Michigan Department of Treasury
Bureau of Investments

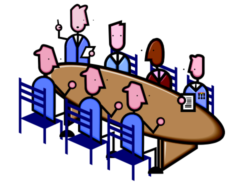
March 21, 2019

Executive Summary

- Long term market returns have been robust and in the next ten years most industry experts anticipate lower returns.
- Therefore, most plans are lowering (or have lowered already) their plans actuarial assumed rate of return.
- The plans substantially beat peers in all time periods.

Bureau of Investments

As of January 2019



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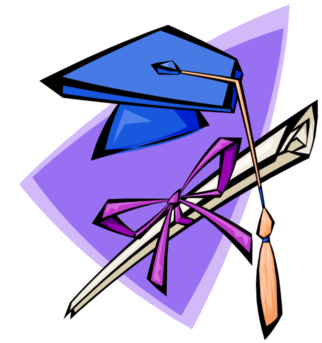
Bureau of Investments

As of January 2019



- 73 BOI Employees
- 44 Investment Professionals
- 43 Individuals with a Masters Degree or higher
- 16 C.F.A. Charter holders
- 16 Other professional designations
- Total of $91.0 billion assets under management (as of 12/31/18)
- The large investment pool is an advantage for the MPSERS

MPSERS Funded Ratio
$47.5 Billion as of 12/31/18

Year	Market Value of Assets	Actuarial Value of Assets	Actuarial Accrued Liability	Funded Ratio Based on Actuarial Value
2017	$47,012	$47,255	$76,693	61.6%
2016	$43,461	$43,204	$72,310	59.7%
2015	$42,382	$41,006	$67,728	60.5%
2014*	$43,773	$39,626	$66,105	59.9%
2013	$40,016	$38,044	$63,840	59.6%
2012	$37,700	$38,450	$62,716	61.3%
2011	$34,675	$41,038	$63,427	64.7%
1983	$6,285	$6,035	$8,434	71.6%

($ in Millions)

*Revised actuarial assumptions and/or methods.

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

Pension Plan Only

MPSERS
Contributions and Distributions
FY 2018

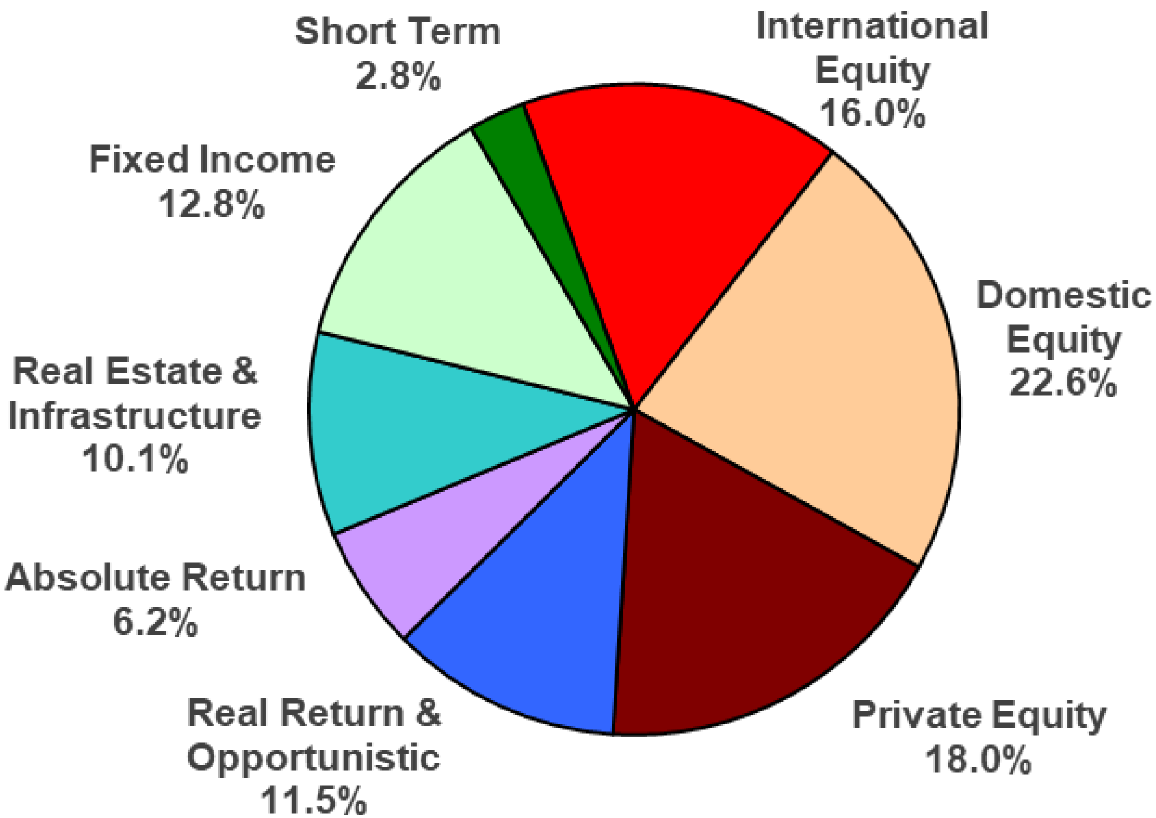
Contributions	
Members	$ 393.1
Employer	2,791.5
Total Contributions	$ 3,184.6
Less:	
Pension Benefit Distributions	4,934.6
Net	**$ (1,750.0)**

- Equal to (per quarter on average) $ (437.5)
- Or about 3.7% of total market value of fund

Figures are in millions

MPSERS Asset Allocation

As of December 31, 2018

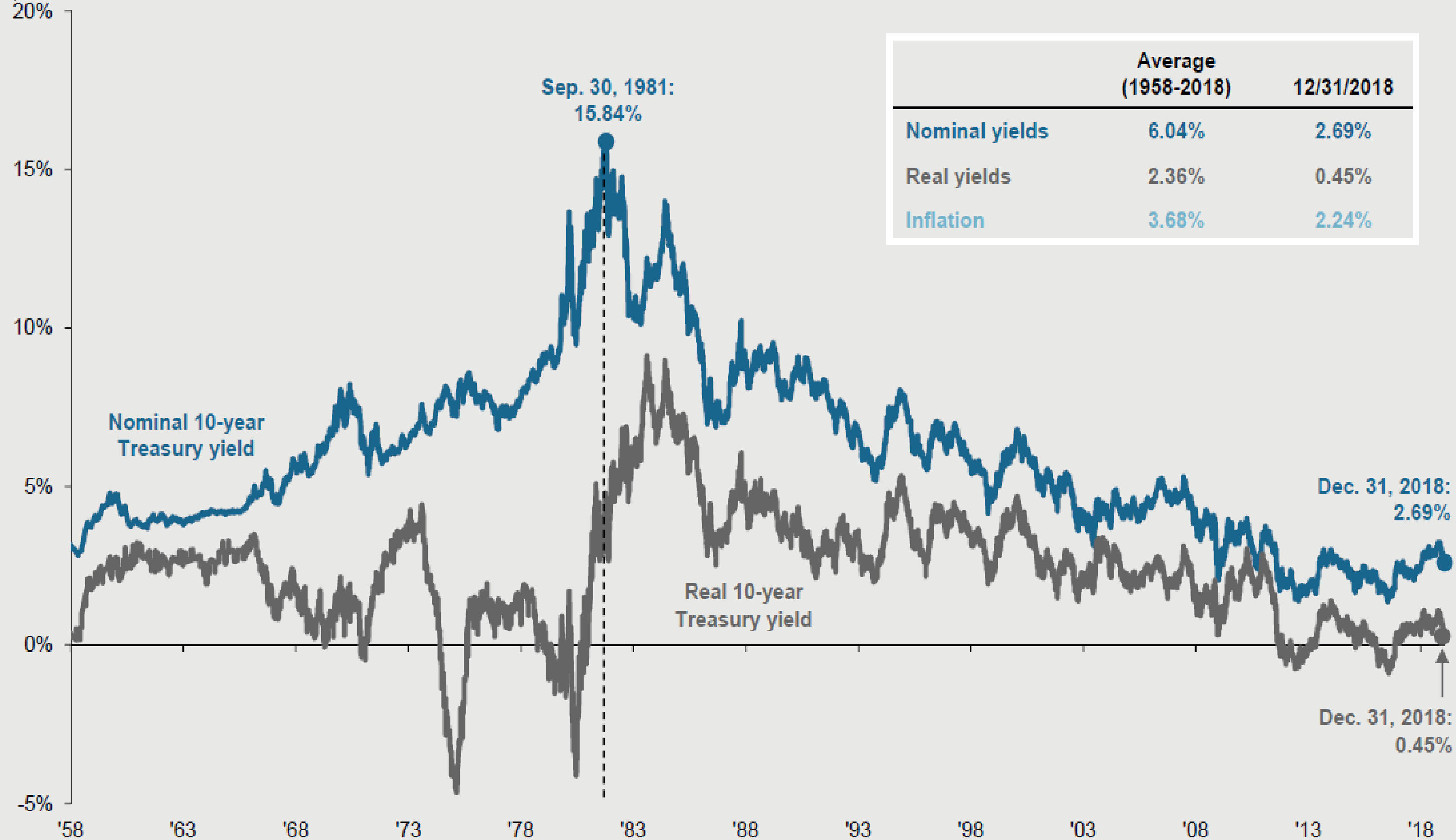


Diversification is essential to protect the funds. However, still reliant on equity markets to generate the actuarial assumed rate of return.

Interest Rates and Inflation

Fixed income

Nominal and real 10-year Treasury yields



	Average (1958-2018)	12/31/2018
Nominal yields	6.04%	2.69%
Real yields	2.36%	0.45%
Inflation	3.68%	2.24%

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 December 2018, where real yields are calculated by subtracting out November 2018 year-over-year core inflation.
Guide to the Markets – U.S. Data are as of December 31, 2018.

J.P.Morgan Asset Management

S&P 500 – Last 10 Years

MPSERS FUND

Time-Weighted Rate of Return

Public Funds (DB) > $10 Billion

As of December 31, 2018

Asset Class w/Benchmark	One Year*		Three Years*		Five Years*		Seven Years*		Ten Years*	
	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank
Total Plan	**2.7%**	**5**	**8.6%**	**13**	**8.0%**	**4**	**9.8%**	**5**	**9.6%**	**9**
Median - Greater than $10 Billion	-2.1%		6.7%		5.6%		8.2%		8.5%	

*Annualized Returns

Source: State Street Investment Analytics

Time-Weighted Rates of Return

Individual asset classes doing well on a relative basis

Asset Class w/Benchmark	12/31/2018 Three Years Annual Return	One Year Return
Total Plan*	**8.6%**	**2.7%**
Median*	6.7%	-2.1%
Domestic Equities	**9.5%**	**-3.8%**
S&P 1500 Index	9.2%	-5.0%
International Equities	**4.8%**	**-14.3%**
MSCI ACWI Ex USA	4.5%	-14.2%
Bonds	**4.1%**	**1.2%**
Barclays Aggregate	2.1%	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.

Time-Weighted Rates of Return

Asset Class w/Benchmark	12/31/2018 Three Years Annual Return	One Year Return
Private Equity	**14.8%**	**18.2%**
Alternative Blended Benchmark	20.7%	21.4%
Real Estate and Infrastructure	**10.4%**	**12.2%**
NCREIF Open Fund Index Net	7.3%	7.4%
Absolute Return	**4.4%**	**4.3%**
HFRI FOF Cons 1 month lagged	1.8%	0.6%
Real Return and Opportunistic	**12.4%**	**19.5%**
Benchmark	7.5%	7.3%
Cash Equivalents	**1.4%**	**2.2%**
30-Day T-Bill	0.9%	1.8%

*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 decelerating growth globally.
- Housing is moderating.
- Auto sales are moderating.
- Tax cut provided fiscal stimulus, but impact moderating.
- Labor market has tightened significantly and may increase inflation, but this hasn't yet been the case.

Concerns

- Decelerating global economy.
- Need to address U.S. long-term liabilities.
- World is uncertain (Iran, North Korea, Russia, etc.).
- Federal trade policies – China, Europe, NAFTA.
- Equity market volatility has increased (from historically low levels to normal).

Conclusion

- We have experienced a 'Bull Market' since 2009, but for how much longer?
- The MPSERS fund is growing nicely and beating peers.
- The U.S. economy is doing well.