Michigan Department of Treasury
Bureau of Investments

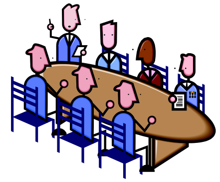
Gregory J. Parker
Director of Investments – Public Markets

April 29, 2021

Executive Summary

- Long term market returns have been robust but 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 plan's returns substantially beat peer returns over longer time periods.

Bureau of Investments (BOI)



As of December 31, 2020

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Bureau of Investments

As of December 31, 2020

- 75 BOI Employees.
- 49 Investment Professionals.
- 35 Individuals with a Masters Degree or higher.
- 16 C.F.A. Charter holders.
- 12 Other professional designations.
- Total of $117.9 billion assets under management.
- The large investment pool is an advantage for the MSPRS.

MSPRS Funded Ratio

$1.6 Billion as of December 31, 2020

FY Ending September	Market Value of Assets	Actuarial Value of Assets	Actuarial Accrued Liability	Funded Ratio Based on Actuarial
2019	$1,504	$1,520	$2,321	65.5%
2018*	$1,492	$1,499	$2,271	66.0%
2017*	$1,391	$1,398	$2,147	65.1%
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%
1983	$178	$178	$272	65.4%

($ 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

MSPRS
Contributions and Distributions
FY 2020

Contributions	
Members	$4.1
Employer	137.5
Total Contributions	$141.6
Pension Benefit Distributions	181.5
Net	**($39.9)**

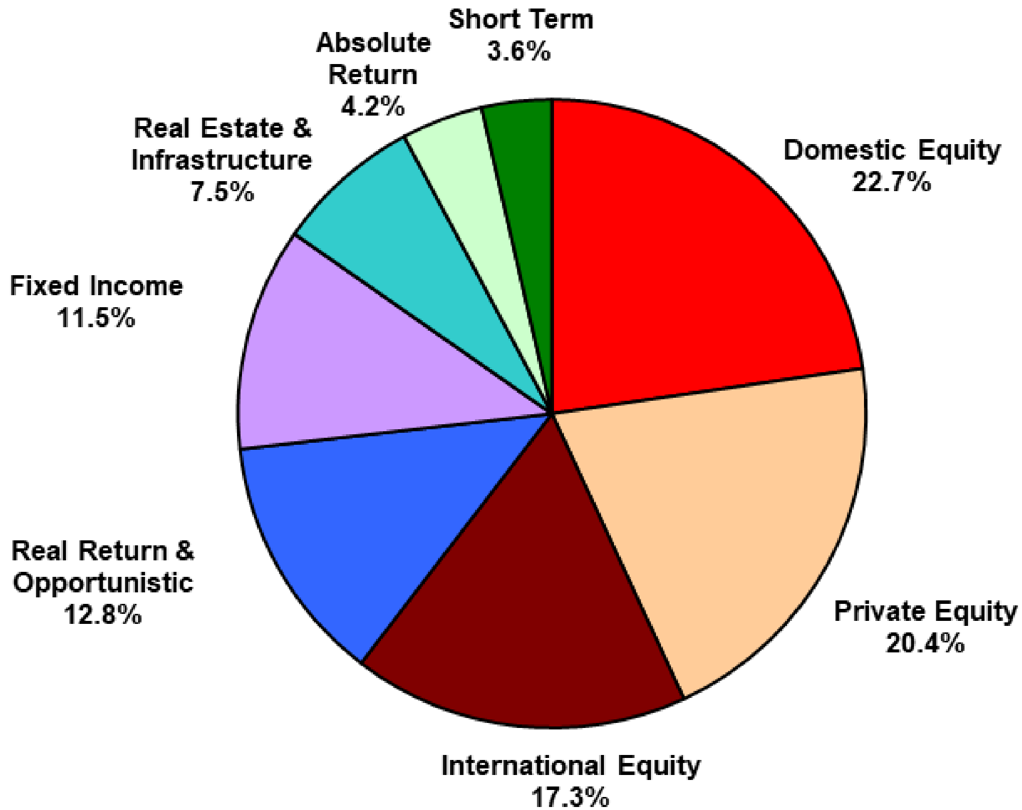
- Equal to (per quarter on average) ($10.0)
- Or about 2.3% of total market value of fund

Figures are in millions

Includes Pension Plan and OPEB

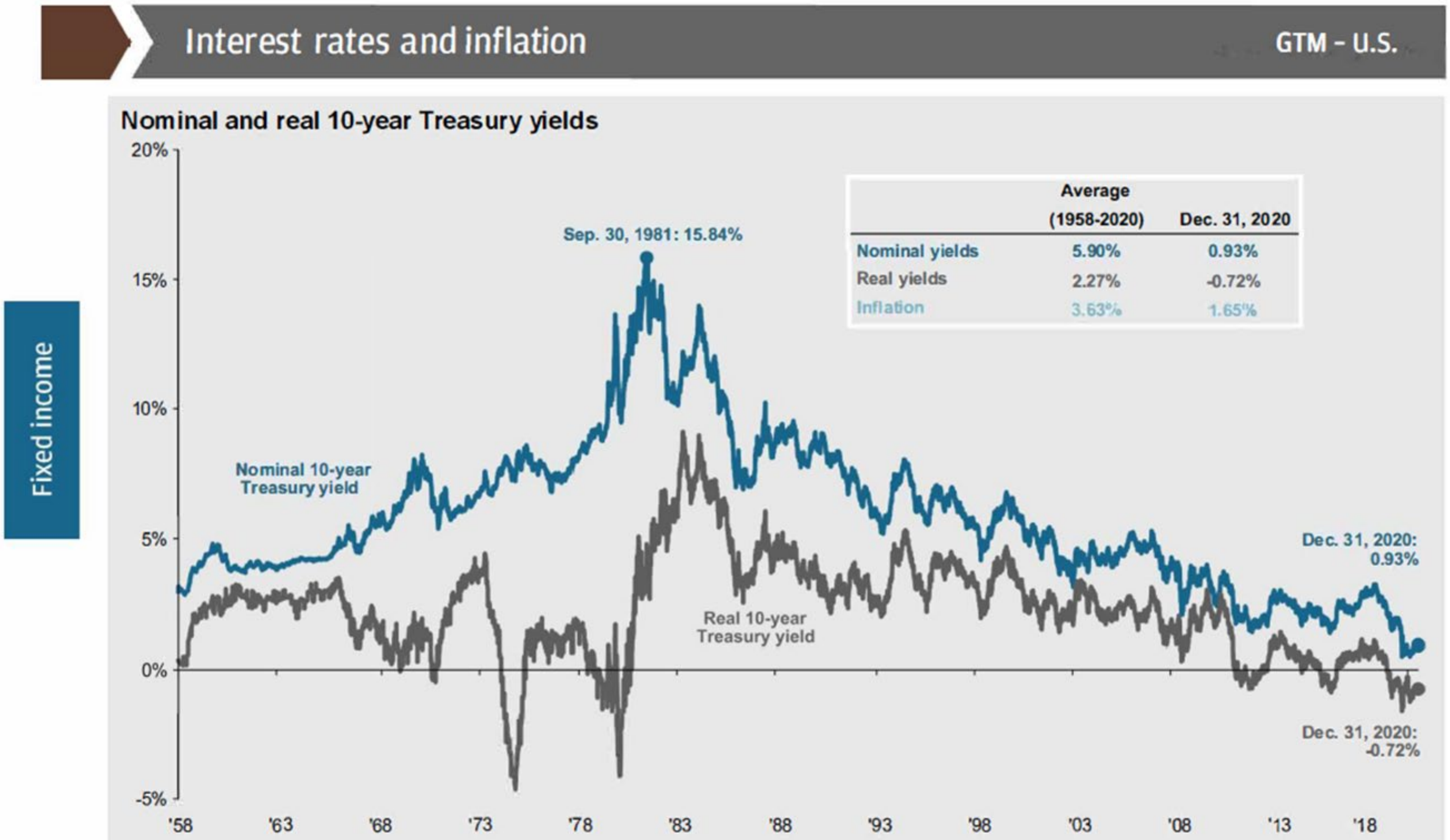
MSPRS Asset Allocation

As of December 31, 2020



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

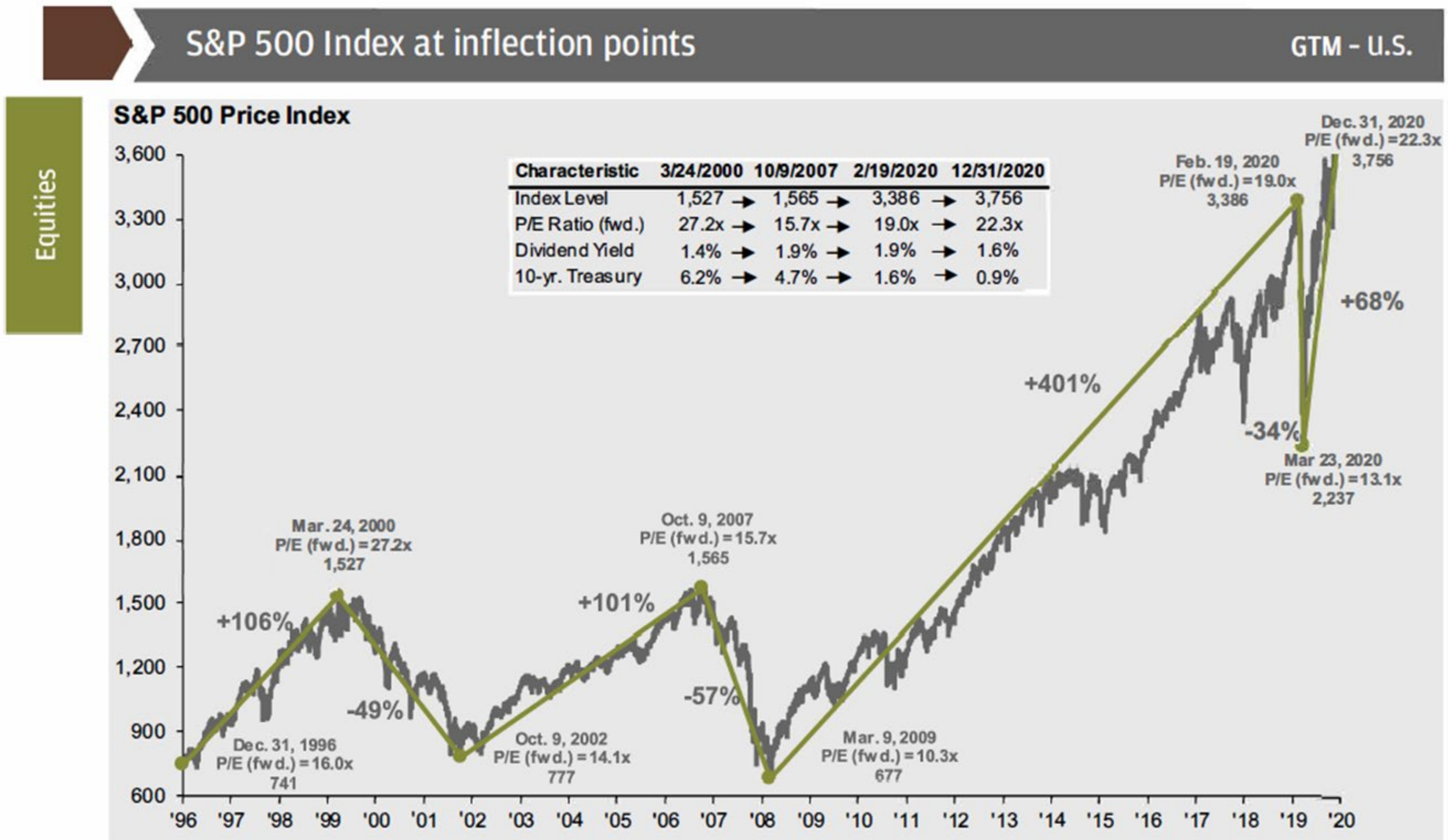
Interest Rates and Inflation



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 2020 where real yields are calculated by subtracting out November 2020 year-over-year core inflation.
Guide to the Markets – U.S. Data are as of December 31, 2020.

J.P.Morgan Asset Management

S&P 500 – Index at Inflection Points



Source: Compustat, FactSet, Federal Reserve, Standard & Poor's, J.P. Morgan Asset Management.
Dividend yield is calculated as consensus estimates of dividends for the next 12 months, divided by most recent price, as provided by Compustat. Forward price-to-earnings ratio is a bottom-up calculation based on the most recent S&P 500 Index price, divided by consensus estimates for earnings in the next 12 months (NTM), and is provided by FactSet Market Aggregates. Returns are cumulative and based on S&P 500 Index price movement only, and do not include the reinvestment of dividends. Past performance is not indicative of future returns.
Guide to the Markets – U.S. Data are as of December 31, 2020.

J.P.Morgan
Asset Management

MSPRS FUND
Time-Weighted Rate of Return

As of December 31, 2020

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	**11.3%**	**63**	**9.6%**	**16**	**10.5%**	**22**	**9.5%**	**7**	**9.8%**	**13**
Median - Greater than $10 Billion**	11.9%		8.3%		9.6%		8.0%		8.6%	

- Historically the investment results have compared favorably to other large public pension plans (Larger than $10 billion). Over the past ten years, the returns added approximately $13 billion in value compared to what a peer median investment return would have earned.

* Annualized Returns

** Comparison universe is the State Street Universe comprised of Pubic Funds greater than $10 billion on the total plan level.

U.S. Economy

- Unprecedented fiscal & monetary stimulus is sustaining the US economy.
- Full economic recovery is more a story of vaccine deployment (reopened economy) than it is of stimulus funding.
- 2021 GDP growth estimates range from 6-9%, but with the tradeoff risk of higher inflation.
- Fed Reserve appears ready to manage inflation, with tolerance until labor market more fully recovers.

Conclusion

- 2020 began with the sharpest recession on record, then experienced the fastest-ever rebound.
- Much of the US economy recovered well in 2020, but unevenly. With expanded access to vaccines and significant additional stimulus anticipated, 2021 should experience significant growth & economic rebounds.
- We will continue to maintain a long-term focus with sufficient liquidity to manage through short-term market changes.