



Michigan Department of Treasury Bureau of Investments



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Chief Investment Officer

May 10, 2018



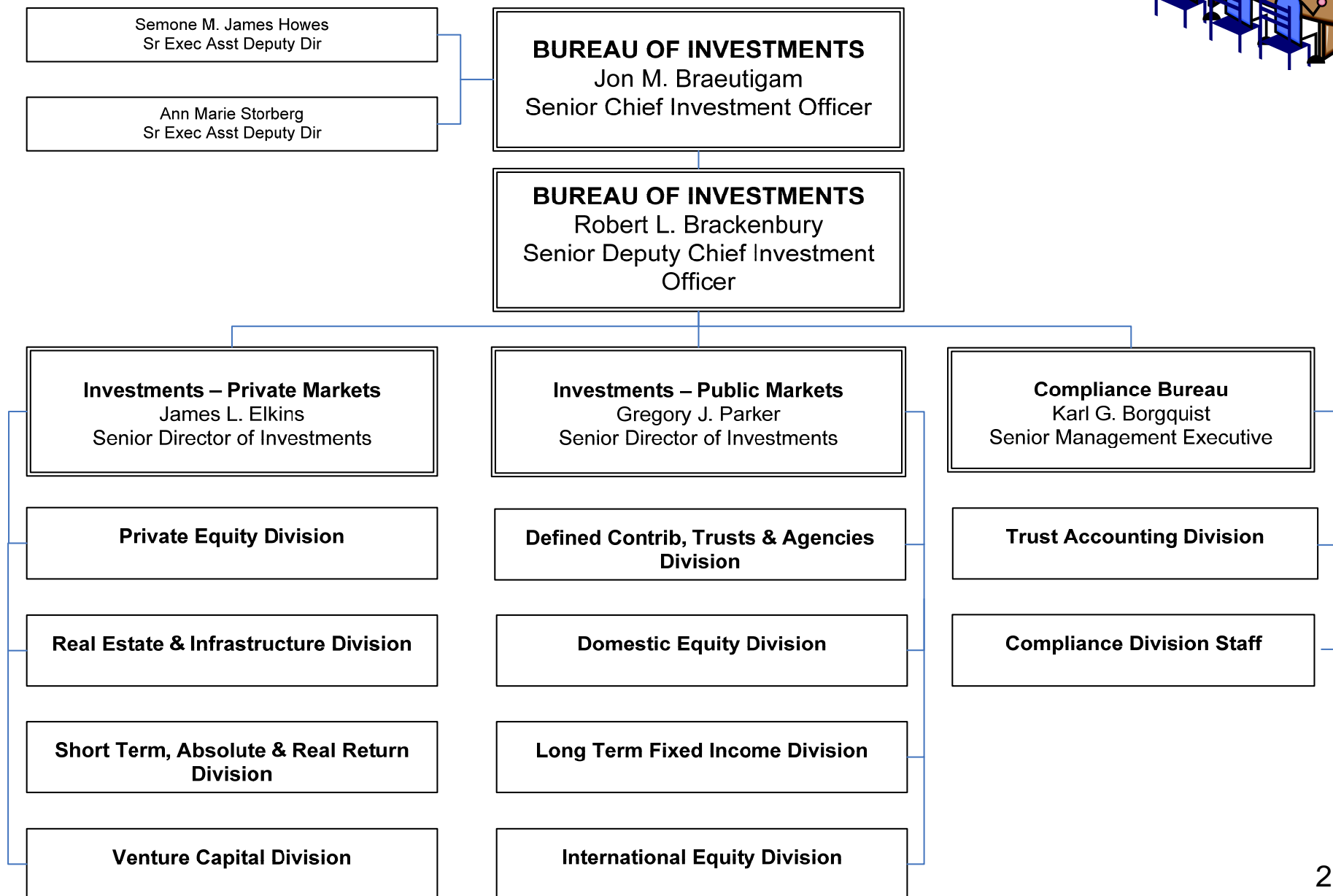
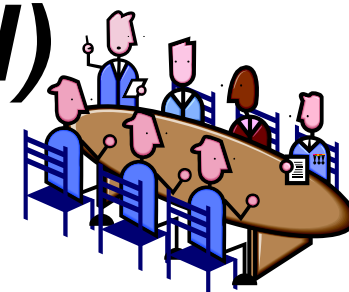
Executive Summary

- The market value of the MSPRS plan is up and the funding ratios are improving
- Long-term results substantially beat peers
- The market value of the MSPRS plan is different than the actuarial value; actuarial value ‘smooths’ results over years, while the market value is the actual value of the fund as of a certain date



Bureau of Investments (BOI)

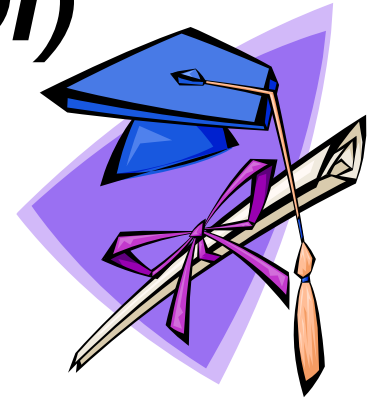
As of January 30, 2018





Bureau of Investments (BOI)

As of February 2018



- 75 BOI Employees
- 45 Investment Professionals
- 30 Individuals with a Masters Degree or higher
- 15 CFA Charter holders
- 15 Other professional designations
- Total of \$91.2 billion assets under management
(as of 3/31/18)
- The large investment pool is an advantage for the MSPRS, increase diversification while keeping costs low



MSPRS Funded Ratio

\$1.6 Billion as of 3/31/18

Year	Market Value of Assets	Actuarial Value of Assets	Actuarial Accrued Liability	Funded Ratio Based on Actuarial Value
2016	\$1,278	\$1,273	\$2,008	63.4%
2015	\$1,233	\$1,197	\$1,851	64.7%
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%
1983	\$178	\$178	\$272	65.4%
<i>MSPRS Estimated Market Value Funded Ratio</i>				
3/31/2018	\$1,443	- - -	\$2,008	71.9%

(\$ in Millions)

Pension Fund Only

*Revised actuarial assumptions and/or methods.

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



MSPRS

Contributions and Distributions

FY 2017

Contributions

Members	\$3.1
Employer	124.2
	<hr/>

Total Contributions \$127.3

Pension Benefit Distributions

130.2

Net **(\$2.9)**

- Equal to (per quarter on average) (\$0.7)
- Or about 0.2% of total market value of fund

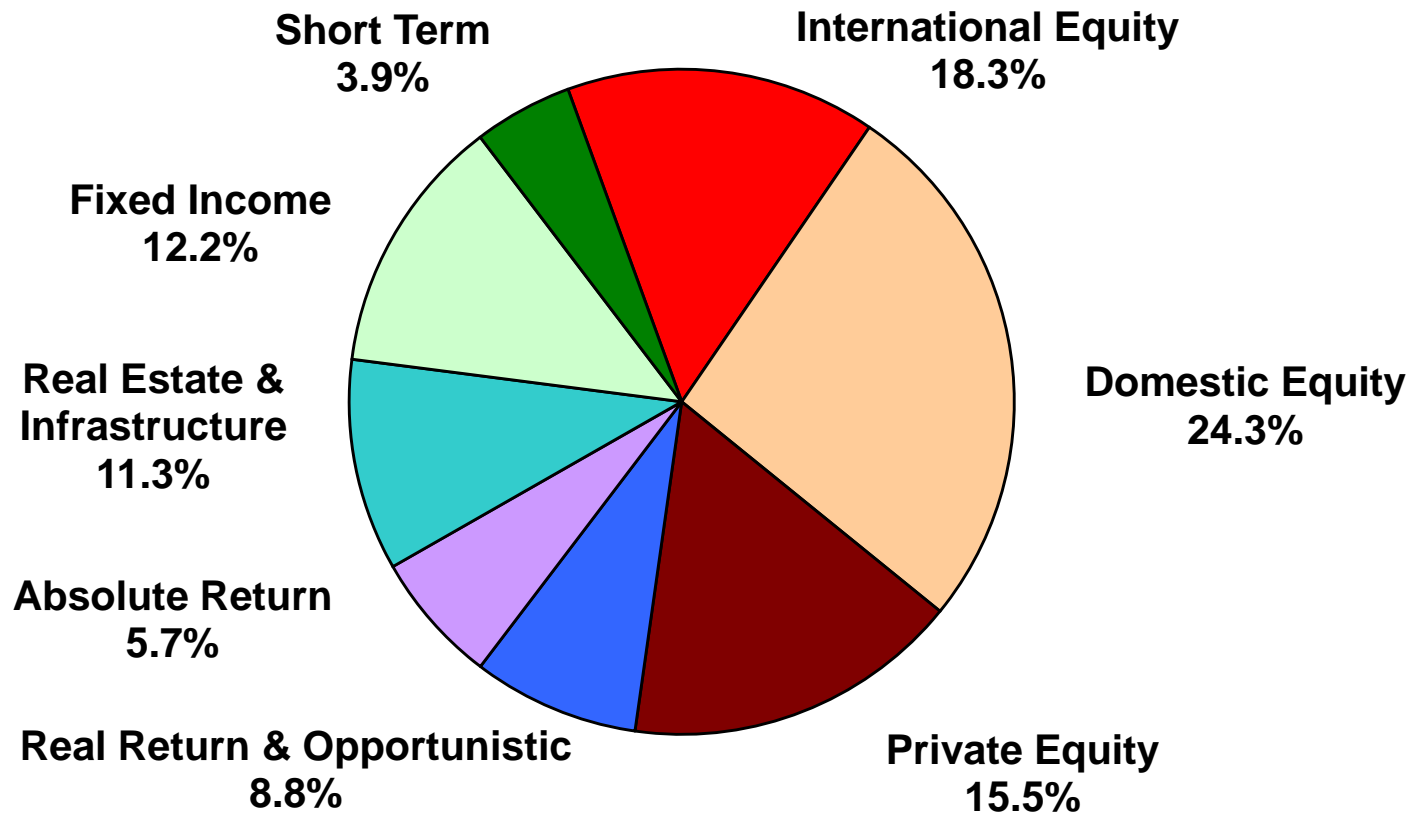
Figures are in millions

Includes Pension Plan and OPEB



MSPRS Asset Allocation

As of March 31, 2018

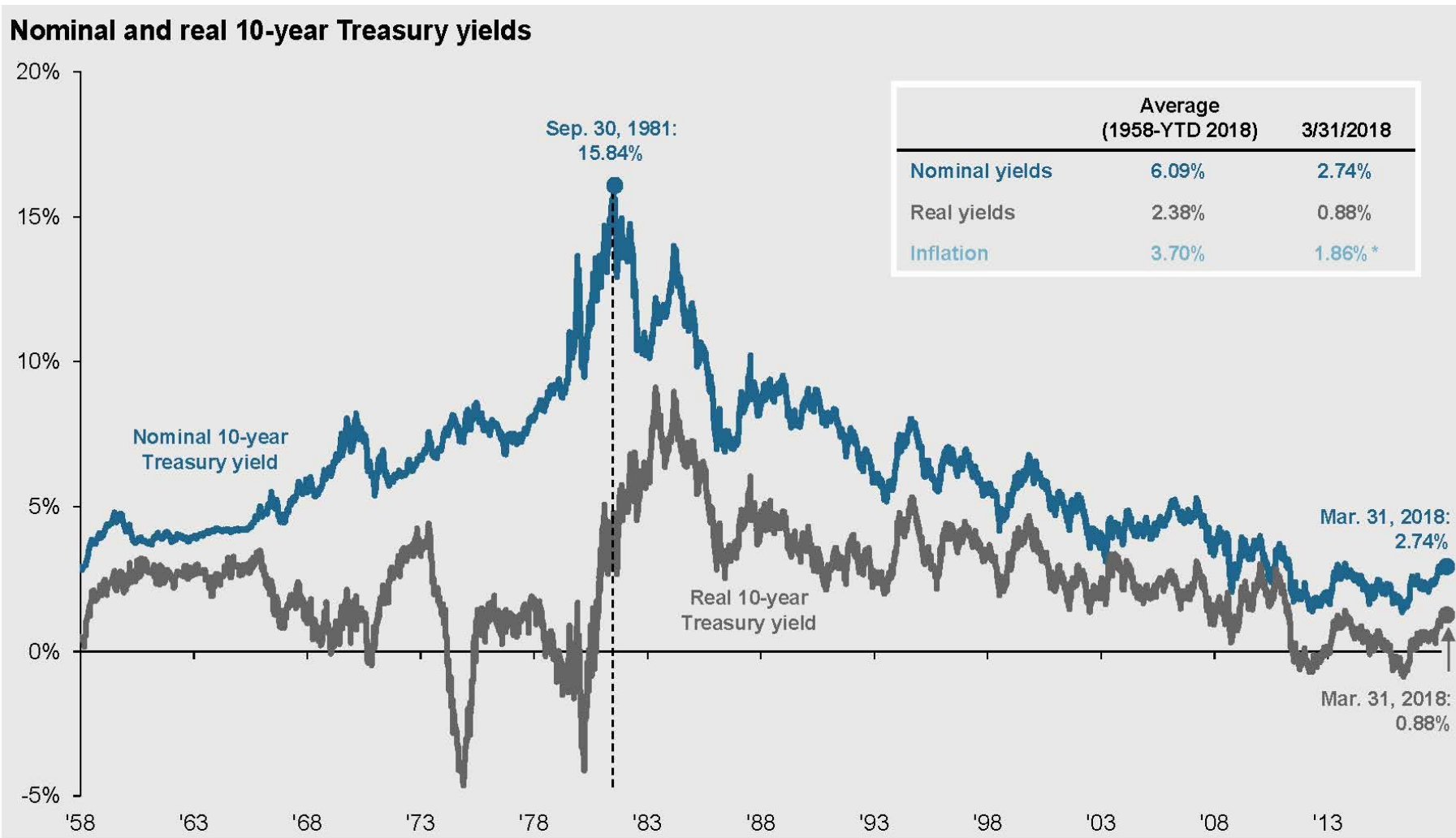


Diversification is essential to protect the funds. However, still reliant on equity markets.



Interest Rates and Inflation

Fixed income



Source: BLS, FactSet, 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 March 2018, where real yields are calculated by subtracting out February 2018 year-over-year core inflation. *Inflation is as of February 2018.
 Guide to the Markets – U.S. Data are as of March 31, 2018.



S&P 500 – Last 10 Years





MSPRS FUND

Time-Weighted Rate of Return

Public Funds (DB) > \$10 Billion

As of December 31, 2017

Asset Class w/Benchmark	CY 2017									
	One Year*		Three Years*		Five Years*		Seven Years*		Ten Years*	
	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank
Total Plan	16.2%	33	8.7%	15	10.7%	14	9.8%	11	6.3%	30
Median	15.2%		7.9%		9.1%		8.5%		5.9%	

* Annualized Returns

Source: State Street Investment Analytics



U.S. Economy

- Forecasted for modest higher growth
- Housing continues to do well
- Auto sales are doing ok
- Tax cut will provide fiscal stimulus this year
- Labor market has tightened significantly and may increase inflation
- World economy currently doing well



Still Needed

- Need to address U.S. long-term liabilities
- World is uncertain (Iran, North Korea, Syria, etc.)
- Tariff concerns



Conclusion

- We have experienced a U.S. ‘Bull Market’ since 2009, one of the longest ever
- The longer-term returns are higher than peer median
- Going forward, with the 10-Year Treasury at 2.9%, achieving 7% is challenging for a diversified portfolio
- The U.S. and world economy is growing at a decent rate, and most economists predict moderate economic growth in 2018 and 2019