



Michigan Department of Treasury Bureau of Investments



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Director of Investments – Public Markets

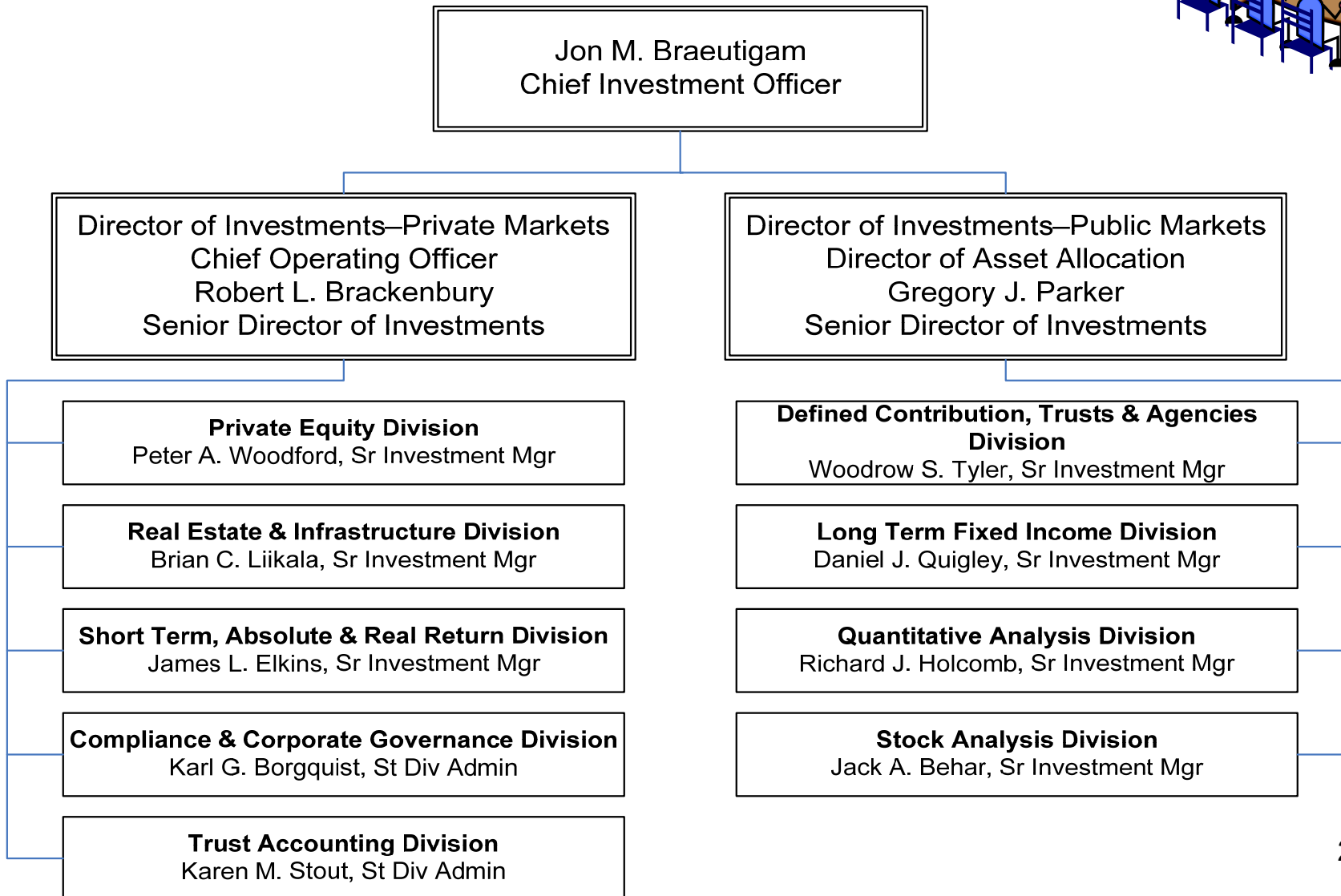
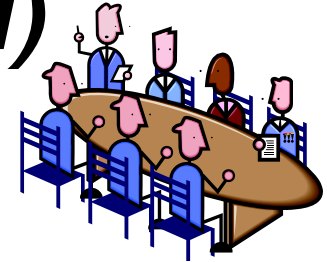
Director of Asset Allocation

May 5, 2016



Bureau of Investments (BOI)

As of December 2015





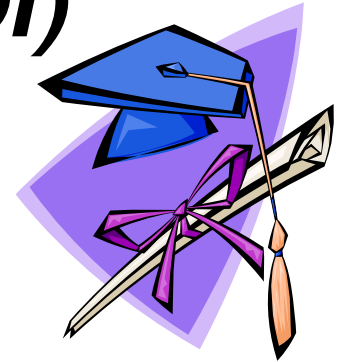
Executive Summary

- The market value of the MSPRS plan is up and the funding ratios are improving.
- Over the past year the plan substantially beat peers and most asset classes ranked and earned returns in excess of their performance benchmark.
- The market value of the MSPRS plan is different than the actuarial value. If the market value of plan assets does not decline, then the actuarial value will trend up in future years.



Bureau of Investments (BOI)

As of December 2015



- 78 BOI Employees
- 46 Investment Professionals
- 34 Individuals with a Masters Degree or higher
- 17 C.F.A.
- 9 other professional designations
- Total of \$78.1 billion assets under management
- The large investment pool is an advantage for the MSPRS



MSPRS Funded Ratio

\$1.3 Billion as of 12/31/15

Year	Market Value of Assets	Actuarial Value of Assets	Actuarial Accrued Liability	Funded Ratio Based on Actuarial Value
2014	\$1,250	\$1,133	\$1,800	63.0%
2013	\$1,127	\$1,069	\$1,724	62.0%
2012	\$1,052	\$1,069	\$1,671	64.0%
2011	\$967	\$1,138	\$1,628	69.9%
2010	\$999	\$1,202	\$1,594	75.4%
2009	\$958	\$1,238	\$1,534	80.7%
2008	\$1,089	\$1,266	\$1,496	84.6%
1983	\$178	\$178	\$272	65.4%
<i>MSPRS Estimated Market Value Funded Ratio</i>				
12/31/2015	\$1,348	- - -	\$1,800	74.9%

(\$ in Millions)

Source: Pension Plans Component Unit Financial Reports and Actuarial Valuations, years ending in September



MSPRS

Contributions and Distributions

FY 2015

Contributions

Members	\$2.7
Employer	70.3
	<hr/>

Total Contributions \$73.0

Pension Benefit Distributions

 115.5

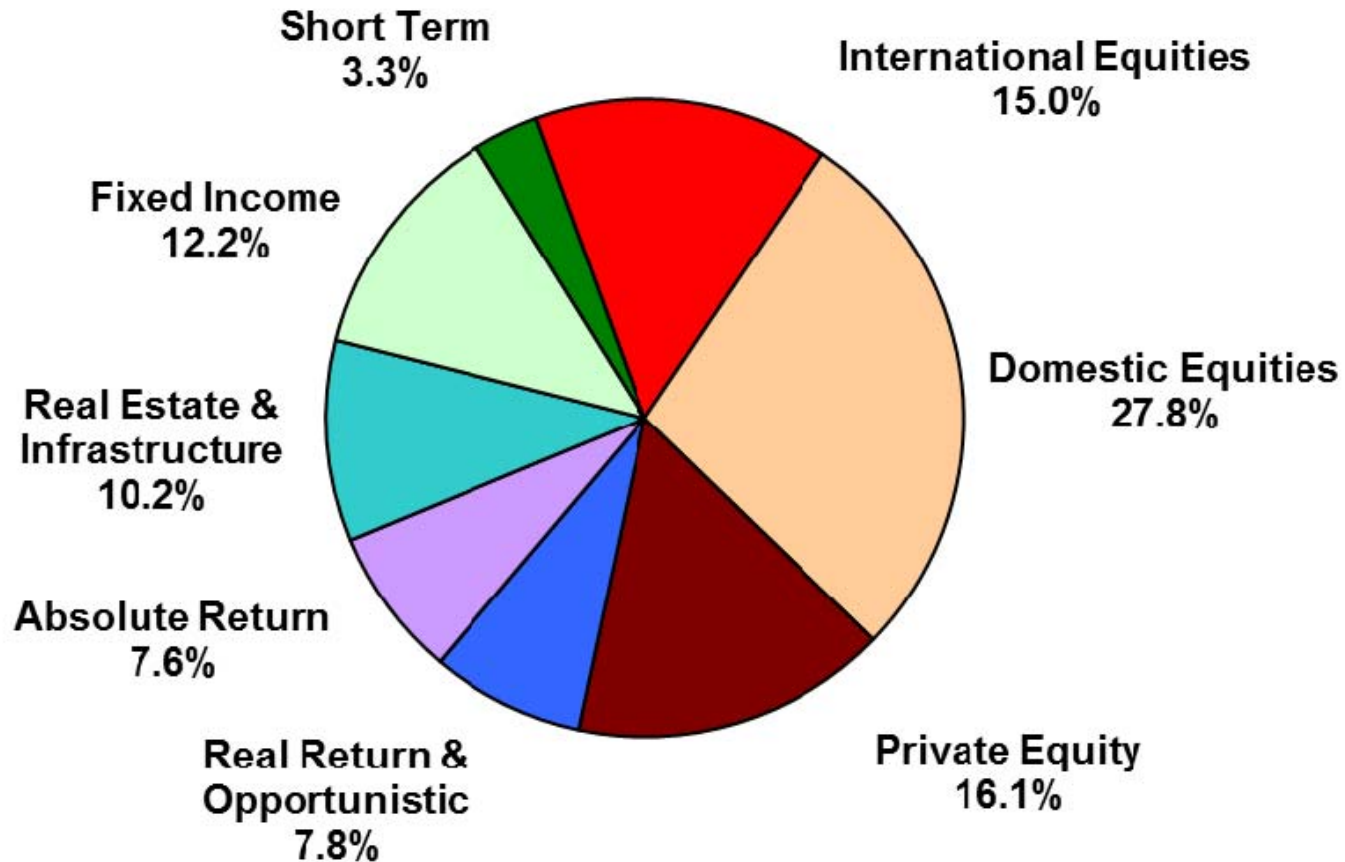
Net **(\$42.5)**

- Equal to (per quarter on average) (\$10.6)
- Or about 3.2% of total market value of fund



MSPRS Asset Allocation

As of December 31, 2015

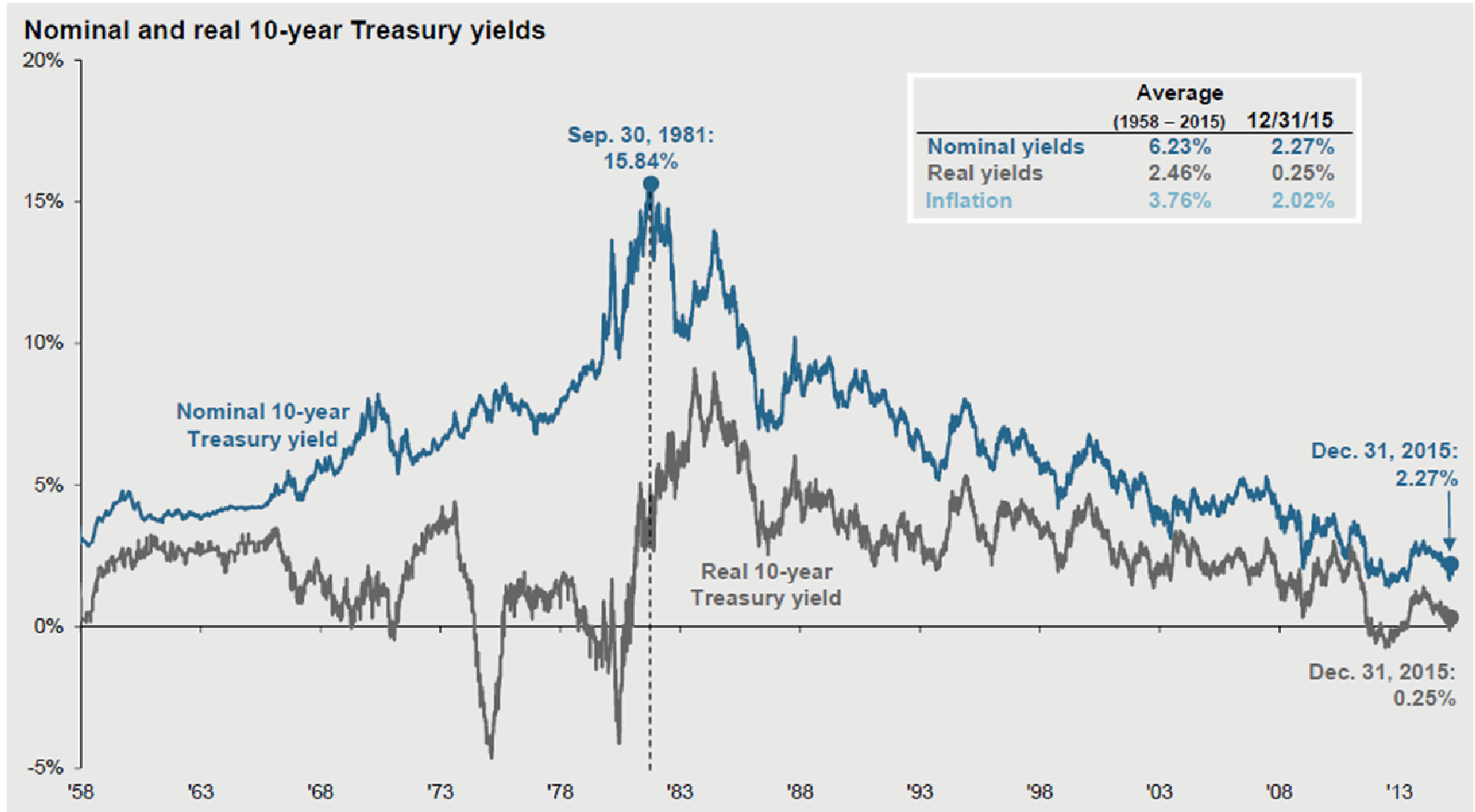


Diversification is essential to protect the funds. However, still reliant on equity markets.



Interest Rates and Inflation

Fixed income



Source: BLS, Federal Reserve, J.P. Morgan Asset Management.
 Real 10-year Treasury yields are calculated as the daily Treasury yield less year-over-year core CPI inflation for that month except for December 2015, where real yields are calculated by subtracting out November 2015 year-over-year core inflation.
 Guide to the Markets – U.S. Data are as of December 31, 2015.



S&P 500 - Last 10 Years





MSPRS FUND

Time-Weighted Rate of Return

Public Funds (DB) > \$10 Billion

As of December 31, 2015

Asset Class w/Benchmark	CY 2015									
	One Year*		Three Years*		Five Years*		Seven Years*		Ten Years*	
	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank
Total Plan	2.8%	5	9.9%	7	9.1%	6	9.9%	25	6.5%	9
Median - Greater than \$10 Billion	0.4%		7.8%		7.4%		9.4%		5.8%	

* Annualized Returns



Time-Weighted Rates of Return

Individual asset classes doing very well on a relative basis

Asset Class w/Benchmark	CY 2015	
	Three Years Annual Return	One Year Return
Total Plan*	9.9%	2.8%
Median*	7.8%	0.4%
Domestic Equities	14.9%	-0.5%
S&P 1500 Index	14.9%	1.0%
International Equities	3.3%	-2.4%
MSCI ACWI Ex USA	1.8%	-5.7%
Bonds	2.2%	1.4%
Barclays Aggregate	1.4%	0.6%

*Comparison universe is the State Street Universe comprised of Public Funds greater than \$10 Billion on the Total Plan level and greater than \$1 Billion for asset classes.



Time-Weighted Rates of Return

Asset Class w/Benchmark	CY 2015	
	Three Years Annual Return	One Year Return
Private Equity	15.1%	10.6%
Alternative Blended Benchmark	15.5%	2.4%
Real Estate & Infrastructure	13.5%	9.6%
NCREIF Open Fund Index Net	12.8%	14.0%
Absolute Return	6.2%	1.2%
HFRI FOF Cons 1 month lagged	4.2%	1.3%
Real Return and Opportunistic	13.1%	6.2%
Benchmark	7.0%	6.9%
Cash Equivalents	0.4%	0.5%
30-Day T-Bill	0.0%	0.0%

*Comparison universe is the State Street Universe comprised of Public Funds greater than \$10 Billion on the Total Plan level and greater than \$1 Billion for asset classes.



U.S. Economy

- Forecasted for modest higher growth.
- Housing continues to do well.
- Auto sales are doing well.
- Energy:
 - less dependence on foreign sources;
 - hurting commodity countries much more than the U.S.
- Consumer debt service is low.
- Labor market is still improving.



Still Needed

- Need to address U.S., states, and municipalities long-term liabilities.
- World is uncertain (Iran, North Korea, Syria, etc.).
- Larger emerging market economies are experiencing growing pains.



Conclusion

- We have experienced a ‘Bull Market’ since 2009. Prior to 2016, the fund was positioned tactically conservative versus its target allocation.
- The returns have substantially beaten peers.
- Going forward, with the 10-Year Treasury at ~2%, achieving 8% is challenging for a diversified portfolio.
- The U.S. economy is doing decent. Most economists predict moderate economic growth in 2016. Some risk due to slowing emerging market economies.