



Michigan Department of Treasury Bureau of Investments



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Director of Investments – Public Markets
May 4, 2023



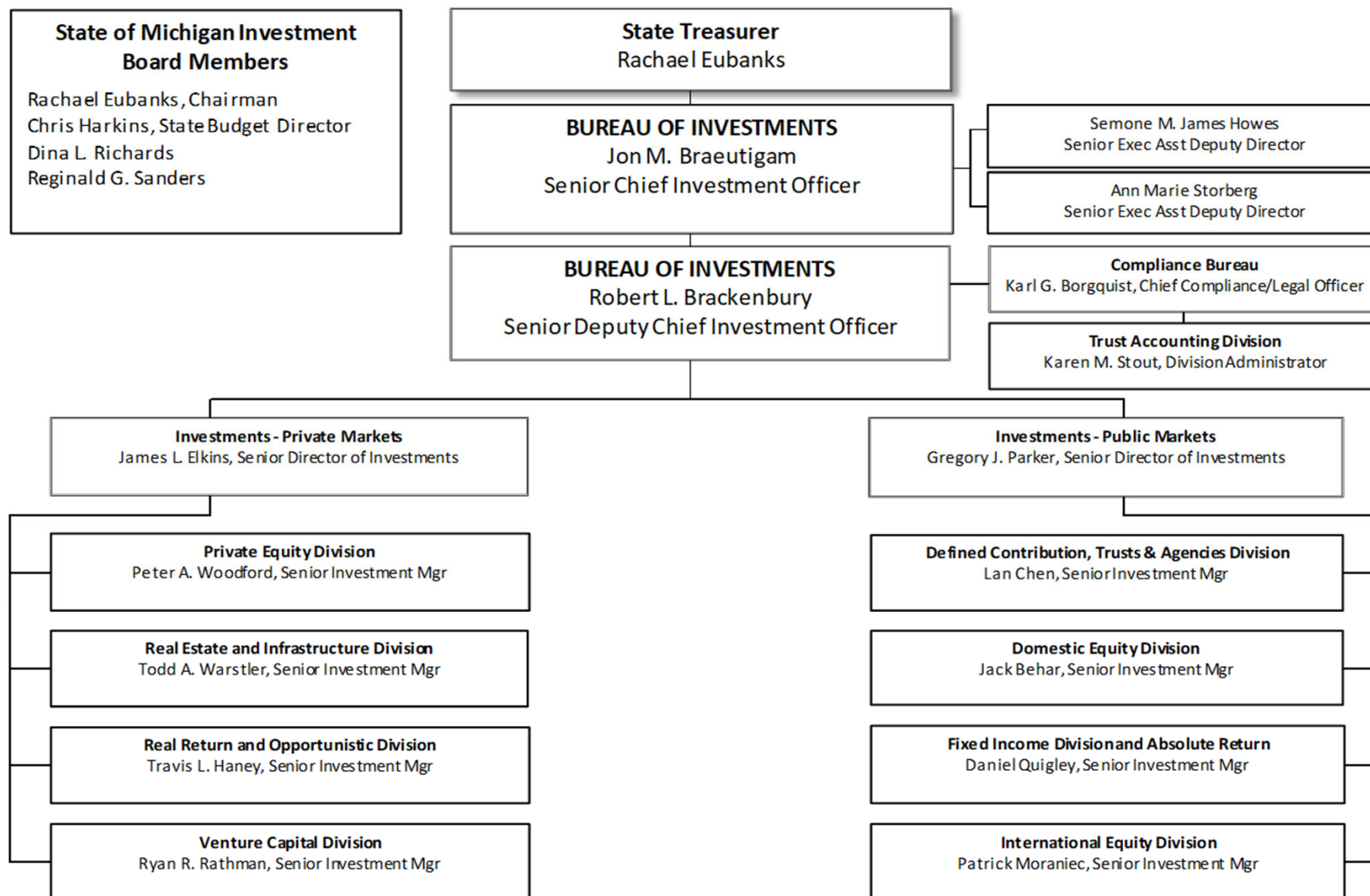
Executive Summary

- 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.
- 2022 was a difficult year to invest, across the industry and asset classes.
- The plans substantially beat peers across all time periods.



Bureau of Investments (BOI)

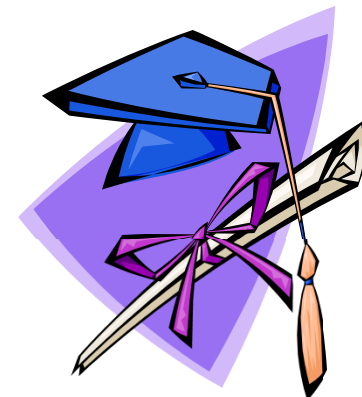
As of December 31, 2022





Bureau of Investments

As of December 31, 2022



- 75 BOI Employees.
- 49 Investment Professionals.
- 32 Individuals with a Masters Degree or higher.
- 17 C.F.A. Charter holders.
- 13 Other professional designations.
- Total of \$143.9 billion assets under management.
- The large investment pool is an advantage for the plans.



MSPRS Funded Ratio

\$1.7 Billion as of December 31, 2022

FY Ending September	Market Value of Assets	Actuarial Value of Assets	Actuarial Accrued Liability	Funded Ratio Based on Actuarial
2021	\$1,843	\$1,752	\$2,609	67.2%
2020	\$1,513	\$1,545	\$2,374	65.1%
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%
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 2022

Contributions

Members	\$4.4
Employer	140.1

Total Contributions	\$144.5
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Pension Benefit Distributions	193.0
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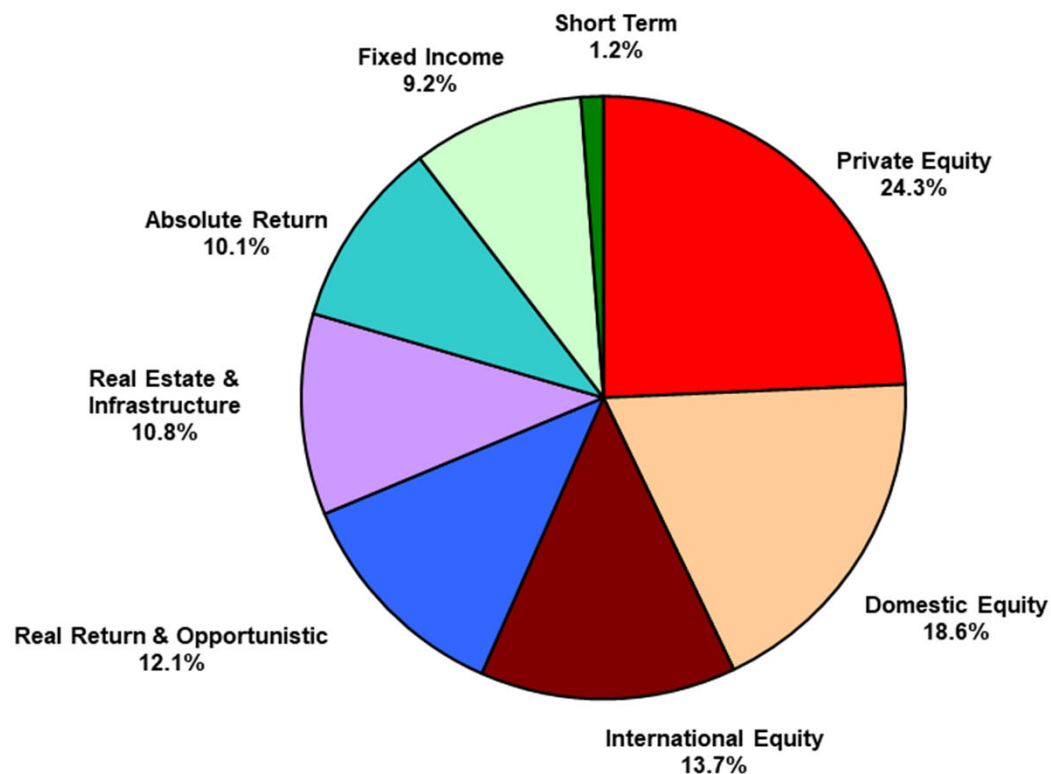
Net	(\$48.5)
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- Equal to (per quarter on average) (\$12.1)
- Or about -2.4% of total market value of fund



MSPRS Asset Allocation

As of December 31, 2022

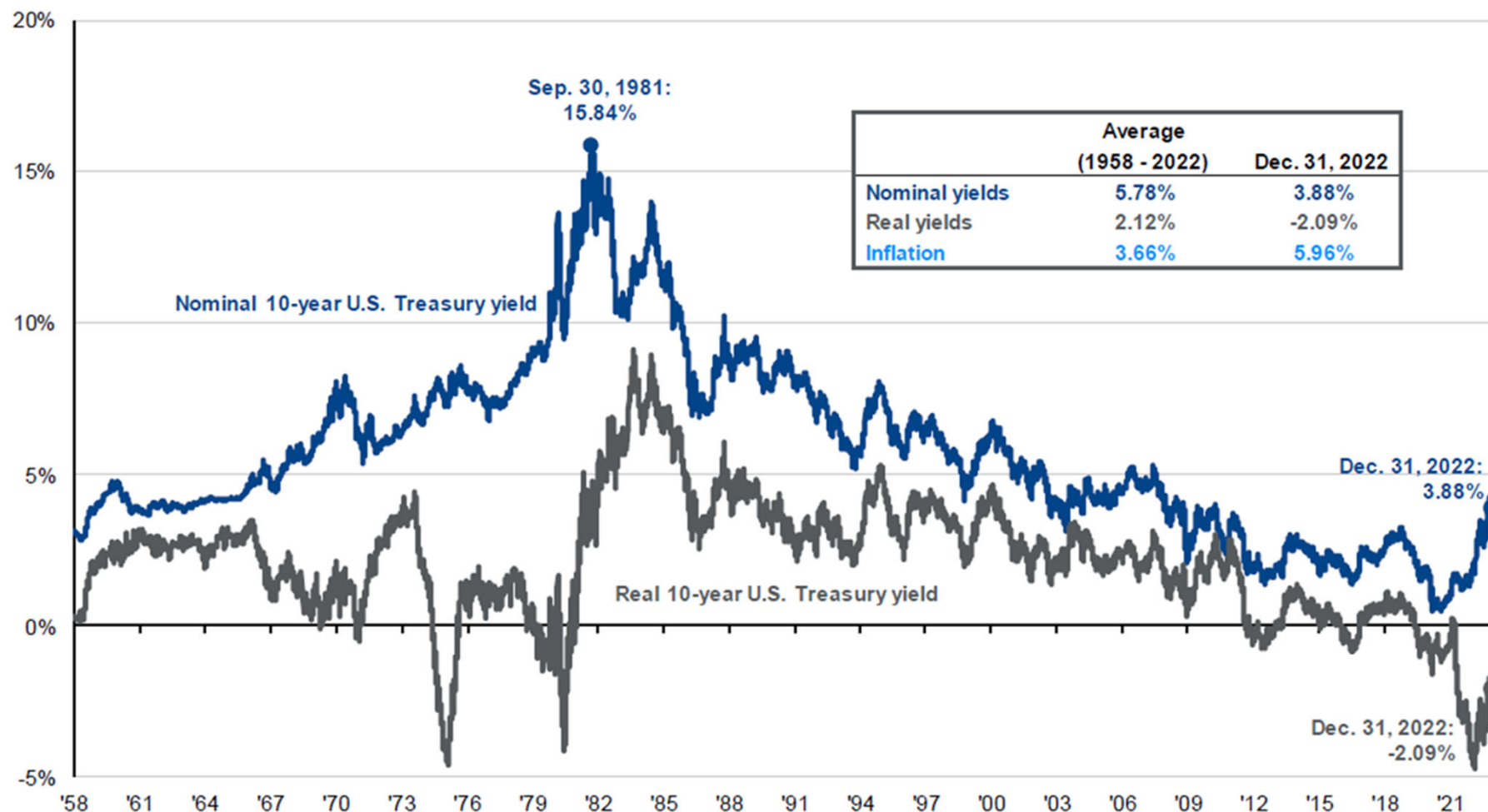


Diversification is essential to protect the funds. However, still reliant on equity markets to generate the actuarial rate of return.



Interest Rates and Inflation

Nominal and real U.S. 10-year Treasury yields



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. For the current month, we use the prior month's core CPI figures until the latest data is available.

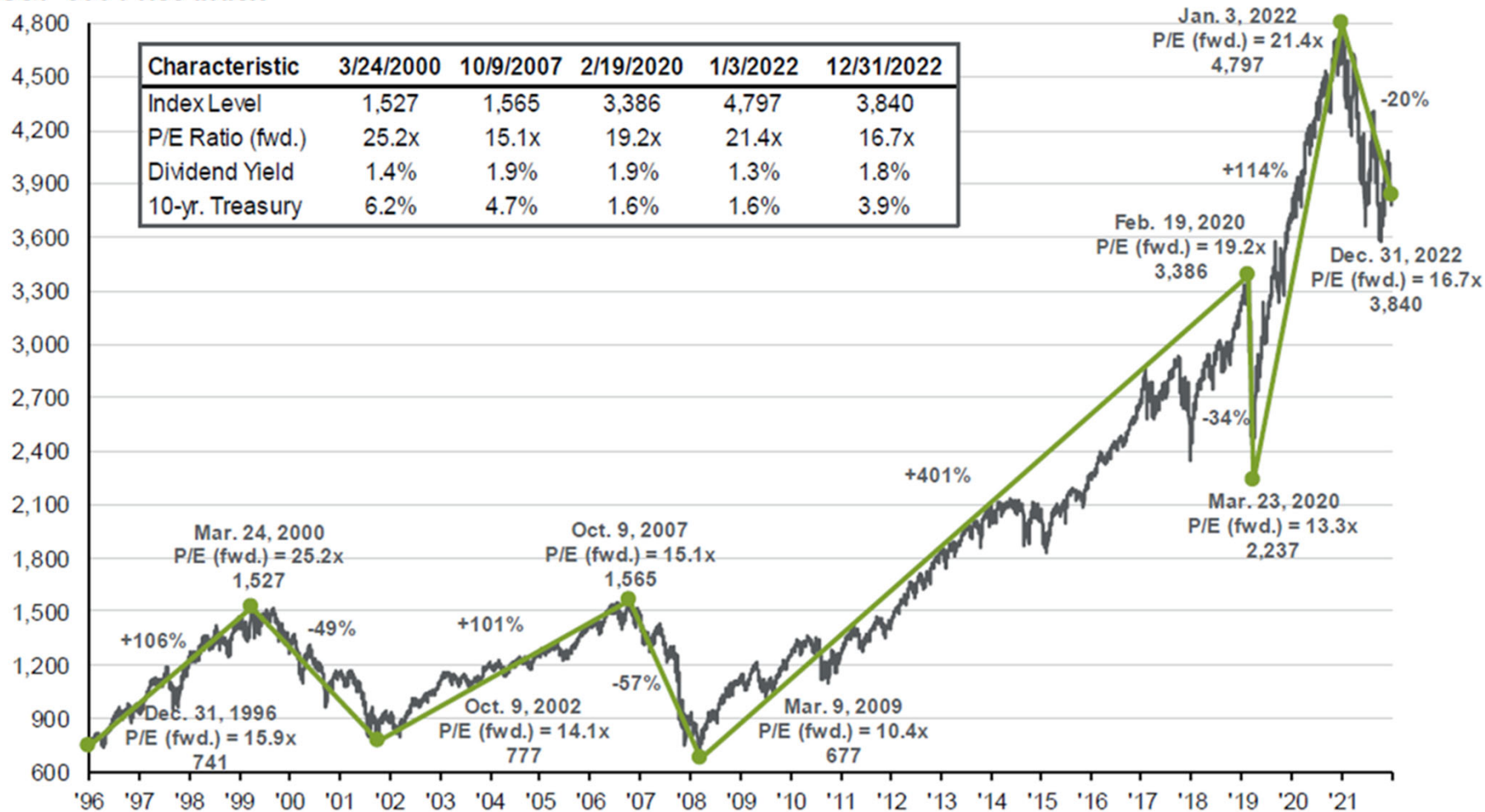
Guide to the Markets – U.S. Data are as of December 31, 2022.

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ASSET MANAGEMENT



S&P 500 – Index at Inflection Points

S&P 500 Price Index



Source: Compustat, FactSet, Federal Reserve, Refinitiv Datastream, 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 IBES estimates and FactSet estimates since January 2022. 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.
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J.P.Morgan
ASSET MANAGEMENT



MSPRS FUND

Time-Weighted Rate of Return

As of December 31, 2022

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	-4.5%	13	8.7%	12	8.6%	12	9.2%	12	9.4%	12
Median - Greater than \$10 Billion**	-7.3%		6.7%		6.6%		7.8%		7.4%	

* Annualized Returns

** 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.

- Historically the investment results have compared favorably to other large public pension plans (Larger than \$10 billion).



U.S. Economy

- Unprecedented fiscal & monetary stimulus made its way through the US economy in 2022, frequently cited as a major cause of inflation.
- 2023 GDP growth estimates are around 0.3%, and with higher-than-normal inflation.
- Fed Reserve is actively managing inflation, with interest rates steadily increasing.
- Fed Reserves' challenge in 2023 is to what degree should they continue to fight inflation before the risk of a hard landing.



Conclusion

- 2022 began with the highest inflation rates since 1982 and with Fed Funds interest rates still hovering near 0%.
- Most of the year saw rising interest rates and peaking inflation.
- Elevated inflation rates continue into 2023, but are moderating.
- We will continue to maintain a long-term focus with sufficient liquidity to manage through short-term market changes.