



Presentation Agenda

- I. **Introduction:** Laying the Foundation for Tomorrow
- II. **Historical Portfolio:** Why Change?
- III. **Portfolio Construction:** Why Diversify?
- IV. **Market Environment:** Current Events as Opportunities?
- V. **TMRS Today:** Diversification in Progress
- VI. **TMRS Tomorrow:** What's Next?



Introduction:

Laying the Foundation for Tomorrow



Diversification and Risk

- ▶ True or False?

- ▶ **“Don’t put all your eggs in one basket”** – TRUE

- ▶ Don’t concentrate your investments in one category. Spreading risk can mitigate losses.

- ▶ **“Cash is king”** – FALSE

- ▶ While safe investments such as cash and bonds are less likely to lose money in the short-term, over the long-term they typically do not provide sufficient wealth creation.



Diversification and Risk

Background and introduction:

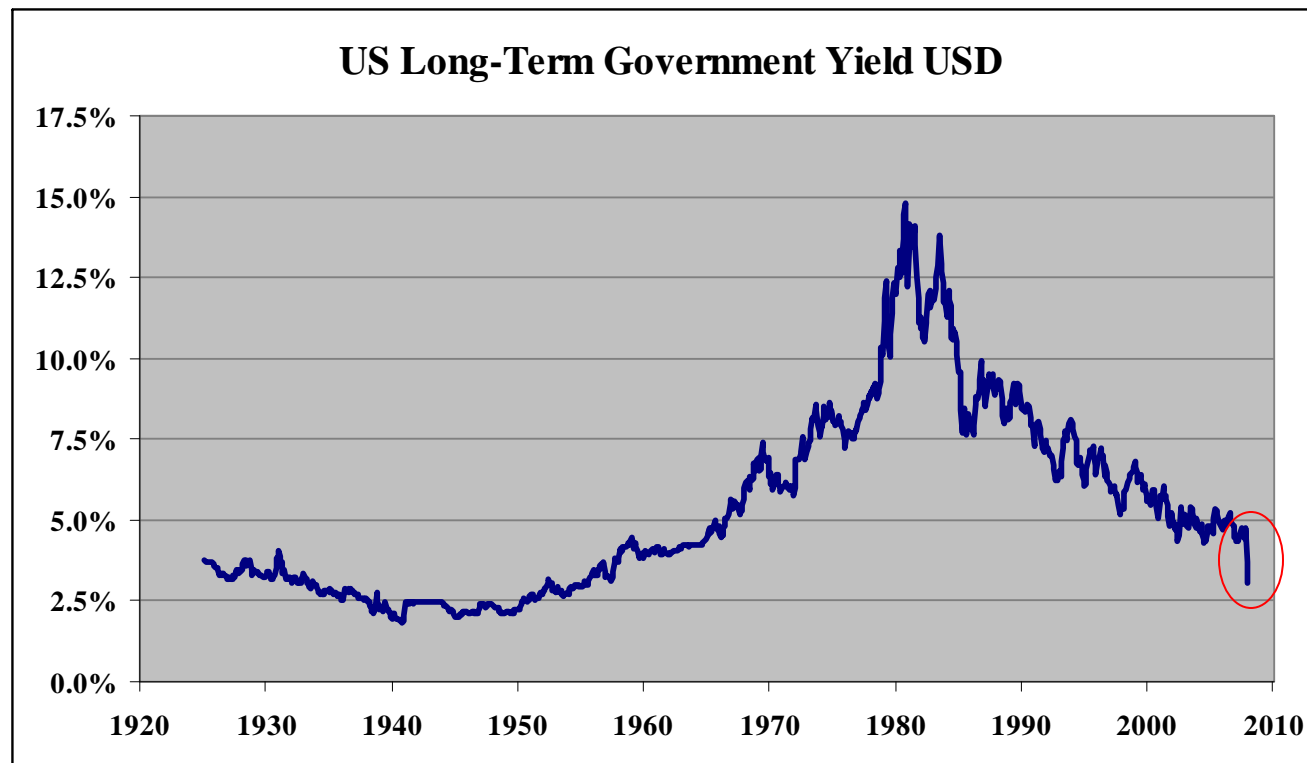
- ▶ TMRS was invested in 100% bonds
 - ▶ Lacking diversification
 - ▶ Potentially insufficient return given long-term market dynamics
- ▶ There is another way
 - ▶ Broad diversification and a long-term perspective can lead to higher returns without undue risk



Historical Portfolio: “Why Change?”

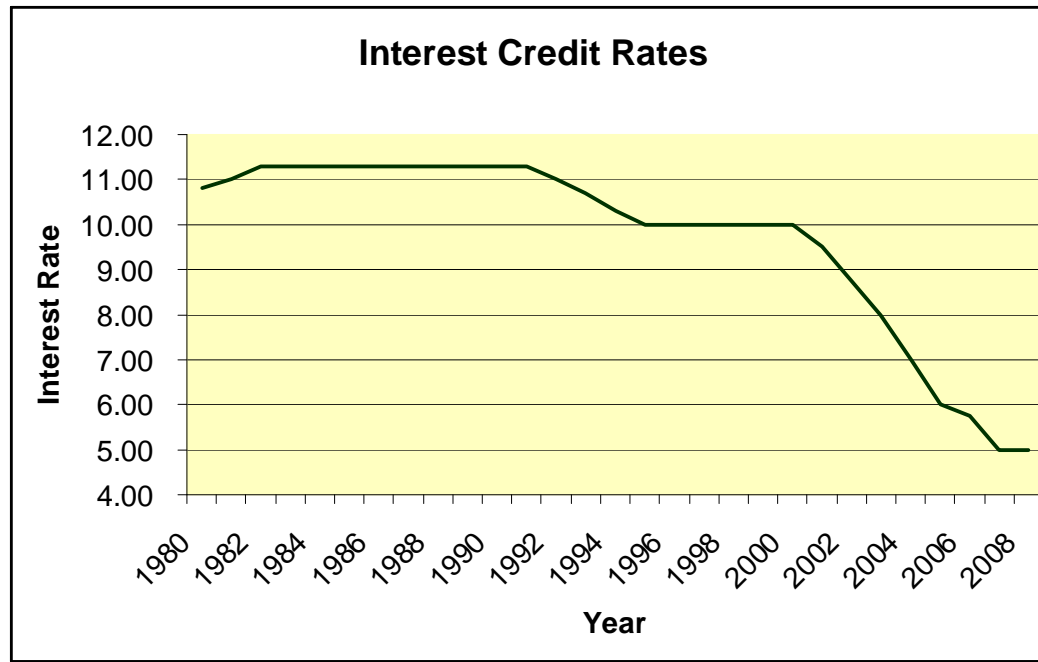
Risk of Historical Status Quo

- ▶ Portfolio has held long-term bonds in a period of high and declining interest rates
- ▶ An unusual environment – How low can rates go?



Risk of Historical Status Quo

- ▶ Historical surpluses were used to support the rising cost of benefits
- ▶ In the future if rates:
 - ▶ Fall – Difficult to meet the 5% requirement, currently at 5%
 - ▶ Stabilize – Difficult to meet current liabilities, no surplus to fund COLAs
 - ▶ Rise – The near term impact will be capital losses



Source: TMRS Investing in the Future



Risk of Historical Status Quo

Results of initial analysis:

- ▶ The risks to the portfolio included a lack of diversification as well as significant interest rate exposure
- ▶ The impact of falling rates has provided a tailwind, but poses reinvestment risk
- ▶ The impact of rising rates would be an erosion of the capital base for future investing and an end to surpluses that have been a source for benefit increases
- ▶ A strategy that worked well for many years
- ▶ However, market dynamics and participant profiles require a change



Portfolio Construction: “Why Diversify?”



Diversification

“Putting your eggs in different baskets”

- ▶ How do we improve returns and maintain a moderate level of risk?
 - ▶ Diversification is the tactic of spreading your investments across divergent opportunity sets in order to mitigate risk
 - ▶ An “asset class” is considered a group of investments with a distinctive profile from other groups (e.g., stocks vs. bonds vs. real estate)



Diversification - Asset Classes

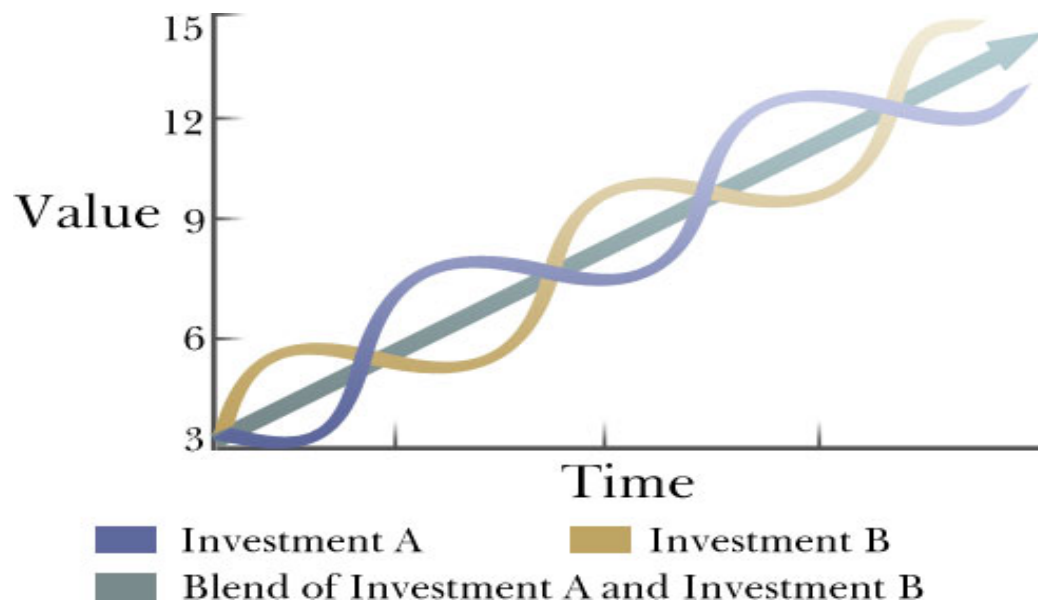
- ▶ Traditional asset classes typically include:
 - ▶ Stocks – U.S., non-U.S., small company, etc.
 - ▶ Bonds – Treasuries, Corporates, Mortgages, etc.
 - ▶ Cash – T-Bills, commercial paper, etc.

- ▶ Alternative asset classes may include:
 - ▶ Absolute Return
 - ▶ Real Return
 - ▶ Private Equity
 - ▶ Real Estate



Effects of Diversification

- ▶ Low correlated asset classes are subject to different influences and produce diverse return streams
- ▶ Using diverse asset classes provides smoother return profile over time and allows for better compounding – otherwise known as the benefit of **diversification** .





How to Diversify

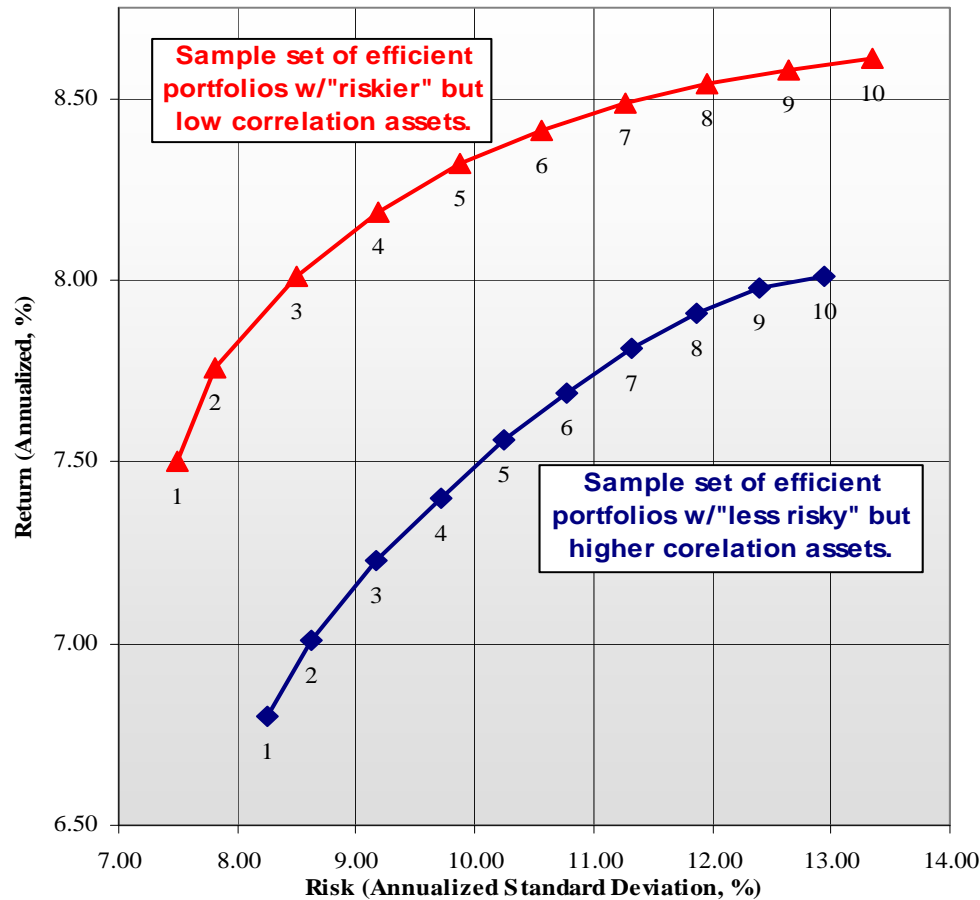
- ▶ Combine low correlation assets
 - ▶ Assets seen as “too volatile” for a stand alone investment may be worthy contributors to the overall portfolio

<p>▶ Portfolio I uses investments A & B, each of which has an expected rate of return, volatility, and a high correlation</p>	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th colspan="2" style="text-align: center;"><u>Portfolio I</u></th> </tr> <tr> <th style="text-align: left;">Investments:</th> <th style="text-align: center;"><u>A</u></th> <th style="text-align: center;"><u>B</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: left;">Return:</td> <td style="text-align: center;">10.0%</td> <td style="text-align: center;">7.0%</td> </tr> <tr> <td style="text-align: left;">Std. Dev:</td> <td style="text-align: center;">12.0%</td> <td style="text-align: center;">8.0%</td> </tr> <tr> <td style="text-align: left;">Correlation:</td> <td colspan="2" style="text-align: center;">.90</td> </tr> </tbody> </table>		<u>Portfolio I</u>		Investments:	<u>A</u>	<u>B</u>	Return:	10.0%	7.0%	Std. Dev:	12.0%	8.0%	Correlation:	.90	
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<p>▶ Portfolio II uses two different investments, X & Y, which have the same expected return as A & B, but higher volatility, and lower correlation</p>	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th colspan="2" style="text-align: center;"><u>Portfolio II</u></th> </tr> <tr> <th style="text-align: left;">Investments:</th> <th style="text-align: center;"><u>X</u></th> <th style="text-align: center;"><u>Y</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: left;">Return:</td> <td style="text-align: center;">10.0%</td> <td style="text-align: center;">7.0%</td> </tr> <tr> <td style="text-align: left;">Std. Dev:</td> <td style="text-align: center;">13.2%</td> <td style="text-align: center;">8.8%</td> </tr> <tr> <td style="text-align: left;">Correlation:</td> <td colspan="2" style="text-align: center;">.10</td> </tr> </tbody> </table>		<u>Portfolio II</u>		Investments:	<u>X</u>	<u>Y</u>	Return:	10.0%	7.0%	Std. Dev:	13.2%	8.8%	Correlation:	.10	
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How to Diversify

Efficient Frontier



Portfolio I

Investment A = 56%
 Investment B = 44%
 Expected Return = 8.68%
 Std. Dev. = 10.00%

Portfolio II

Investment X = 56%
 Investment Y = 44%
 Expected Return = 8.68%
 Std. Dev. = 8.70%



Benefits of Diversification

- ▶ Status quo runs the risk of not keeping pace with liabilities
- ▶ Adding asset classes to a portfolio can enhance returns **and** reduce risk through diversification.
 - ▶ Education and proper implementation over time are critical
- ▶ Diversified total-return portfolios have been proven over time



Market Environment: Current Events as Opportunities?

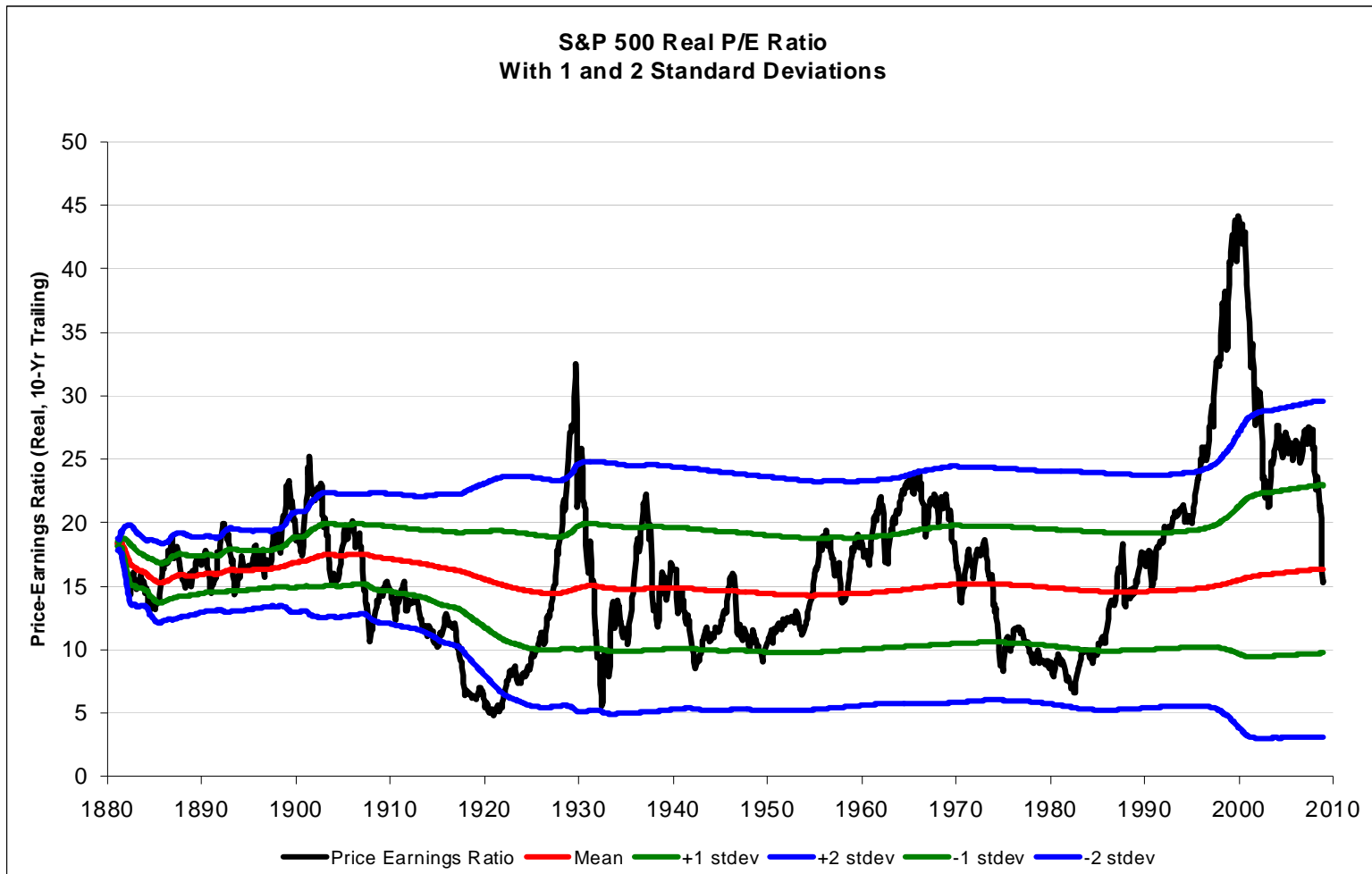


Current Market Environment

- ▶ Historic period in capital markets
 - ▶ Major bailouts and bankruptcies
 - ▶ Credit crisis, confidence crisis
 - ▶ The US approved trillions in bailouts and stimulus for banking system
 - ▶ The Federal Reserve cut its target rates to 0-0.25%, lowest ever
 - ▶ Treasury rates were at historic lows across the yield curve
- ▶ Only U.S. Treasury issues securities were immune to credit crisis fallout
- ▶ Investors have been tested, prudent investors stand the test of time
- ▶ Long term investors have long-term opportunities
- ▶ With return, comes risk – an important balance

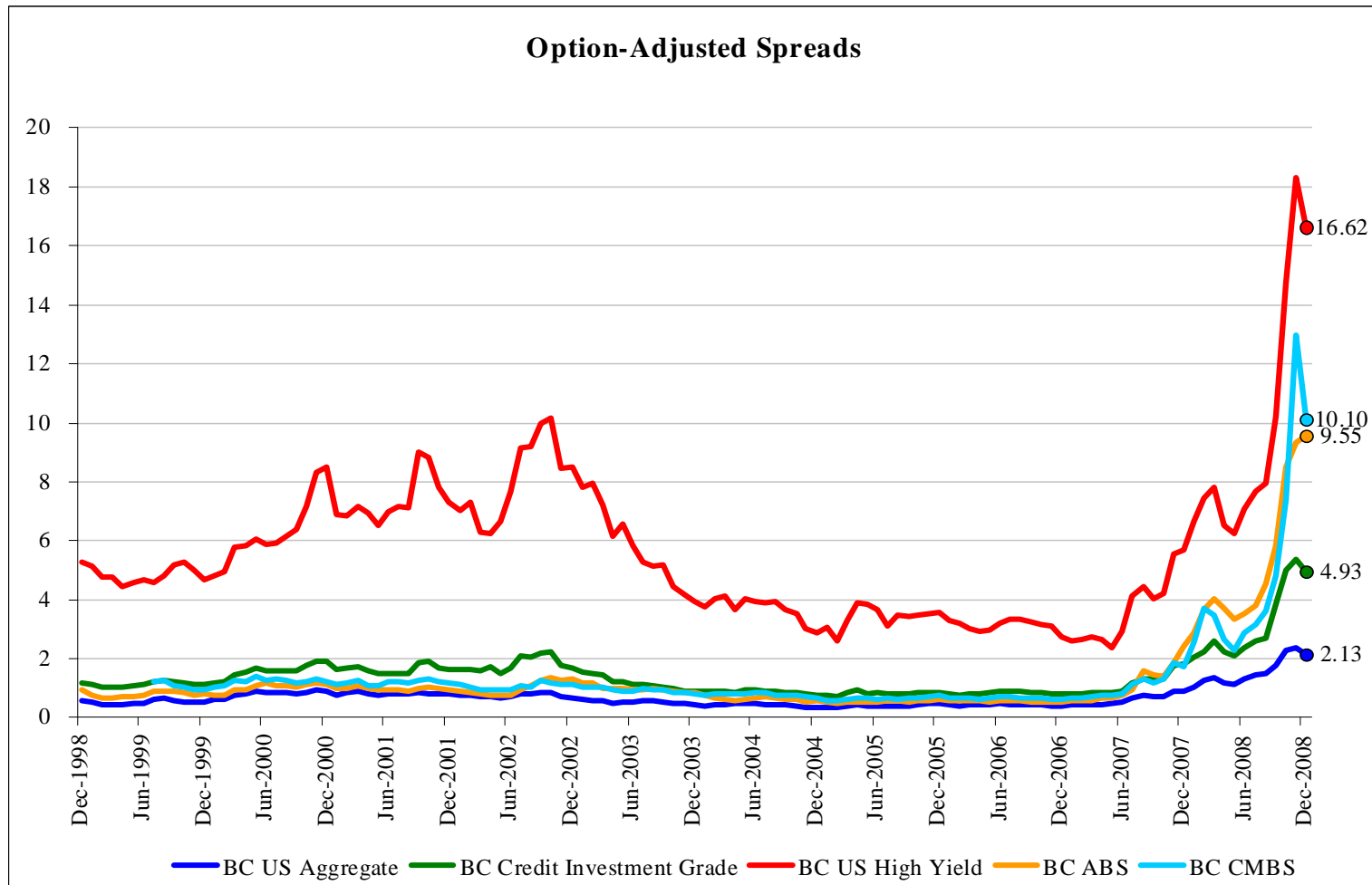


Historical P/E Ratio Averages



The S&P P/E ratio is based on real historical 10-year earnings.
Estimated through December 31, 2008.

Risky Assets Re-Priced, but Recovering



As of December 31, 2008.



TMRS Today: Diversification in Progress

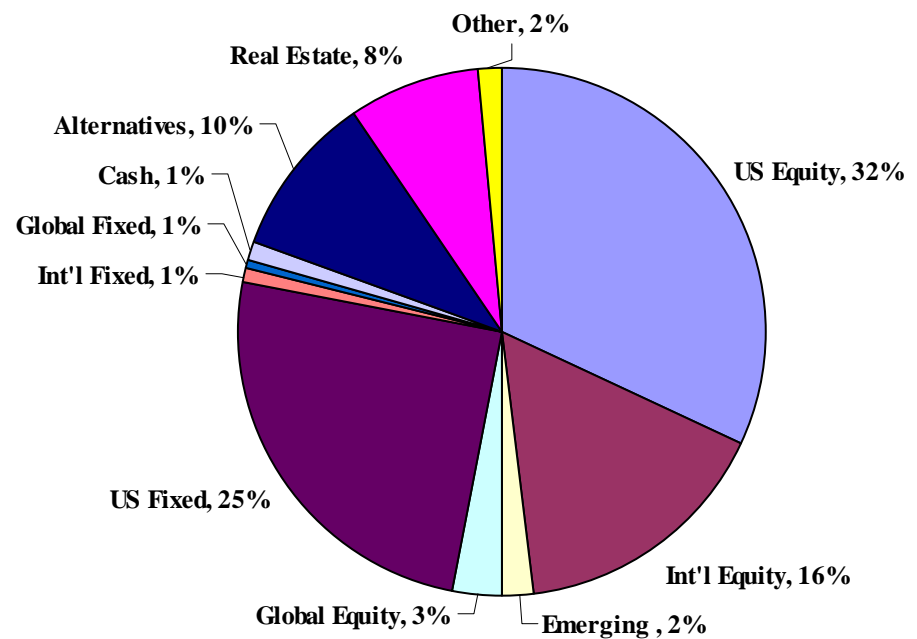
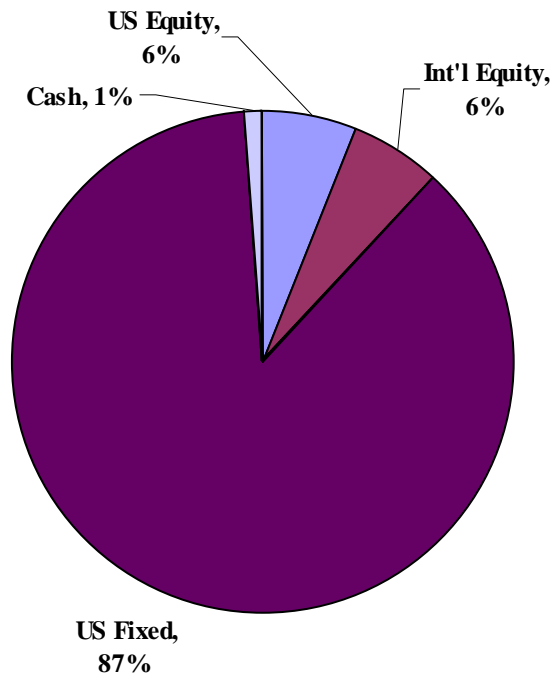


Recent Portfolio Events

- ▶ Domestic Equity has been added to the portfolio
 - ▶ Passive (or indexed) exposure
 - ▶ Dollar cost averaging to minimize risk
 - ▶ 6% position as of 12/31/2008
- ▶ International Equity has been added to the portfolio
 - ▶ Passive (or indexed) exposure
 - ▶ Developed countries only to date
 - ▶ Dollar cost averaging to minimize risk
 - ▶ 6% position as of 12/31/2008
- ▶ Fixed income investments - interest rate risk has been reduced and portfolio has become more diversified
- ▶ 100% externally advised by best in class fiduciary

Recent Portfolio Events

- ▶ TMRS asset allocation compared to average public retirement fund equity asset allocation (2008)

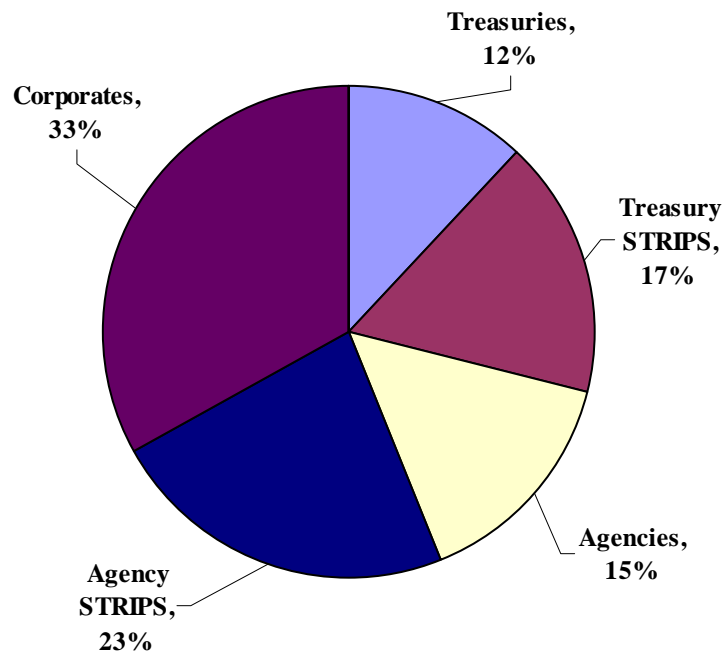




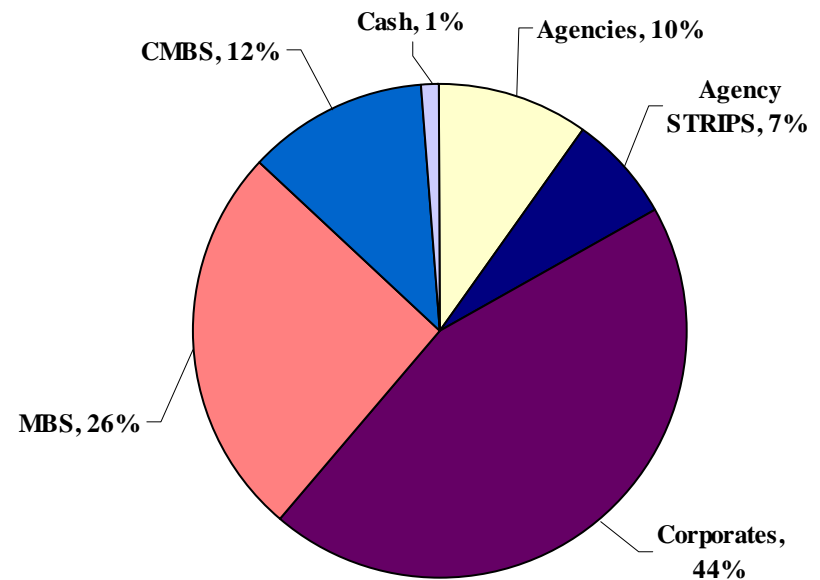
Recent Portfolio Events

- ▶ TMRS fixed income previous and current allocations
 - ▶ Additional sectors to diversify risk and maintain income

TMRS May 22, 2008



TMRS December 31, 2008



Source: BlackRock



TMRS Tomorrow: “What’s Next?”



What's Next?

▶ **Total return orientation**

- ▶ Allows for meeting the participants financial needs through higher returns at moderate levels of risk
- ▶ Requires legislative change from current income only orientation
- ▶ A switch from an income only to total return orientation is a legislative process, to be followed by a TMRS policy decision



What's Next?

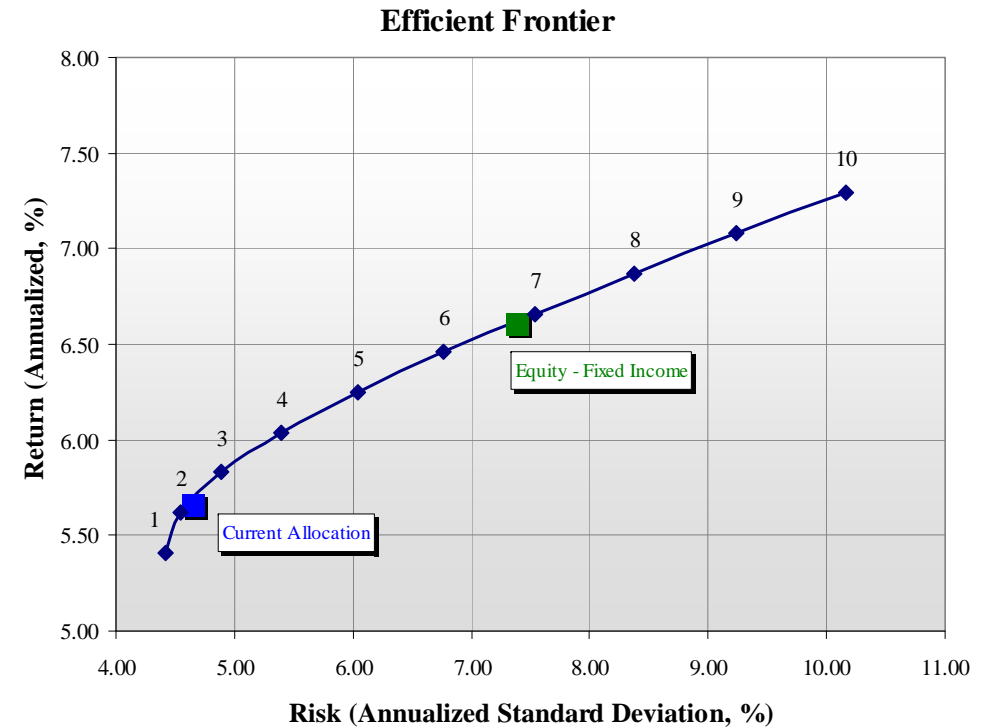
- ▶ **More diversification – (total return orientation)**
 - ▶ Continued diversification within existing asset classes
 - ▶ Further diversifying fixed income investments
 - ▶ Further diversifying equity investments
 - ▶ Consideration of new asset classes
 - ▶ Commercial real estate
 - ▶ Inflation oriented asset classes
 - ▶ Non-U.S. bonds
 - ▶ Alternatives



What's Next?

- ▶ Step 1 was a simple and long term plan to reach the actuarial return

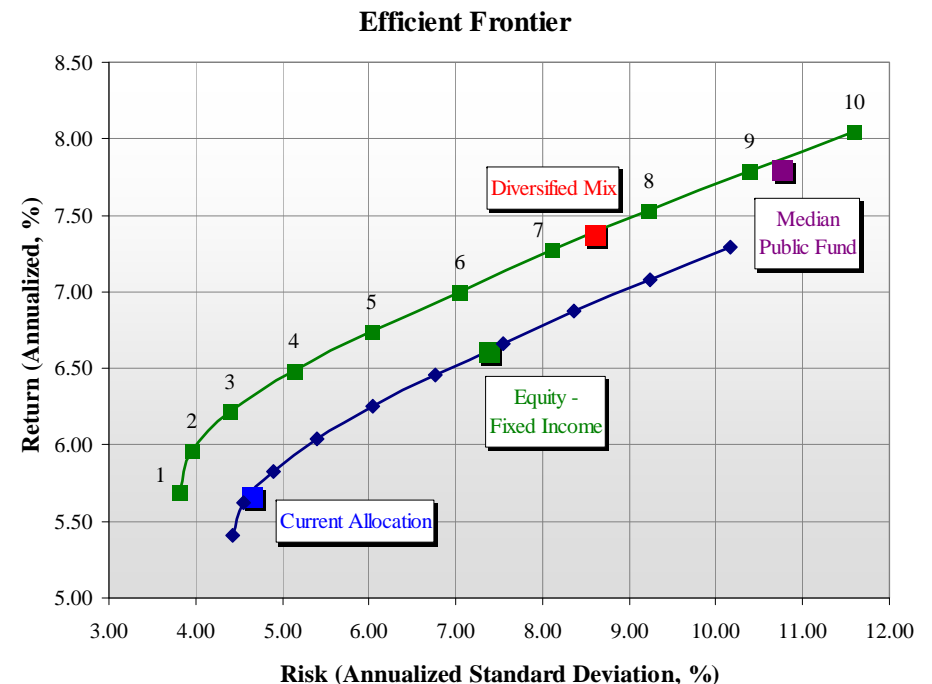
Asset Classes	Min	Max	Current Allocation	Equity - Fixed Income
Broad US Equity	0	30	6	20
Broad International Equity	0	30	6	20
US Core Fixed Income	0	100	88	60
Total			100	100
Total Equity	0	60	12	40
Return			5.66	6.61
Risk (1 Year Holding Period)			4.65	7.38



What's Next?

- ▶ The long-term portfolio will be more diversified and similar to peers, yet unique to TMRS' risk tolerance and return objectives
- ▶ Many steps along the way, slow and methodical

Asset Classes	Min	Max	Current Allocation	Equity - Fixed Income	Diversified Mix	Median Public Fund
Cash Equivalents	0	0	0	0	0	1
Broad US Equity	0	30	6	20	20	32
Broad International Equity	0	30	6	20	20	20
US Core Fixed Income	0	100	88	60	35	26
Real Estate - Core	0	10	0	0	10	8
Absolute Return	0	5	0	0	5	2
Private Equity	0	5	0	0	5	8
Real Return	0	5	0	0	5	3
Total			100	100	100	100
Total Equity	0	60	12	40	40	52
Return			5.66	6.61	7.37	7.80
Risk (1 Year Holding Period)			4.65	7.38	8.60	10.76





Questions?

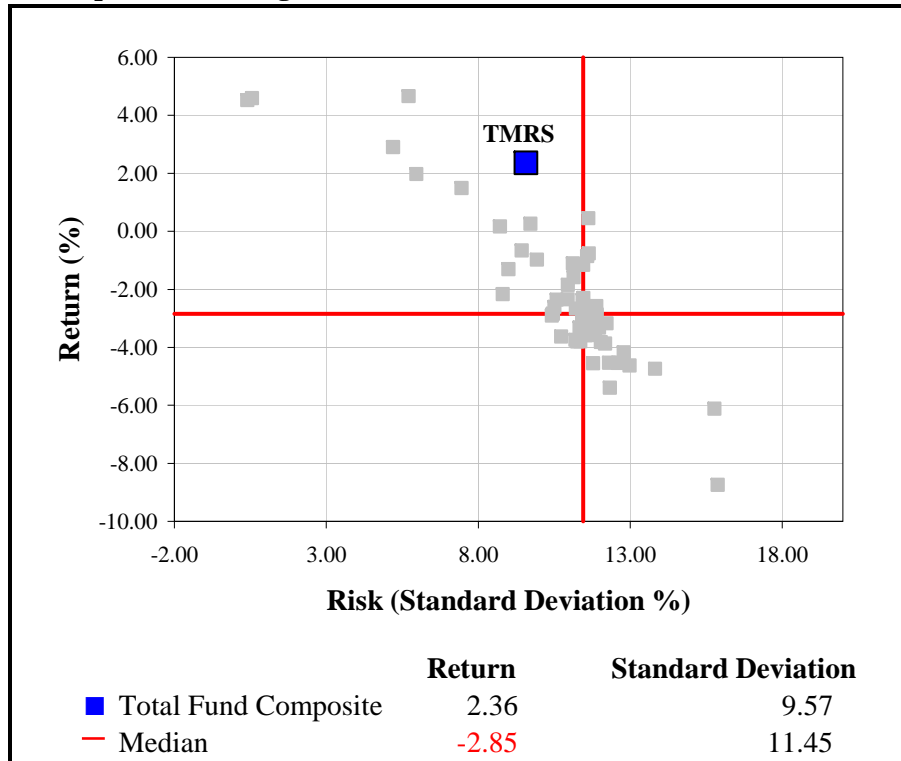


Appendix

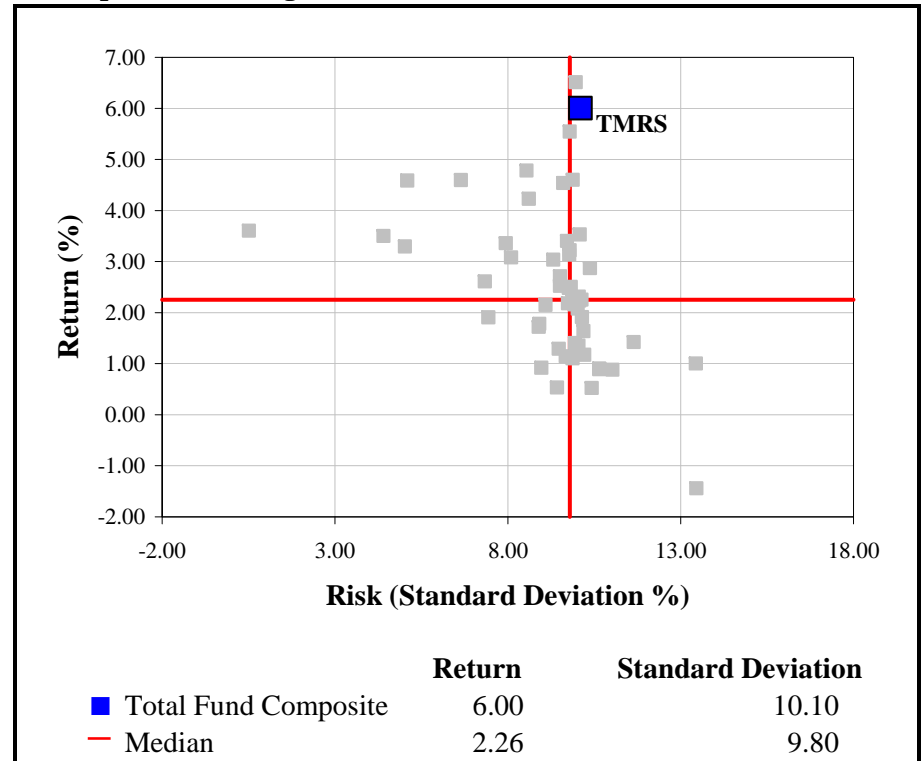
Public Fund Comparison 2008

- ▶ 3 & 5 Year risk and return profile compared to peers as of December 31, 2008

Plan Sponsor Scattergram - 3 Years



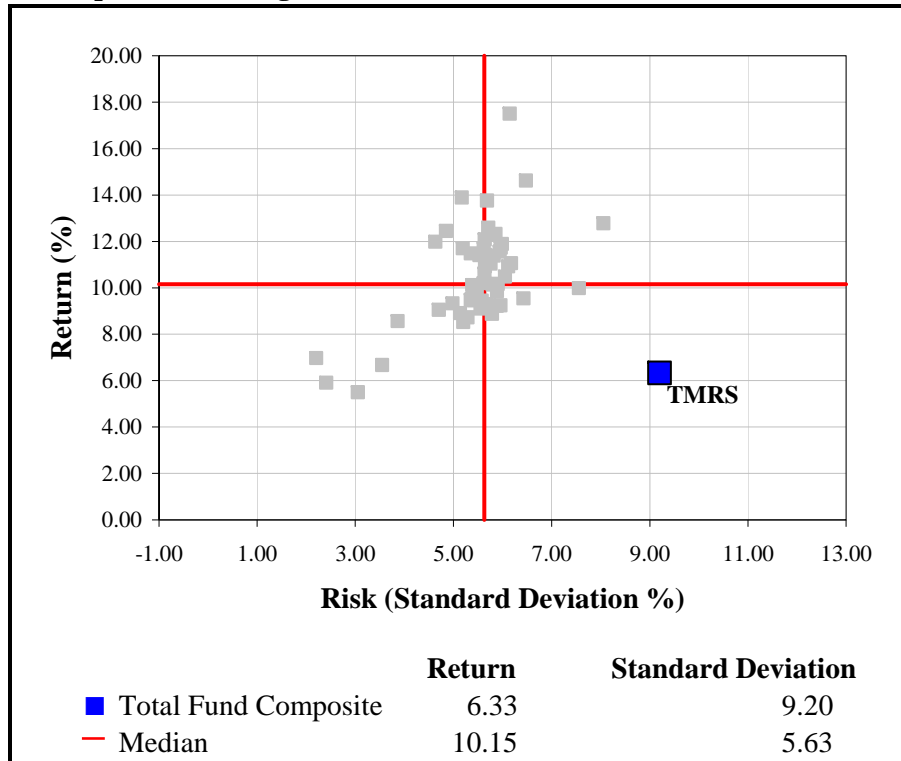
Plan Sponsor Scattergram - 5 Years



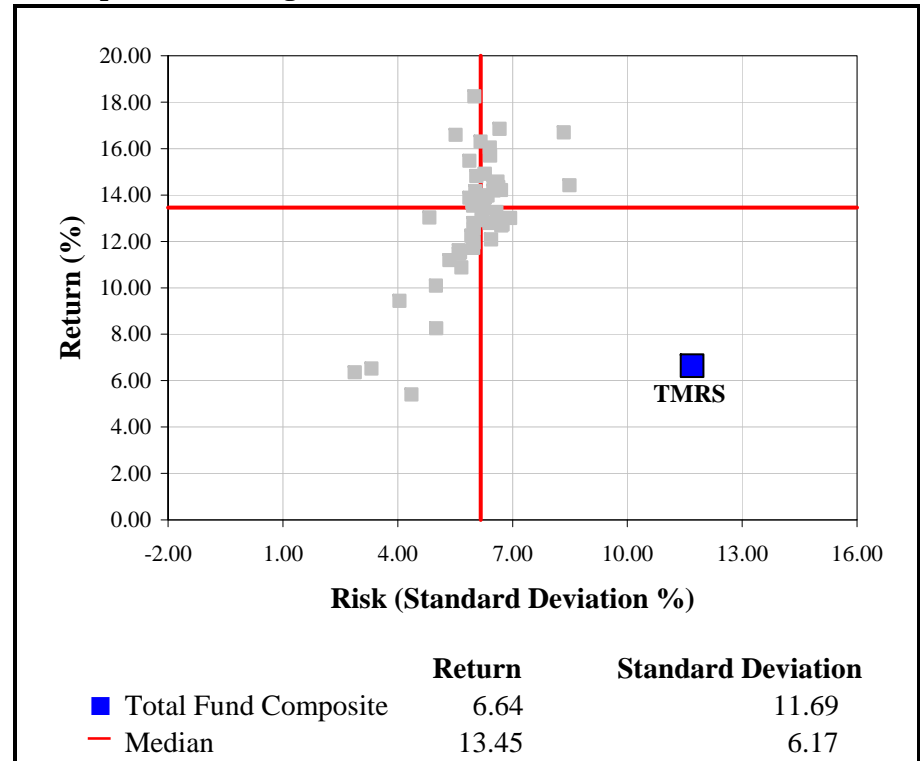
Public Fund Comparison 2007

- ▶ 3 & 5 Year risk and return profile compared to peers as of December 31, 2007

Plan Sponsor Scattergram - 3 Years



Plan Sponsor Scattergram - 5 Years

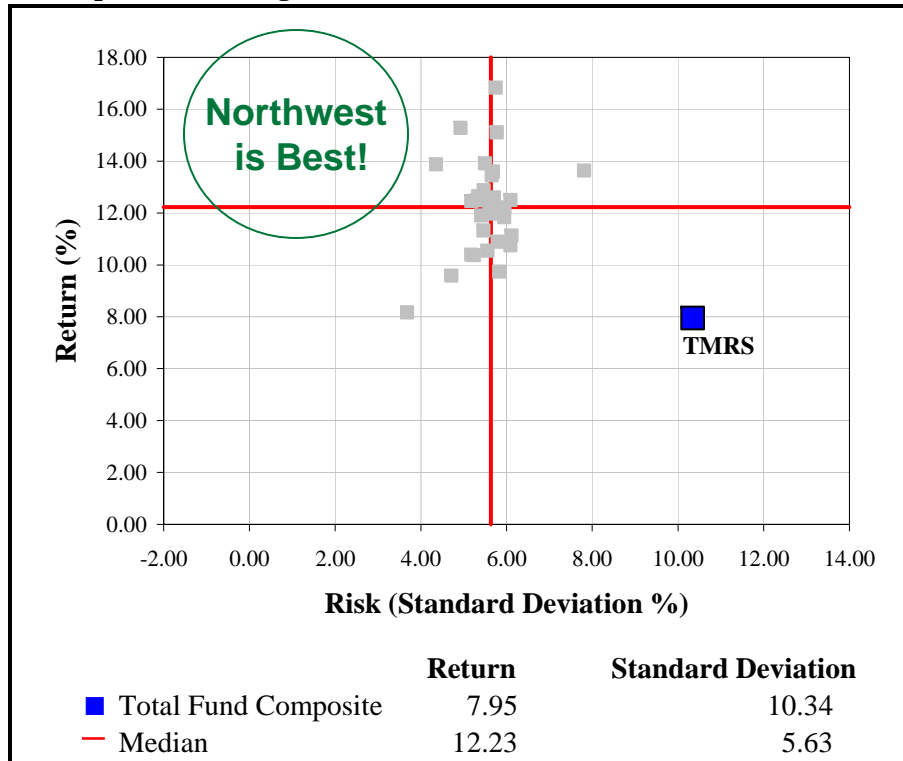




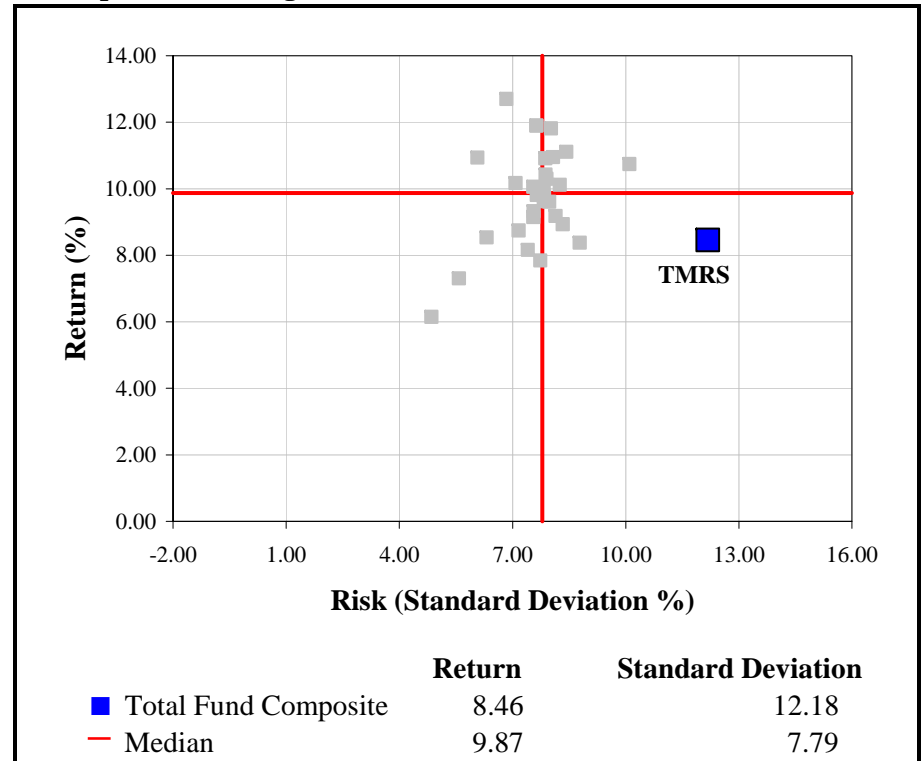
Public Fund Comparison 2006

- ▶ 3 & 5 Year risk and return profile compared to peers as of December 31, 2006

Plan Sponsor Scattergram - 3 Years



Plan Sponsor Scattergram - 5 Years





Public Fund Comparison

- ▶ 3 & 5 Year Sharpe Ratio compared to peers ending December 2008, 2007, and 2006

Sharpe Ratio

	2008		2007		2006	
	3 - Years	5 - Years	3 - Years	5 - Years	3 - Years	5 - Years
Total Fund Composite	-0.12 (5)	0.31 (4)	0.26 (100)	0.35 (100)	0.50 (97)	0.53 (100)
Median	-0.54	-0.05	0.99	1.53	1.42	0.95

* Parentheses contain percentile ranks.

Sharpe Ratio - Represents the excess rate of return over the risk-free return, divided by the standard deviation of the excess return. The result is the absolute rate of return per unit of risk. The higher the value, the better the product's historical risk-adjusted performance.