



# STATE OF MICHIGAN RETIREMENT BOARD RETIREMENT PLAN REVIEW



March 25, 2021  
Jon M. Braeutigam, CIO  
Bureau of Investments



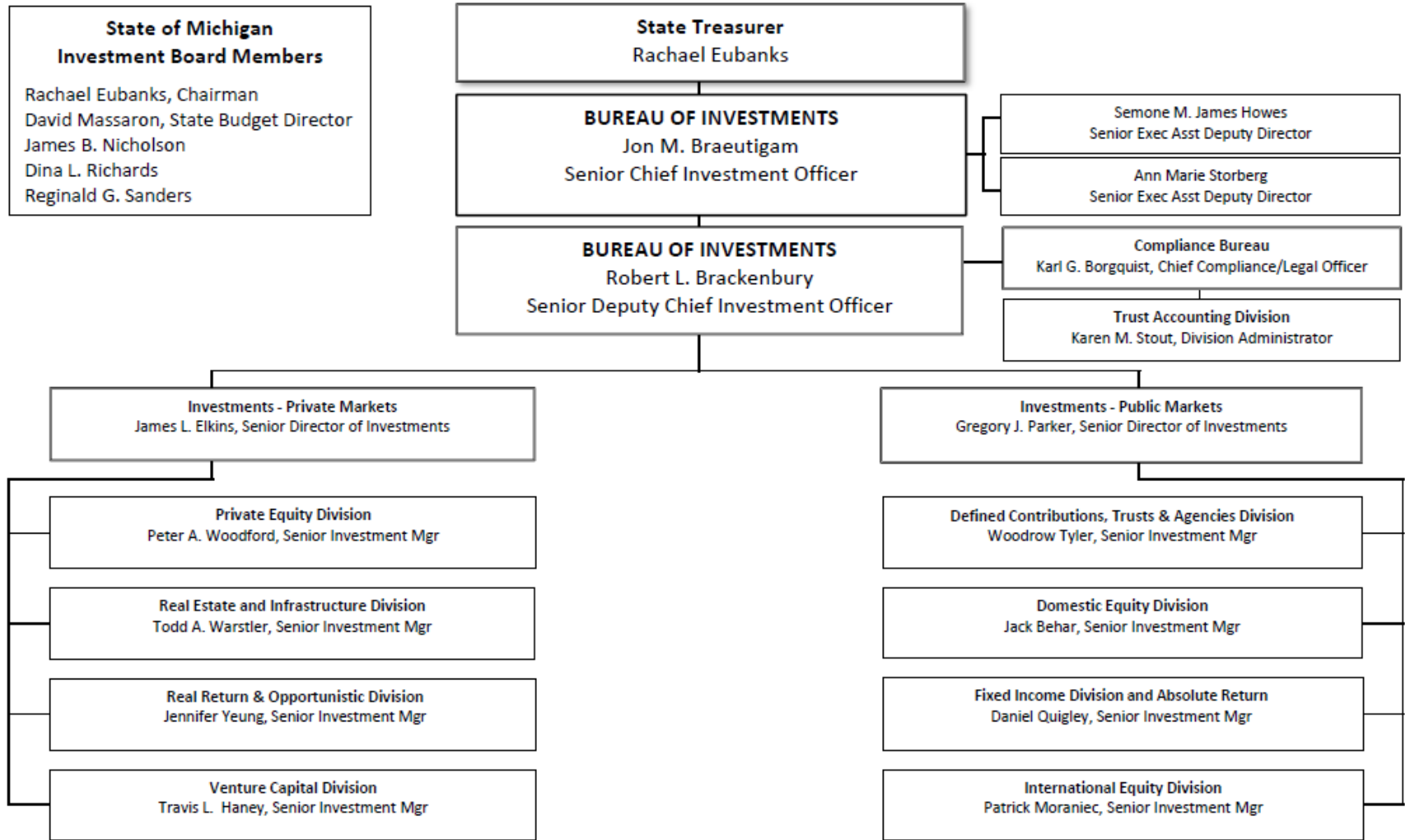
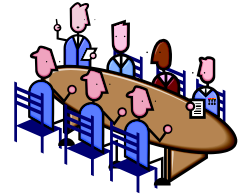
# Executive Summary

- 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 plans substantially beat peers in all long-horizon time periods.



# Bureau of Investments

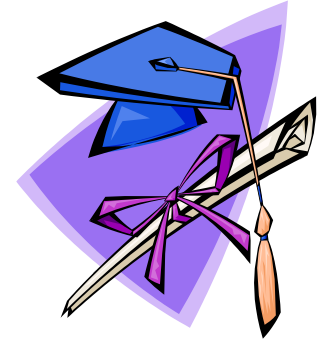
## As of December 31, 2020





# 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 MPERS.



# Funded Ratio

## State Employees

**\$13.1 Billion as of 12/31/20**

| <b>FY<br/>Ending<br/>September</b> | <b>Market<br/>Value of<br/>Assets</b> | <b>Actuarial<br/>Value of<br/>Assets</b> | <b>Actuarial<br/>Accrued<br/>Liability</b> | <b>Funded Ratio<br/>Actuarial<br/>Value</b> |
|------------------------------------|---------------------------------------|--|--|---|
| <b>2019*</b>                       | <b>\$12,228</b>                       | <b>\$12,374</b>                          | <b>\$18,921</b>                            | <b>65.4%</b>                                |
| <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>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

**\$275 Million as of 12/31/20**

| <b>FY<br/>Ending<br/>September</b> | <b>Market<br/>Value of<br/>Assets</b> | <b>Actuarial<br/>Value of<br/>Assets</b> | <b>Actuarial<br/>Accrued<br/>Liability</b> | <b>Funded Ratio<br/>Based on<br/>Actuarial Value</b> |
|------------------------------------|---------------------------------------|--|--|--|
| <b>2019</b>                        | <b>\$263</b>                          | <b>\$266</b>                             | <b>\$277</b>                               | <b>96.3%</b>   |
| <b>2018</b>                        | <b>\$271</b>                          | <b>\$275</b>                             | <b>\$281</b>                               | <b>97.8%</b>   |
| <b>2017*</b>                       | <b>\$265</b>                          | <b>\$268</b>                             | <b>\$270</b>                               | <b>99.3%</b>   |
| <b>2016</b>                        | <b>\$255</b>                          | <b>\$254</b>                             | <b>\$251</b>                               | <b>101.1%</b>  |
| <b>2015</b>                        | <b>\$257</b>                          | <b>\$249</b>                             | <b>\$257</b>                               | <b>96.9%</b>   |
| <b>2014*</b>                       | <b>\$271</b>                          | <b>\$246</b>                             | <b>\$257</b>                               | <b>95.8%</b>   |
| <b>2013</b>                        | <b>\$253</b>                          | <b>\$240</b>                             | <b>\$252</b>                               | <b>95.1%</b>   |
| <b>1983</b>                        | <b>\$57</b>                           | <b>\$57</b>                              | <b>\$81</b>                                | <b>70.4%</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



# Contributions and Distributions

## FY 2020

### State Employees

**Contributions**

|          |                |
|----------|----------------|
| Members  | \$25.3         |
| Employer | <u>1,317.3</u> |

**Total Contributions** \$1,342.6

Pension Benefit Distributions 1,837.9

**Net** **(\$495.3)**

- Equal to (per quarter on average) (\$123.8)
- Or about 4.1% of total market value of fund

### Judges

**Contributions**

|          |            |
|----------|------------|
| Members  | \$0.1      |
| Employer | <u>3.2</u> |

**Total Contributions** \$3.3

Pension Benefit Distributions 24.4

**Net** **(\$21.1)**

- Equal to (per quarter on average) (\$5.3)
- Or about 8.3% of total market value of fund

Figures are in millions

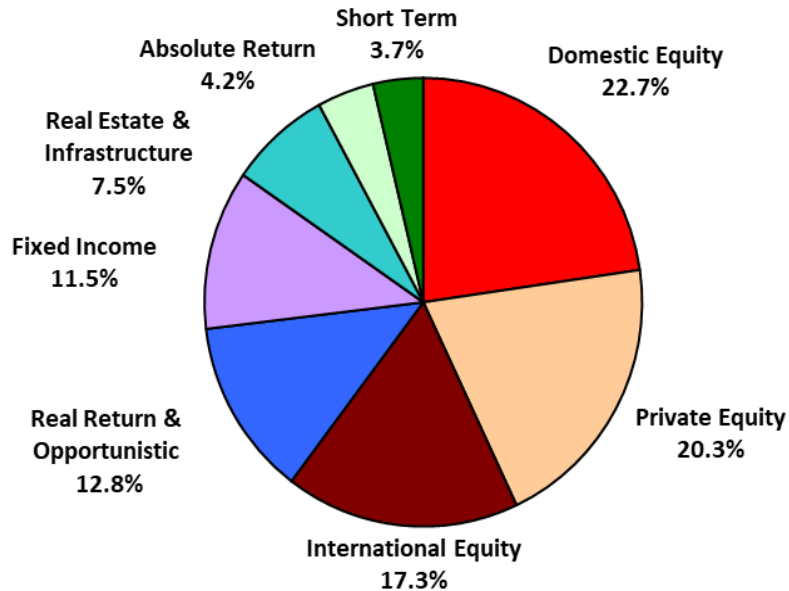
Figures are in millions



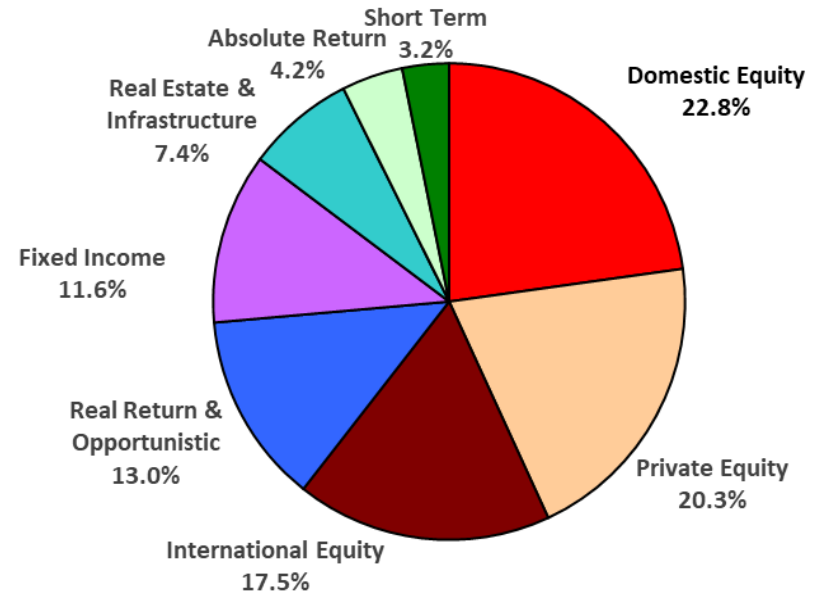
# Asset Allocation

## As of December 31, 2020

### State Employees



### Judges



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



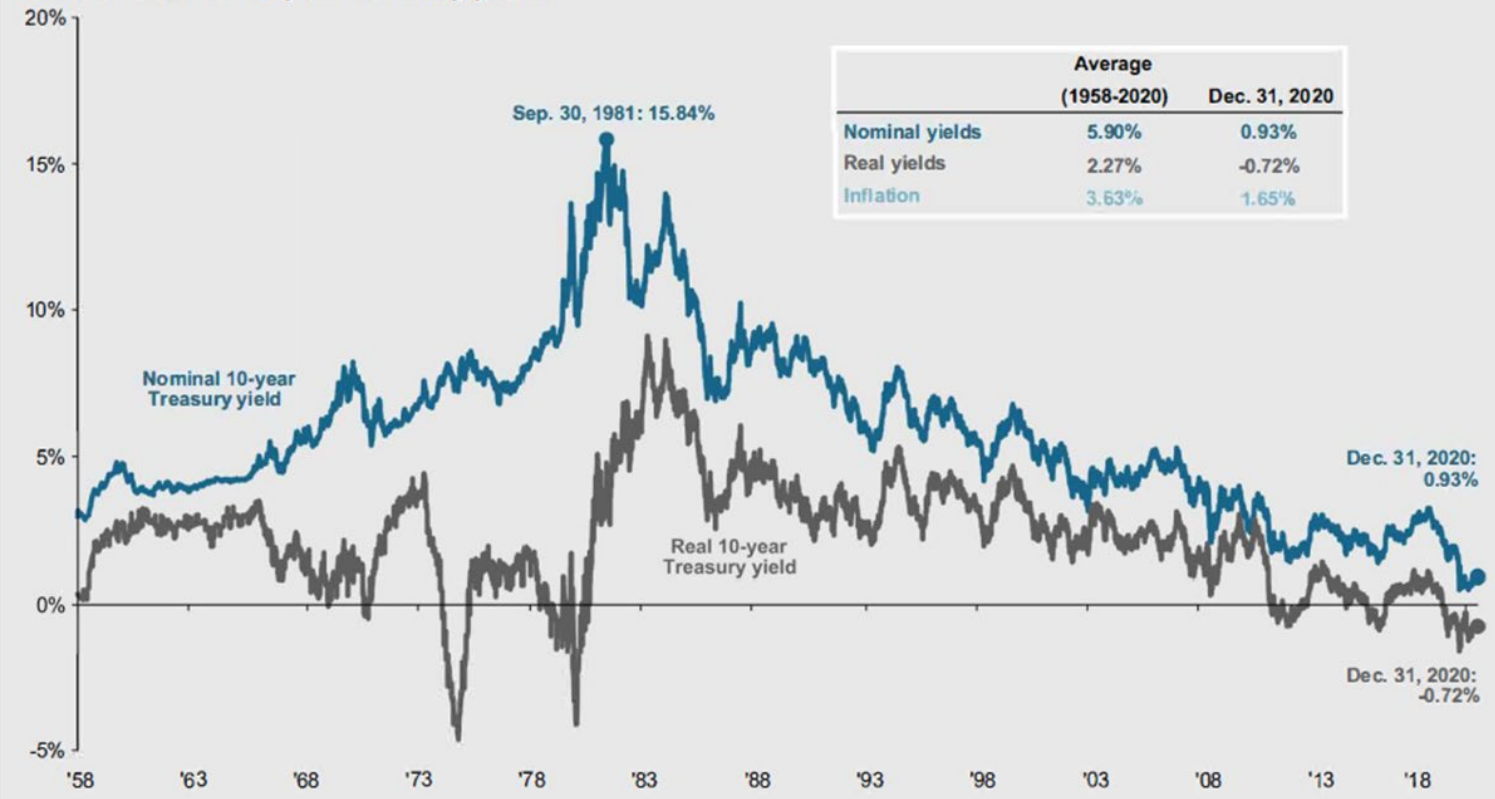


# Interest Rates and Inflation

## Interest rates and inflation

GTM - U.S.

Nominal and real 10-year Treasury yields



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 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.



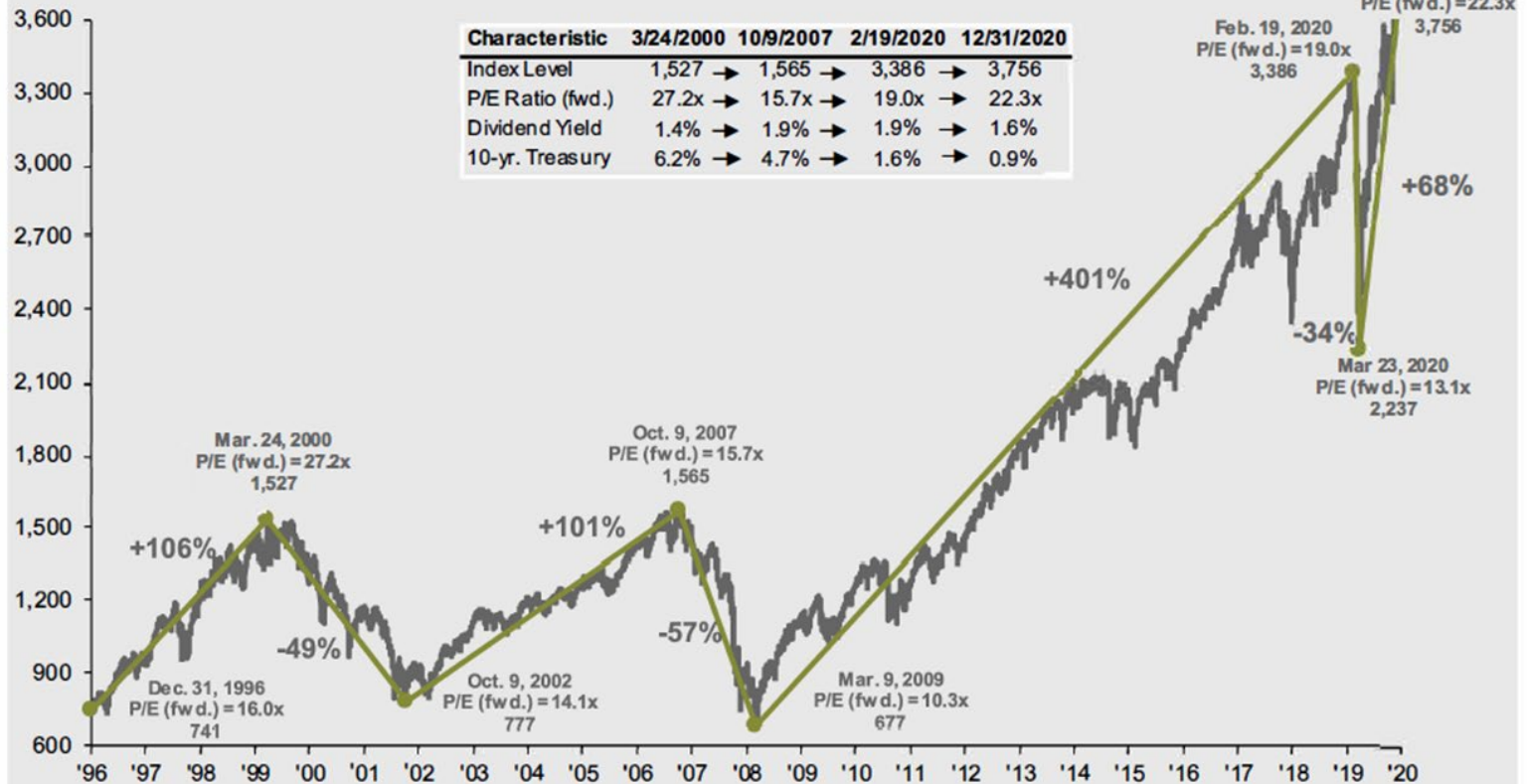
# S&P 500 – Index at Inflection Points

S&P 500 Index at inflection points

GTM - U.S.

Equities

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, 2020.



# Time-Weighted Rates of Return

Public Funds (DB) > \$10 Billion

As of December 31, 2020

## State Employees

| Asset Class<br>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>11.2%</b> | <b>64</b> | <b>9.7%</b>  | <b>16</b> | <b>10.5%</b> | <b>21</b> | <b>9.5%</b>  | <b>6</b> | <b>9.8%</b> | <b>13</b> |
| Median - Greater than \$10 Billion | 11.9%        |           | 8.3%         |           | 9.6%         |           | 8.0%         |          | 8.6%        |           |

## Judges

| Asset Class<br>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>11.2%</b> | <b>64</b> | <b>9.6%</b>  | <b>16</b> | <b>10.5%</b> | <b>22</b> | <b>9.4%</b>  | <b>10</b> | <b>9.7%</b> | <b>18</b> |
| Median - Greater than \$10 Billion | 11.9%        |           | 8.3%         |           | 9.6%         |           | 8.0%         |           | 8.6%        |           |

\*Annualized Returns

Source: State Street Investment Analytics



# Time-Weighted Rates of Return

As of December 31, 2020

## State Employees

| Asset Class<br>w/Benchmark                | One Year*    |           | Three Years* |           | Five Years*  |           | Seven Years* |          | Ten Years*   |           |
|---|--------------|-----------|--------------|-----------|--------------|-----------|--------------|----------|--------------|-----------|
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| <b>Total Plan</b>                         | <b>11.2%</b> | <b>64</b> | <b>9.7%</b>  | <b>16</b> | <b>10.5%</b> | <b>21</b> | <b>9.5%</b>  | <b>6</b> | <b>9.8%</b>  | <b>13</b> |
| Median - Greater than \$10 Billion        | 11.9%        |           | 8.3%         |           | 9.6%         |           | 8.0%         |          | 8.6%         |           |
| <b>Domestic Equities</b>                  | <b>16.9%</b> |           | <b>14.0%</b> |           | <b>15.1%</b> |           | <b>12.6%</b> |          | <b>13.6%</b> |           |
| S&P 1500 Index                            | 17.9%        |           | 13.6%        |           | 15.0%        |           | 12.6%        |          | 13.7%        |           |
| <b>International Equities</b>             | <b>13.2%</b> |           | <b>6.2%</b>  |           | <b>9.9%</b>  |           | <b>6.4%</b>  |          | <b>6.3%</b>  |           |
| International Blended Benchmark           | 10.7%        |           | 4.9%         |           | 8.9%         |           | 4.9%         |          | 5.1%         |           |
| <b>Bonds</b>                              | <b>5.2%</b>  |           | <b>5.3%</b>  |           | <b>5.4%</b>  |           | <b>4.9%</b>  |          | <b>4.6%</b>  |           |
| Barclays U.S. Aggregate                   | 7.5%         |           | 5.3%         |           | 4.4%         |           | 4.1%         |          | 3.8%         |           |
| <b>Private Equity and Venture Capital</b> | <b>16.9%</b> |           | <b>14.6%</b> |           | <b>14.0%</b> |           | <b>14.1%</b> |          | <b>14.6%</b> |           |
| PE and VC Blended Benchmark               | 18.6%        |           | 15.6%        |           | 17.5%        |           | 16.0%        |          | 17.1%        |           |
| <b>Real Estate &amp; Infrastructure</b>   | <b>-6.8%</b> |           | <b>3.8%</b>  |           | <b>6.0%</b>  |           | <b>8.4%</b>  |          | <b>9.2%</b>  |           |
| NCREIF Open Fund Index Net                | 0.3%         |           | 4.0%         |           | 5.3%         |           | 7.3%         |          | 8.9%         |           |
| <b>Absolute Return</b>                    | <b>3.7%</b>  |           | <b>4.2%</b>  |           | <b>4.3%</b>  |           | <b>4.0%</b>  |          | <b>4.6%</b>  |           |
| HFRI FOF Cons 1 month lagged              | 4.8%         |           | 3.2%         |           | 2.9%         |           | 2.8%         |          | 2.8%         |           |
| <b>Real Return / Opportunistic</b>        | <b>16.8%</b> |           | <b>14.7%</b> |           | <b>12.4%</b> |           | <b>13.2%</b> |          | <b>11.1%</b> |           |
| Benchmark                                 | 6.2%         |           | 6.7%         |           | 7.1%         |           | 7.0%         |          | 7.2%         |           |
| <b>Cash Equivalents</b>                   | <b>1.1%</b>  |           | <b>1.9%</b>  |           | <b>1.6%</b>  |           | <b>1.2%</b>  |          | <b>0.9%</b>  |           |
| 30-Day T-Bill                             | 0.5%         |           | 1.5%         |           | 1.1%         |           | 0.8%         |          | 0.6%         |           |

\*Annualized Returns



# Time-Weighted Rates of Return

As of December 31, 2020

## Judges

| Asset Class<br>w/Benchmark                | One Year*    |           | Three Years* |           | Five Years*  |           | Seven Years* |           | Ten Years*   |           |
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| Median - Greater than \$10 Billion        | 11.9%        |           | 8.3%         |           | 9.6%         |           | 8.0%         |           | 8.6%         |           |
| <b>Domestic Equities</b>                  | <b>17.1%</b> |           | <b>14.1%</b> |           | <b>15.1%</b> |           | <b>12.6%</b> |           | <b>13.6%</b> |           |
| S&P 1500 Index                            | 17.9%        |           | 13.6%        |           | 15.0%        |           | 12.6%        |           | 13.7%        |           |
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| International Blended Benchmark           | 10.7%        |           | 4.9%         |           | 8.9%         |           | 4.9%         |           | 5.1%         |           |
| <b>Bonds</b>                              | <b>5.3%</b>  |           | <b>5.3%</b>  |           | <b>5.4%</b>  |           | <b>4.9%</b>  |           | <b>4.6%</b>  |           |
| Barclays U.S. Aggregate                   | 7.5%         |           | 5.3%         |           | 4.4%         |           | 4.1%         |           | 3.8%         |           |
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| PE and VC Blended Benchmark               | 18.6%        |           | 15.6%        |           | 17.5%        |           | 16.0%        |           | 17.1%        |           |
| <b>Real Estate &amp; Infrastructure</b>   | <b>-6.8%</b> |           | <b>3.8%</b>  |           | <b>6.0%</b>  |           | <b>8.4%</b>  |           | <b>9.2%</b>  |           |
| NCREIF Open Fund Index Net                | 0.3%         |           | 4.0%         |           | 5.3%         |           | 7.3%         |           | 8.9%         |           |
| <b>Absolute Return</b>                    | <b>3.7%</b>  |           | <b>4.2%</b>  |           | <b>4.3%</b>  |           | <b>4.0%</b>  |           | <b>4.6%</b>  |           |
| HFRI FOF Cons 1 month lagged              | 4.8%         |           | 3.2%         |           | 2.9%         |           | 2.8%         |           | 2.8%         |           |
| <b>Real Return / Opportunistic</b>        | <b>16.8%</b> |           | <b>14.7%</b> |           | <b>12.4%</b> |           | <b>13.2%</b> |           | <b>11.1%</b> |           |
| Benchmark                                 | 6.2%         |           | 6.7%         |           | 7.1%         |           | 7.0%         |           | 7.2%         |           |
| <b>Cash Equivalents</b>                   | <b>1.1%</b>  |           | <b>1.9%</b>  |           | <b>1.5%</b>  |           | <b>1.2%</b>  |           | <b>0.9%</b>  |           |
| 30-Day T-Bill                             | 0.5%         |           | 1.5%         |           | 1.1%         |           | 0.8%         |           | 0.6%         |           |

\*Annualized Returns



# U.S. Economy

- Unprecedented fiscal & monetary stimulus is sustaining the US economy.
- Full economic recovery is about the vaccine as well as large government stimulus.
- 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.