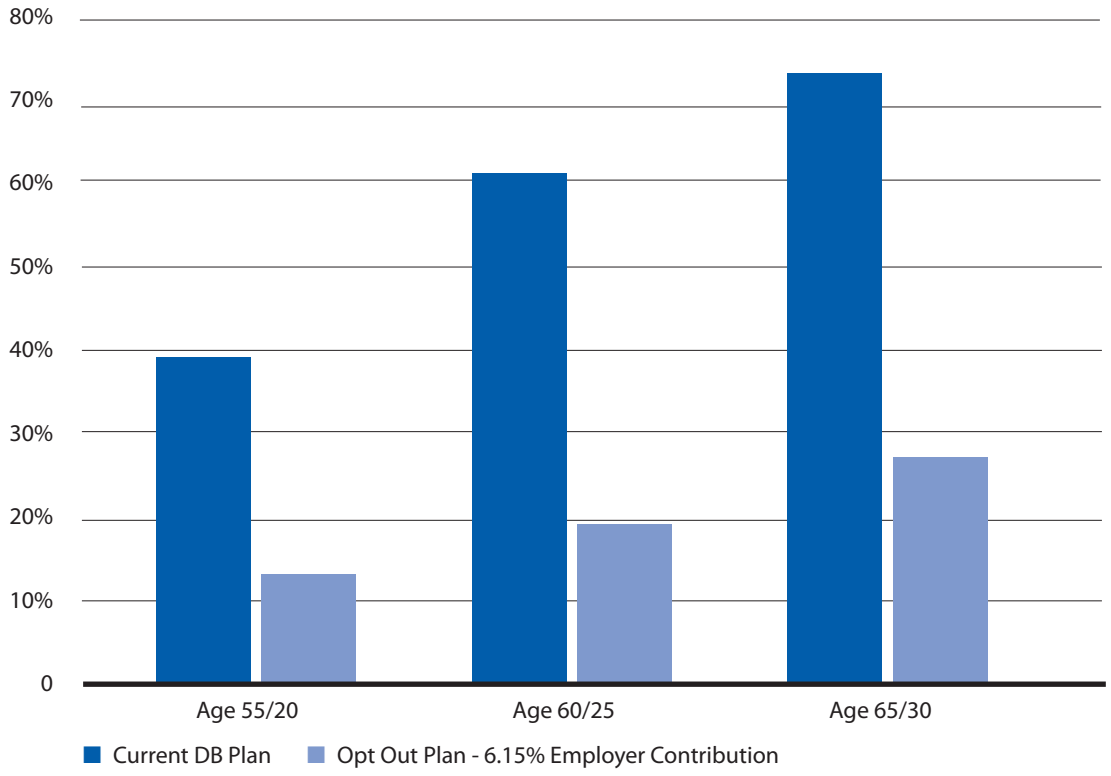
Comparison of Initial Annual Benefit as a % of Pay (General & Teachers)



Comparison of Initial Annual Benefit as a % of Pay (Protective w/ SS)



Comparison of Initial Annual Benefit as a % of Pay (Protective w/out SS)



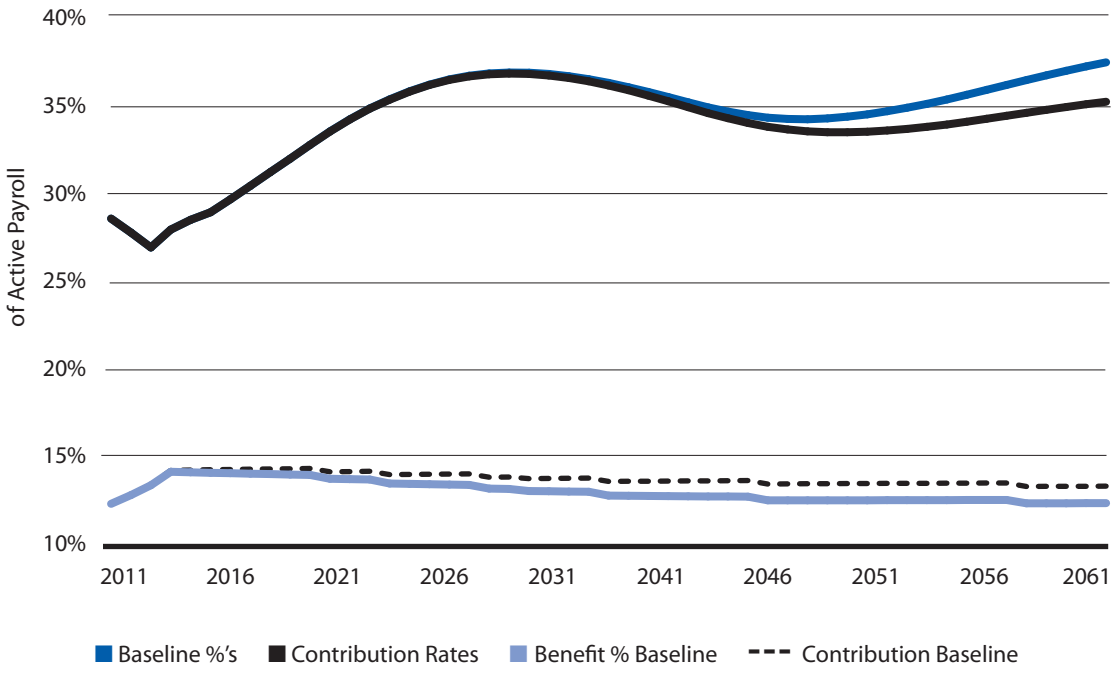
In considering benefit adequacy, it is worth keeping in mind that people who leave employment before becoming vested would receive no benefit at all from the plan, not even a refund of contributions. People who leave employment subsequent to vesting will not have contributions to withdraw, but will be eligible to receive a benefit from the plan at retirement. It will provide enhanced portability, but will require keeping track of small amounts over long periods of time. Employer rates will also be affected somewhat since there will be no forfeitures subsequent to vesting.

Another issue worth noting is that the participants electing this option would be subject to variable employer contribution rates for circumstances that may or may not relate directly to them. For example, if the WRS elected to offer an early retirement window program, this would most likely result in an additional liability to the system which would require an increase in employer contributions. Therefore, members electing this option would see an increase in contributions to their accounts.

Potential Effects on the Current WRS Plan

The chart below shows projected contributions and benefit payments assuming that 13% of newly hired employees opt-out of making WRS contributions. The effect on benefit payments is delayed because the majority of benefit payments in the early years of the projection are attributable to current retirees. The effect on contributions is more immediate, since the employer contribution rates would be reduced if the formula benefit is eliminated for those employees opting out of making contributions. The net effect will be a slightly larger negative cash flow position. If a greater percentage of new hires opt out or a percentage of current employees opt out, the effect will be magnified, resulting in potentially lower rates of overall return. As discussed previously, the large negative cash flow could result in a lower rate of return for the Core Fund, thereby increasing both employer and employee contribution rates.

Expected Benefit Payments and Contributions as % of Active Payroll



Administrative Costs

Under the Opt-out plan, the WRS would avoid the administrative costs of having to hire record keepers to administer the defined contribution plan. However, there would still be some administrative cost in order to implement the new structure, communicate the change in benefits to employees and track which program each employee chooses.

Effect on Death and Disability

Similar to the optional DC plan, participants electing this option would receive smaller death and disability benefits. The value of the death and disability benefits in the DB plan would in most cases is much larger than the participant's money purchase account balance. Therefore, if employers want to continue to provide these benefits, they will have to secure additional insurance coverage.

Cash or Deferred Arrangement Issue

Generally, DB plans are prohibited from allowing plan participants to directly or indirectly elect to change the amounts they contribute to the plan. Treasury Regulation § 1.401(k)-1(a) "provides that a plan, other than a profit-sharing, stock bonus, pre-ERISA money purchase pension or rural cooperative plan, does not satisfy the requirements of § 401(a) if the plan includes a cash or deferred arrangement." It defines a cash or deferred arrangement (CODA) as "any direct or indirect election (or modification of an early election) by an employee to have the employer (i) provide an amount that is not currently available to the employee in the form of cash or some other taxable benefit or (ii) contribute an amount to a trust to provide an accrual for a plan deferring the receipt of compensation." Given that the opt-out language in the Act 32 study mandate appears to allow current employees to eliminate their contributions by selecting the opt-out option, this may violate Treasury Regulation § 1.401(k)-1(a) and raised plan qualification issues. We recommend that this issue be discussed with legal counsel before action is taken.

Exclusive Benefit Issues

Under § 401(a) of the Internal Revenue Code, DB plans must be established for the "exclusive benefit" of plan participants. Since the DB benefits of current WRS participants are based on both the DB benefit and money purchase benefit (i.e., higher of), we believe that both are part of the same plan. However, to the extent current participants and newly hired employees opt out of the DB plan and participate only in the money purchase plan, it is unclear whether the IRS would consider them participants in the DB plan. Moreover, since the money purchase benefit is based on annual investment income, rather than a specified interest rate, the money purchase plan taken alone may better fit the definition of a DC plan. This raises the issue of whether the opt-out provision should be established as a separate DC plan outside of the current DB plan, in order to prevent potential qualification issues being raise related to the DB plan. Again, we recommend that this be discussed with legal counsel before action is taken.

Section 7: Analysis of Optional DC Plan and Employee Contribution Opt-out Under the Internal Revenue Code

Editor's note: All content in Section 7 was supplied by Ice Miller, LLP, tax counsel for the Employee Trust Funds Board and the Department of Employee Trust Funds.

Background

The Wisconsin Retirement System is established and maintained as a qualified governmental defined benefit plan under Internal Revenue Code (IRC) Sections 401(a) and 414(d). Qualified status is critical to maintain the tax benefits for plan members. These tax benefits are:

- Employer contributions are not taxable under federal law to members as they are made; taxation only occurs when plan distributions are made;
- Employee contributions may be made on a pre-tax basis; taxation only occurs when plan distributions are made;
- Earnings and income are not taxed to the trust or the members until distribution;
- Certain favorable tax treatments may be available under federal law to members and beneficiaries when they receive plan distributions, e.g., ability to rollover eligible distributions; and
- Governmental plans have greater flexibility than private sector plans in complying with Code provisions and have more favorable provisions for members.

This study has identified two IRC-related issues that could jeopardize the WRS's qualified plan status if the WRS were to add an optional DC plan or provide for employee contribution opt-out: the exclusive benefit rule and the position of the Internal Revenue Service (IRS) on employee choice with respect to contributions.

The Exclusive Benefit Rule

As a qualified plan, the WRS must follow certain requirements of the IRC. One of these, IRC Section 401(a)(2), states that the plan assets of the WRS (principal and income) must be used for the exclusive benefit of participants and beneficiaries in the WRS and for reasonable administrative expenses of the plan. IRC Section 401(a)(2) is referred to as the "exclusive benefit rule". If the assets of the WRS are used for any other purpose, the IRS could conclude that there was a violation of the exclusive benefit rule, which would threaten the WRS's qualified status.

Employee Choice

An employee who participates in the WRS makes pre-tax, mandatory, salary-reduction contributions pursuant to IRC Section 414(h). The authority for pre-tax contributions is only available to participants in a qualified governmental plan, such as the WRS. The IRS established the requirements for this pre-tax treatment in Revenue Ruling 2006-43. Under IRC Section 414(h)(2) and Revenue Ruling 2006-43, the pre-tax treatment of mandatory employee contributions is referred to as a "pick-up." This term does not require that the employer actually pay the contributions on behalf of the pick-up; the contributions may still be funded through salary reduction. The IRS and the IRC use the term pick-up to mean

that an employer (or a legislative body) has taken action to provide that the mandatory employee contributions are to be treated as pre-tax.

Revenue Ruling 2006-43 establishes a two prong test for a valid "pick-up" plan:

- In the first requirement for a valid pick-up, Revenue Ruling 2006-43 requires that "formal action" be taken. This first prong is not implicated by the two questions presented in the Act 32 study.
- In the second requirement, Revenue Ruling 2006-43 incorporates into the pick-up concept the requirements that are applicable under IRC Section 401(k). That is, the governmental employing unit must not permit an employee to have the right to a cash or deferred arrangement ("CODA"). The IRS takes a very restrictive interpretation of the "no CODA" concept – in a way that severely limits employee choice with respect to plan participation and with respect to the amount of contributions.
- From the IRS perspective, if an employee in a governmental plan has a choice with respect to his employee contribution and if that contribution is picked up, there are two types of issues that are raised:
  - First, the IRS takes the position that a defined benefit plan, specifically a governmental defined benefit plan, cannot include a pre-tax elective contribution (also referred to as an "elective deferral"). Consequently, the IRS asserts that, if a governmental defined benefit plan provides for a member election with regard to picked up contributions, that election raises a tax qualification issue for a governmental defined benefit plan.
  - Second, the IRS takes the position that a pick-up of elective contributions outside of a 401(k) plan (which WRS is not) cannot result in a deferral of compensation. Consequently, the IRS also asserts that there is a taxation impact for the member.

Note: The IRS and U.S. Department of Treasury do agree that a one-time irrevocable election at the commencement of employment is permissible. Their concerns involve only elections by existing employees with respect to pre-tax contributions.

Note also: There is pending federal legislation that would allow employee choice.

It is important to note that governmental employees can participate in plans that provide for elective contributions. A governmental employer may sponsor a 457(b) plan for its employees, and certain educational institutions may sponsor a 403(b) plan for their employees. In each type of plan, participants may make elective deferrals from their compensation.[60]

Impact of the Exclusive Benefit Rule and IRS Position on the Two Options of the Study

DC Plan

The first issue covered in the Act 32 study is the establishment of an optional DC plan.
Under the Exclusive Benefit Rule, the assets of the WRS cannot be used to pay the administrative expenses of the DC plan. Therefore, some provision would have to be made to fund the upfront costs

[60] The Wisconsin Deferred Compensation Program is a 457(b) plan that has been a voluntary optional savings program for state employees since 1982.

of establishing such a plan, as well as the ongoing costs of the plan. In other states, the funding of the up-front costs has been handled in one of three ways: separate appropriation, employer assessment, or loan from the defined benefit plan. If there is a loan from WRS, the loan would have to be commercially reasonable—it would have to be secured and bear a market interest rate. After the DC plan is up and running, the expenses of running the plan would have to be paid from the assets of the DC plan. On an on-going basis, if ETF staff were used to administer the DC plan as well as the defined benefit plan, there would have to be an appropriate allocation of the cost of overhead between the two plans.

Further, under the Exclusive Benefit Rule, the assets of the defined benefit plan cannot be used to fund benefits under the DC plan, nor can assets of the DC plan be used to fund benefits under the defined benefit plan.

Under the current IRS guidance regarding employee choice, the option of selecting between a DC plan and the defined benefit plan could only be offered to a new employee. If there were a difference between contribution levels in each plan or if the DC plan offered was a 457(b) or 403(b) plan, the choice could not be offered to existing employees without threatening the qualified status of WRS.

Employee Contribution Opt-out

The second issue covered in the Act 32 study is not affected by the Exclusive Benefit Rule. However, this option is impacted by the IRS's position on employee choice. The choice to make a lower contribution could be offered to new employees. However, that choice would be a one-time, irrevocable decision for the employee's working life-time with a particular employer. The employee would not be allowed to make subsequent changes in contribution levels or plan participation unless the employee changed employers. Offering this choice to existing employees would raise qualification issues and would jeopardize the current pre-tax nature of employee contributions.

Additional Comments on Fiduciary Issues

As noted above, the WRS must be operated for the exclusive benefit of its members. In addition, the WRS Boards have a fiduciary duty to WRS members. In other states, this has meant that the retirement systems have been assigned (or have essentially had to assume) the responsibility of educating participants in regard to their choice of plans, so that participants can make an informed choice.

Section 8: Financial Analysis: Possible Effect on Investments

Editor's note: All content in Section 8 was supplied by the State of Wisconsin Investment Board (SWIB), which is the state agency that manages the investment of the WRS trust funds.

At the request of the ETF, SWIB is providing comments relevant to portions of this study, undertaken as a result of 2011 Wisconsin Act 32.

Contrasting Investment Results

At the outset it should be emphasized that under the WRS structure, it is actually the retirees and active employees who bear the bulk of the investment risk, which is very different than a typical defined benefit plan. Nonetheless, the following observations are still applicable to the investment results of the WRS:

Focusing first on the contrast between a pure DB and DC arrangement, the data is clear that investment results are superior under the risk-pooling arrangement, i.e., the DB structure. There are several reasons for this:

- Because mortality is pooled, the DB funds can be invested with a longer time horizon and a greater degree of illiquidity. Both factors contribute to higher long term returns.
- DC plans do not provide the same access as DB plans to some asset classes, such as real estate and private equity, due to their need for liquidity and daily valuation. As a consequence, DB plans have better diversification and long term returns.
- The large pools of assets invested through a DB structure allow for economies of scale, meaning costs are lower.
- Asset allocation decisions under a DB plan are performed by professional investment staff and consultants, instead of by individuals who may have little or no investment knowledge.

Empirical Research

Empirical research from a number of different sources has consistently shown that the overall advantage of DB investing is around 1.2%, annualized. For example, CEM (Cost Effective Management) provided a historical return survey of about 2,500 DB plans compared to about 1,500 DC plans for a fourteen-year period ending December 2010. The survey showed that the average annual DB return exceeded the average DC return by about 1.1% after investment and administrative costs (7.8% vs. 6.7%). The WRS Core Fund return was about 1.2% greater than the average CEM DC universe's return over the same period. In addition, Towers Watson compared investment returns of large DB and DC plans (largest 1/6th of the DB universe with a sample size ranging between about 350 and 500) over a fourteen-year period ending December 2008 and found the average DB plan outperformed the average DC plan by 1.3% (7.4% vs. 6.1%) per year. The Towers Watson research also showed that the lower-than-average DC returns over this fourteen-year period had greater variation than the average DB return series (DB volatility of 12.8% vs. a DC volatility of 13.3%). And the National Institute on Retirement Security reviewed a number of empirical studies,[61] finding a large and persistent gap between the average DB

[61] Studies included: Munnell and Sunden, CEM 1995 to 2005, Watson Wyatt 1995 to 2006.

plan's return compared to the average DC plan's return of about 1% (8.0% vs. 7.0%), due to both less efficient asset allocations and higher investment and administration costs.

Converting to a DC structure would sacrifice roughly 1.2% per year in net return. The 1.2% annual reduction in net return would be mitigated by the fact that the changes proposed would not be total, but the same factors that differentiate DB from DC investment results would come into play to some degree.

It should be noted that the reduced return resulting from a shorter investment horizon is in addition to the major cost impact of eliminating mortality pooling. Analysis of mortality pooling is a topic best left to the actuary to address. In general, however, when a large population of retired employees pools its mortality risk, the average life expectancy can be used to determine the payout horizon. This payout horizon is the time that the average employee will be drawing a retirement benefit. In a large pool like the WRS, average age expectancy could be about 85. In a DC structure, individuals self-insure their life expectancy risk. As a result, the assumed payout horizon is longer.

If individuals self-insure, the risk of living to age 91 instead of age 85, the cost of achieving the same targeted benefit translates to roughly a 2.5% annual contribution increase – about the same size as the investment consequences combined. Adding the two together produces about a 5% annual contribution difference. The result of the combined return and expense differences between DB and DC structures is that the same benefit can be produced at lower cost under a DB plan.

Effects of Optional DC Plan

Using the above comparison of pure DB and DC plans as the base case, some conclusions about the effects of allowing employees to choose an optional DC plan are obvious. First, to the extent that such choices occur, the total investment return of the combined pool of retirement assets (the combined DB and DC assets) will be reduced pro rata to the amount going into the DC structure. In other words, the portion of assets invested via the DC structure will see a lower net return. Second, the loss will fall on the individuals who exercise the choice because they will have lost the DB investment advantages outlined above. Even if the focus is placed solely on the employers' cost, the reduced DB pool size, the increased liquidity needs and the potential "adverse" selection caused by optional DC plans also could affect the return and cost dynamics of the remaining DB pool, and therefore employer contributions, as well. These factors are described below.

Scale

To the degree that the size of the DB asset pool is reduced by employees choosing DC participation, the advantages of scale would be diminished. It is not possible for SWIB to estimate the number of people who will make this choice, so we have not attempted to estimate the net effect. The relevant factors will be a reduced ability to negotiate favorable fee arrangements and to leverage staff resources through having larger account sizes. The research of CEM Benchmarking has consistently shown that larger funds are able to better control costs, so the empirical basis for this effect is clear.

Liquidity

In order to facilitate employees leaving the DB plan, and presumably moving assets to a DC plan, SWIB would need to maintain higher liquidity to meet those case demands. In addition, with less money being added to the pool in the form of contributions, greater liquidity would be required to meet retiree

payments. As mentioned above, being able to invest in illiquid asset classes enhances return, so returns would be reduced.

Adverse Selection

Likewise, assuming the employees leaving the DB plan will tend to be younger employees, the proportion of the fund being paid out in benefits will increase. This result will also increase liquidity needs. The average time horizon for investment will decrease. The consequence will be a reduced return advantage as described in the earlier comments. As time passes these effects would become more pronounced with a gradually aging population in the DB plan.

Effects of Employee Contribution Opt-out Option

Scale

The scale effect described above would also come into play if employees can chose to eliminate their contributions. There would be less money coming into the WRS pool and potentially more money leaving the pool when employees terminate before retirement. Again, it is impossible for SWIB to estimate the number of employees electing to do so, but to whatever degree they did, the scale of the fund would be changed.

Liquidity

Under this option, there also would be additional liquidity needs because employees who terminate covered employment would be more likely to take funds out of the pool – they would not be sacrificing the employer contribution as they do under a similar decision today. Given that change, there would be less reason to leave assets with the WRS after employment is terminated. Also, it is not clear from the study mandate whether there will be immediate vesting in the contributions for those employees electing the employee contribution opt-out plan. If that is part of the revised plan, the liquidity needs would increase even more.

Adverse Selection

Finally, the adverse selection effect will result from younger people being more likely to choose the employee contribution opt-out option. A gradual reduction in the average investment horizon would occur as the DB population became older and terminated employees decided to take assets out of the pool.

Appendix A: Actuarial and Legal Disclosures

Actuarial Disclosure

This disclosure applies to the sections of the report containing actuarial valuations of proposed changes in pension benefits for participants of the Wisconsin Retirement System. The actuaries issuing this section of the report are Members of the American Academy of Actuaries (MAAA), and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. This report was prepared at the request of the WRS and is intended for use by the WRS and those designated by the WRS.

The date of the valuation was December 31, 2010. Supplemental valuations do not predict the result of future actuarial valuations. Rather, supplemental valuations give an indication of the probable cost of the plan change only without comment on the complete end result of the future valuations.

Except where indicated, the actuarial assumptions and methods were consistent with those used in the 2010 actuarial valuation of the Wisconsin Retirement System. The analysis of GRS was based on the most recently completed actuarial valuation (December 31, 2010).

The calculations in this report are based upon assumptions regarding future events, which may or may not materialize. They are also based upon present and proposed plan provisions that are outlined in the report. If you have reason to believe that the assumptions that were used are unreasonable, that the plan provisions are incorrectly described, that important plan provisions relevant to this proposal are not described, or that conditions have changed since the calculations were made, you should contact the authors of this report prior to relying on information in the report.

Please note that we are not attorneys or investment experts and no statement in this report should be construed to provide tax advice, legal advice or investment advice.

Legal Disclosure

Circular 230 Notice: Pursuant to regulations issued by the IRS, to the extent this presentation concerns tax matters, it is not intended or written to be used, and cannot be used, for the purpose of (i) avoiding tax-related penalties under the Internal Revenue Code or (ii) marketing or recommending to another party any tax-related matter addressed within. Each taxpayer should seek advice based on the individual's circumstances from an independent tax advisor.

Except to the extent that this advice concerns the qualification of any qualified plan, to ensure compliance with recently-enacted U.S. Treasury Department Regulations, we are now required to advise you that, unless otherwise expressly indicated, any federal tax advice contained in this communication, including any attachments, is not intended or written by us to be used, and cannot be used, by anyone for the purpose of avoiding federal tax penalties that may be imposed by the federal government or for promoting, marketing, or recommending to another party any tax-related matters addressed herein.

Appendix B: Explanation of Risk Share of the Core Fund

Editor's note: All content in Appendix B was supplied by the State of Wisconsin Investment Board (SWIB), which is the state agency that manages the investment of the WRS trust funds.

WRS members assume approximately 75% of the risk associated with the Core Fund:

- 50% of the Core's members are retirees and the retiree pool has about a 10% probability of all the members being at their initial annuity (all past annuity increases taken back) or a 90% probability that the retiree pool will not impact the contribution rates of the active employees.
- About 50% of the Core's members are active and the active member has about a 60% probability of retiring on a formula benefit (the others retire on a money purchase benefit).

This means that the employee's (considering both the active and retired population) portion of the risk sharing would be about 50%*90% = 45% for the retiree pool and about 50%*60% = 30% for the active pool or about 75% (45% + 30%) for the Core fund participants, working and retired.

The risk could increase above 75% for WRS members (considering that employees share half the increase in contribution rates) should more than expected WRS members retire on the formula benefit.

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