



# STATE OF MICHIGAN RETIREMENT BOARD RETIREMENT PLAN REVIEW



March 26, 2020  
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Senior Deputy Chief Investment Officer



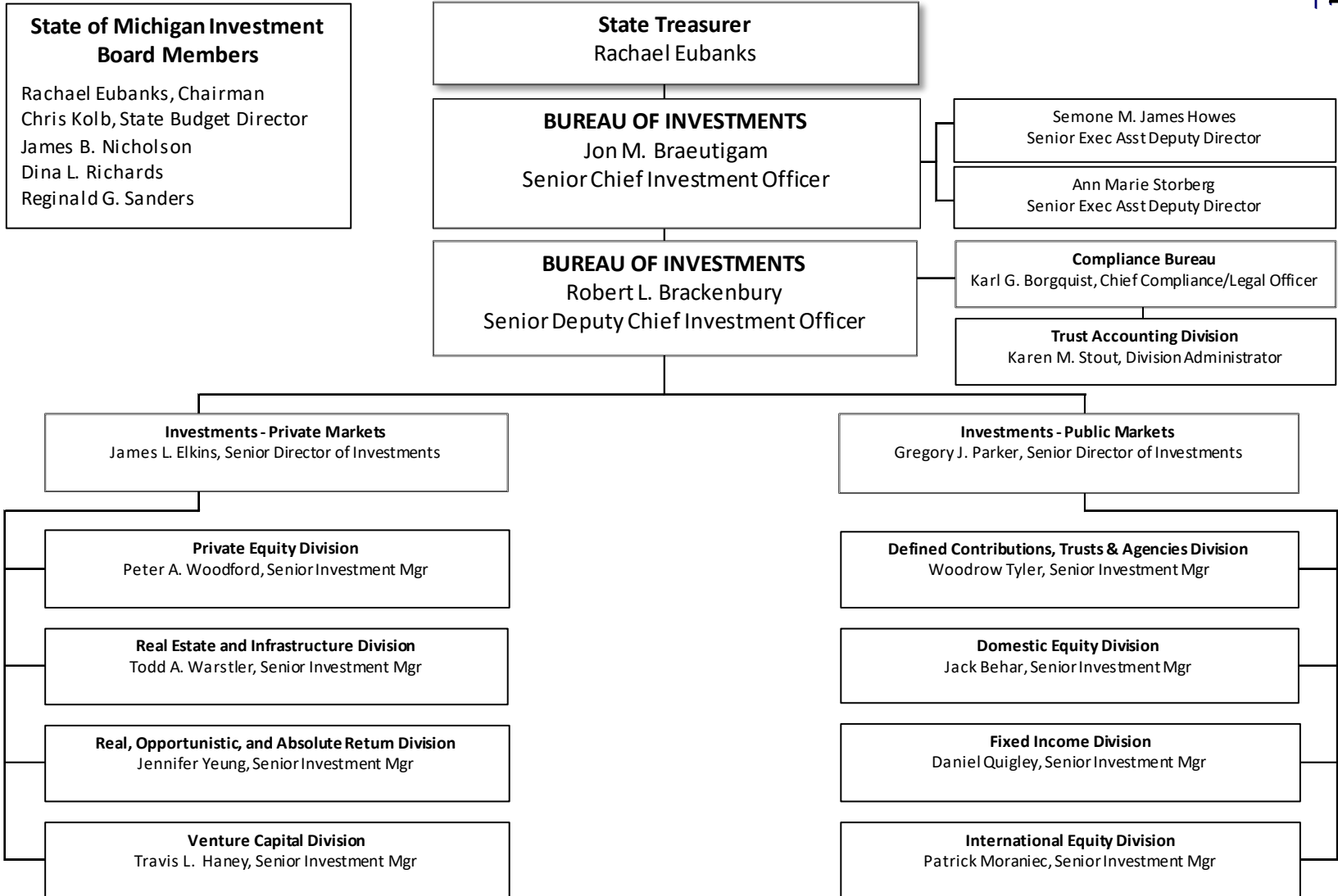
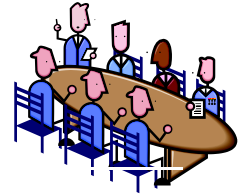
# *Executive Summary*

- 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 long-horizon time periods.



# Bureau of Investments

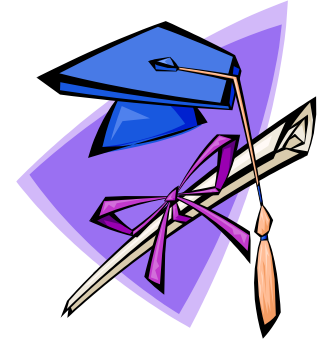
## As of January 1, 2020





# ***Bureau of Investments***

***As of January 2020***



- 78 BOI Employees
- 51 Investment Professionals
- 35 Individuals with a Masters Degree or higher
- 16 CFA Charter holders
- 17 Other professional designations
- Total of \$103.9 billion assets under management (as of 12/31/19)
- The large investment pool is an advantage for the plans



# *Funded Ratio*

## *State Employees*

Year	Market Value of Assets	Actuarial Value of Assets	Actuarial Accrued Liability	Funded Ratio Based on Actuarial Value
<b>2018</b>	<b>\$12,398</b>	<b>\$12,494</b>	<b>\$18,995</b>	<b>65.8%</b>
<b>2017</b>	<b>\$11,807</b>	<b>\$11,884</b>	<b>\$17,881</b>	<b>66.5%</b>
<b>2016</b>	<b>\$10,980</b>	<b>\$10,937</b>	<b>\$17,016</b>	<b>64.3%</b>
<b>2015</b>	<b>\$10,732</b>	<b>\$10,417</b>	<b>\$16,237</b>	<b>64.2%</b>
<b>2014*</b>	<b>\$10,975</b>	<b>\$9,962</b>	<b>\$16,173</b>	<b>61.6%</b>
<b>2013</b>	<b>\$9,923</b>	<b>\$9,438</b>	<b>\$15,648</b>	<b>60.3%</b>
<b>2012</b>	<b>\$9,272</b>	<b>\$9,447</b>	<b>\$15,654</b>	<b>60.3%</b>
<b>1983</b>	<b>\$1,842</b>	<b>\$1,752</b>	<b>\$2,369</b>	<b>74.0%</b>

(\$ 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



# Funded Ratio Judges

Year	Market Value of Assets	Actuarial Value of Assets	Actuarial Accrued Liability	Funded Ratio Based on Actuarial Value
2018	\$271	\$275	\$281	97.8%
2017	\$265	\$268	\$270	99.3%
2016	\$255	\$254	\$251	101.1%
2015	\$257	\$249	\$257	96.9%
2014*	\$271	\$246	\$257	95.8%
2013	\$253	\$240	\$252	95.1%
2012	\$240	\$246	\$250	98.5%
1983	\$57	\$57	\$81	70.4%

(\$ 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



# Contributions and Distributions

## FY 2019

### State Employees

#### Contributions

Members	\$28.4
Employer	600.1

**Total Contributions** \$628.5

Pension Benefit Distributions 1,398.3

**Net** **(\$769.8)**

- Equal to (per quarter on average) (\$192.5)
- Or about 4.9% of total market value of fund

Figures are in millions

### Judges

#### Contributions

Members	\$0.6
Employer	2.8

**Total Contributions** \$3.4

Pension Benefit Distributions 24.1

**Net** **(\$20.7)**

- Equal to (per quarter on average) (\$5.2)
- Or about 7.4% of total market value of fund

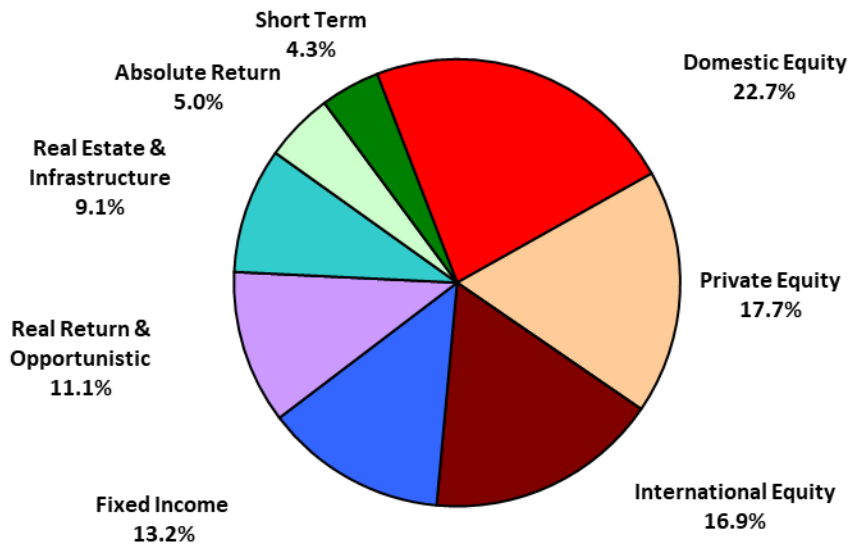
Figures are in millions



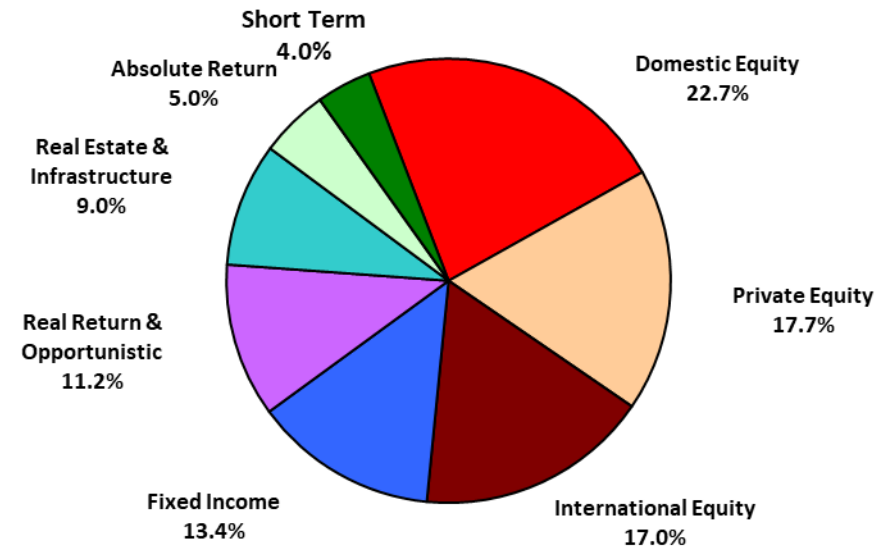
# Asset Allocation

## As of December 31, 2019

### State Employees



### Judges



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

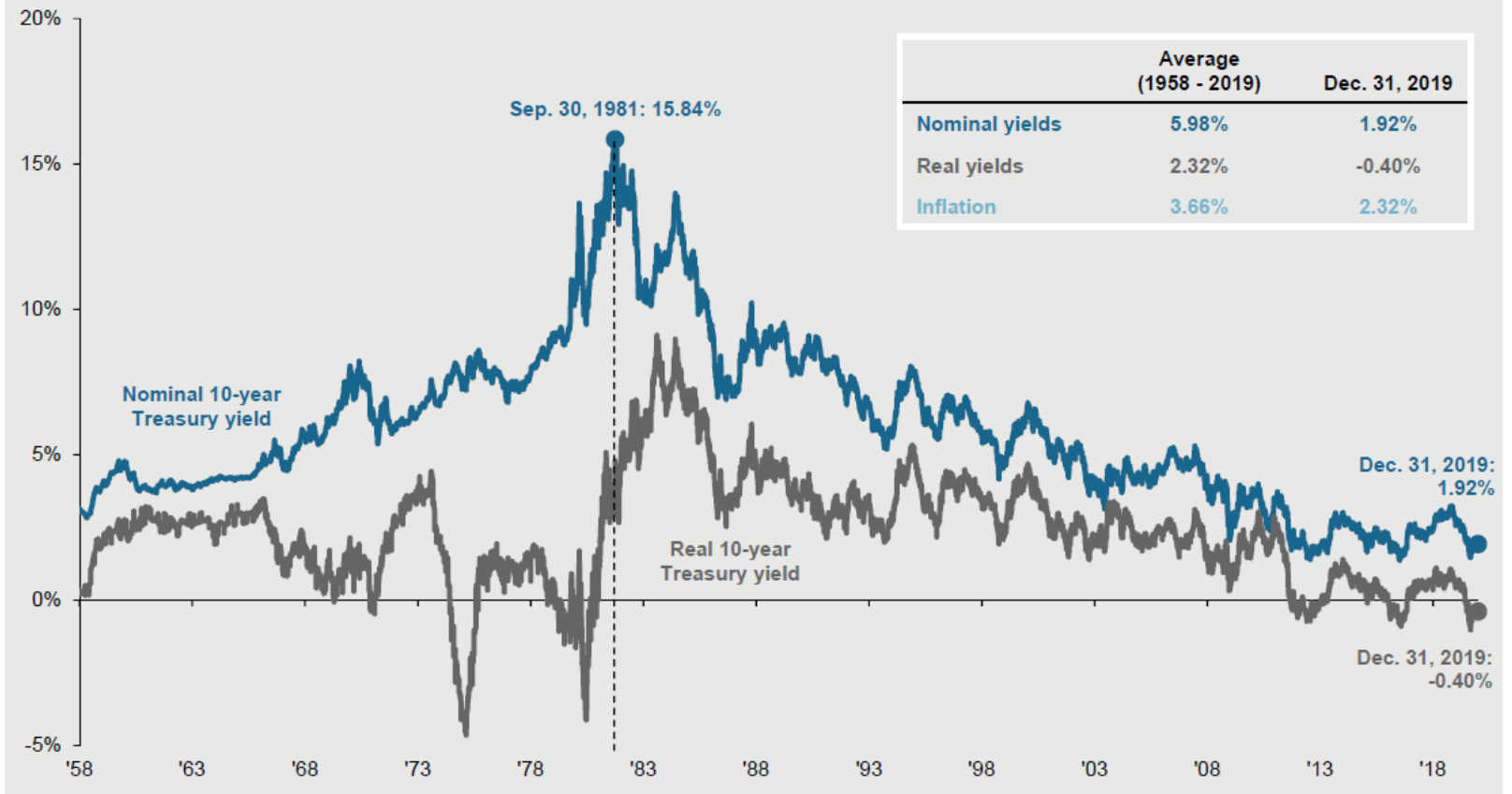




# Interest Rates and Inflation

Fixed income

Nominal and real 10-year Treasury yields

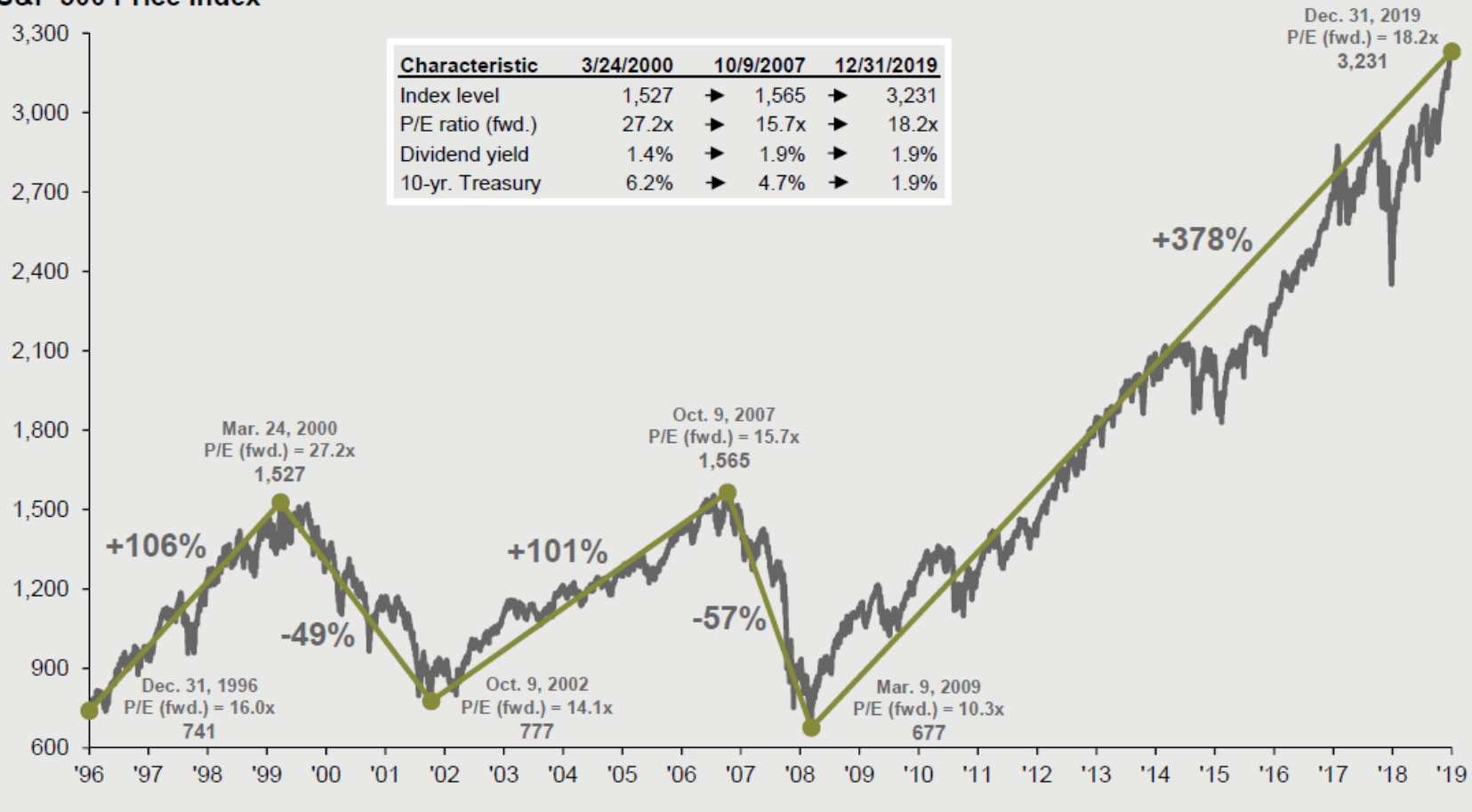


Source: BLS, FactSet, Federal Reserve, J.P. Morgan Asset Management.  
 Real 10-year Treasury yields are calculated as the daily Treasury yield less year-over-year core CPI inflation for that month except for December 2019, where real yields are calculated by subtracting out November 2019 year-over-year core inflation.  
 Guide to the Markets – U.S. Data are as of December 31, 2019.



# S&P 500 – Index at Inflection Points

S&P 500 Price Index



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, 2019.





# Time-Weighted Rates of Return

Public Funds (DB) > \$10 Billion

As of December 31, 2019

## State Employees

Asset Class w/Benchmark	One Year*		Three Years*		Five Years*		Seven Years*		Ten Years*	
	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank
<b>Total Plan</b>	<b>15.4%</b>	<b>51</b>	<b>11.3%</b>	<b>9</b>	<b>8.8%</b>	<b>10</b>	<b>10.2%</b>	<b>11</b>	<b>9.9%</b>	<b>11</b>
Median - Greater than \$10 Billion	15.4%		9.4%		7.3%		8.3%		8.5%	

## Judges

Asset Class w/Benchmark	One Year*		Three Years*		Five Years*		Seven Years*		Ten Years*	
	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank
<b>Total Plan</b>	<b>15.3%</b>	<b>54</b>	<b>11.3%</b>	<b>9</b>	<b>8.7%</b>	<b>11</b>	<b>10.0%</b>	<b>12</b>	<b>9.8%</b>	<b>13</b>
Median - Greater than \$10 Billion	15.4%		9.4%		7.3%		8.3%		8.5%	

\*Annualized Returns



# Time-Weighted Rates of Return

Individual asset classes doing well on a relative basis

## State Employees

Asset Class w/Benchmark	12/31/2019	
	Five Years	One Year
	Rate	Rate
<b>Total Plan*</b>	<b>8.8%</b>	<b>15.4%</b>
Median*	7.3%	15.4%
<b>Domestic Equities</b>	<b>11.5%</b>	<b>31.7%</b>
S&P 1500 Index	11.5%	30.9%
<b>International Equities</b>	<b>6.7%</b>	<b>23.2%</b>
MSCI ACWI Ex US	6.0%	22.1%
<b>Bonds</b>	<b>4.6%</b>	<b>9.7%</b>
Barclays Aggregate	3.1%	8.7%

\*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

## State Employees

Asset Class w/Benchmark	12/31/2019	
	Five Years	One Year
	Rate	Rate
<b>Private Equity</b>	<b>12.8%</b>	<b>8.9%</b>
Alternative Blended Benchmark	14.1%	7.4%
<b>Real Estate and Infrastructure</b>	<b>9.5%</b>	<b>7.0%</b>
NCREIF Open Fund Index Net	8.0%	4.4%
<b>Absolute Return</b>	<b>3.7%</b>	<b>4.5%</b>
HFRI FOF Cons 1 month lagged	2.2%	4.4%
<b>Real Return and Opportunistic</b>	<b>10.3%</b>	<b>8.2%</b>
Benchmark	7.2%	6.7%
<b>Cash Equivalents</b>	<b>1.4%</b>	<b>2.6%</b>
30-Day T-Bill	1.0%	2.2%

\*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***

- Equity market volatility has returned in 2020.
- Employment data is strong, inflation is low, corporate earnings are still strong.
- Low gas prices and low interest rates add instant stimulus to the economy.
- Are these positives enough to outweigh the negatives of Coronavirus and Trade Wars on the US and Global economies?



# *Conclusion*

- We have experienced a ‘Bull Market’ since 2009, but are we now at the end of the cycle?
- The U.S. economy was doing well through December 2019, but may now be at an inflection point.
- The plans substantially beat peers in all long-horizon time periods.
- We will continue to maintain a long-term focus with sufficient liquidity to manage through short-term market changes.