

Informational Presentations from:

Alaska Retirement Management Board

Callan LLC

Buck

ARMB Overview

Primary Duties (AS 37.10.210(a))

- Serve as trustee for pension and retiree health trusts, the State of Alaska Supplemental Annuity Plan, and Deferred Compensation programs
- Manage and invest assets in a manner that is sufficient to meet the liabilities and pension obligations of the systems

Summary of Activities

- Establish Investment Policies
- Review Actuarial Earnings Assumptions
- Establish Asset Allocation
- Set Contribution Rates of Employers
- Provide Investment Options
- Monitor Performance

Composition of the Board

- Nine members
 - Commissioners of administration and revenue
 - Seven members appointed by the governor
 - Qualify for permanent fund dividend
 - Recognized competence in investment management, finance, banking, economics, accounting, pension administration or actuarial analysis
 - Two members of the general public
 - One member employed as finance officer for a political subdivision
 - Two PERS and two TRS members, each selected from a list of four nominees submitted from PERS and TRS bargaining units
 - Other than commissioners, members serve staggered, four-year terms

Composition of the Board (cont.)

- Rob Johnson, Chair, represents PERS bargaining units
- Gayle Harbo, Secretary, represents TRS bargaining units
- Lorne Bretz, finance officer
- Tom Brice, represents PERS bargaining units
- Allen Hippler, member of general public
- Bruce Tangeman, Commissioner of Revenue Designee
- Kelly Tshibaka, Commissioner of Administration Designee
- Norman West, member of general public
- Bob Williams, represents TRS bargaining units

Callan Analysis

April 2, 2019



Alaska State Senate Finance Committee

Performance and Asset Allocation

Paul Erlendson
Senior Vice President

Steve Center, CFA
Senior Vice President

Callan

Historical Returns

25 Years of Capital Market Return History

Returns for Periods ended December 31, 2018

| | 1 Quarter | 1 Year | 5 Years | 10 Years | 25 Years |
|-------------------------------------|-----------|--------|---------|----------|----------|
| U.S. Equity | | | | | |
| Russell 3000 | -14.30 | -5.24 | 7.91 | 13.18 | 9.04 |
| S&P 500 | -13.52 | -4.38 | 8.49 | 13.12 | 9.07 |
| Russell 2000 | -20.20 | -11.01 | 4.41 | 11.97 | 8.28 |
| Non-U.S. Equity | | | | | |
| MSCI World ex USA | -12.78 | -14.09 | 0.34 | 6.24 | 4.76 |
| MSCI Emerging Markets | -7.47 | -14.58 | 1.65 | 8.02 | -- |
| MSCI ACWI ex USA Small Cap | -14.43 | -18.20 | 1.96 | 10.02 | -- |
| Fixed Income | | | | | |
| Bloomberg Barclays Aggregate | 1.64 | 0.01 | 2.52 | 3.48 | 5.09 |
| 3-Month T-Bill | 0.56 | 1.87 | 0.63 | 0.37 | 2.55 |
| Bloomberg Barclays Long Gov/Credit | 0.78 | -4.68 | 5.37 | 5.88 | 6.82 |
| Bloomberg Barclays Global Agg ex-US | 0.91 | -2.15 | -0.01 | 1.73 | 4.39 |
| Real Estate | | | | | |
| NCREIF Property | 1.67 | 7.03 | 9.39 | 7.52 | 9.35 |
| FTSE NAREIT Equity | -6.32 | -4.62 | 7.90 | 12.12 | 9.76 |
| Alternatives | | | | | |
| CS Hedge Fund | -4.30 | -3.19 | 1.66 | 5.10 | 7.27 |
| Cambridge Private Equity* | 4.51 | 18.00 | 14.28 | 10.18 | 15.60 |
| Bloomberg Commodity | -9.41 | -11.25 | -8.80 | -3.78 | 2.03 |
| Gold Spot Price | 7.11 | -2.14 | 1.28 | 3.78 | 4.85 |
| Inflation - CPI-U | -0.48 | 1.91 | 1.51 | 1.80 | 2.20 |

*Cambridge PE data are available through June 30, 2018.

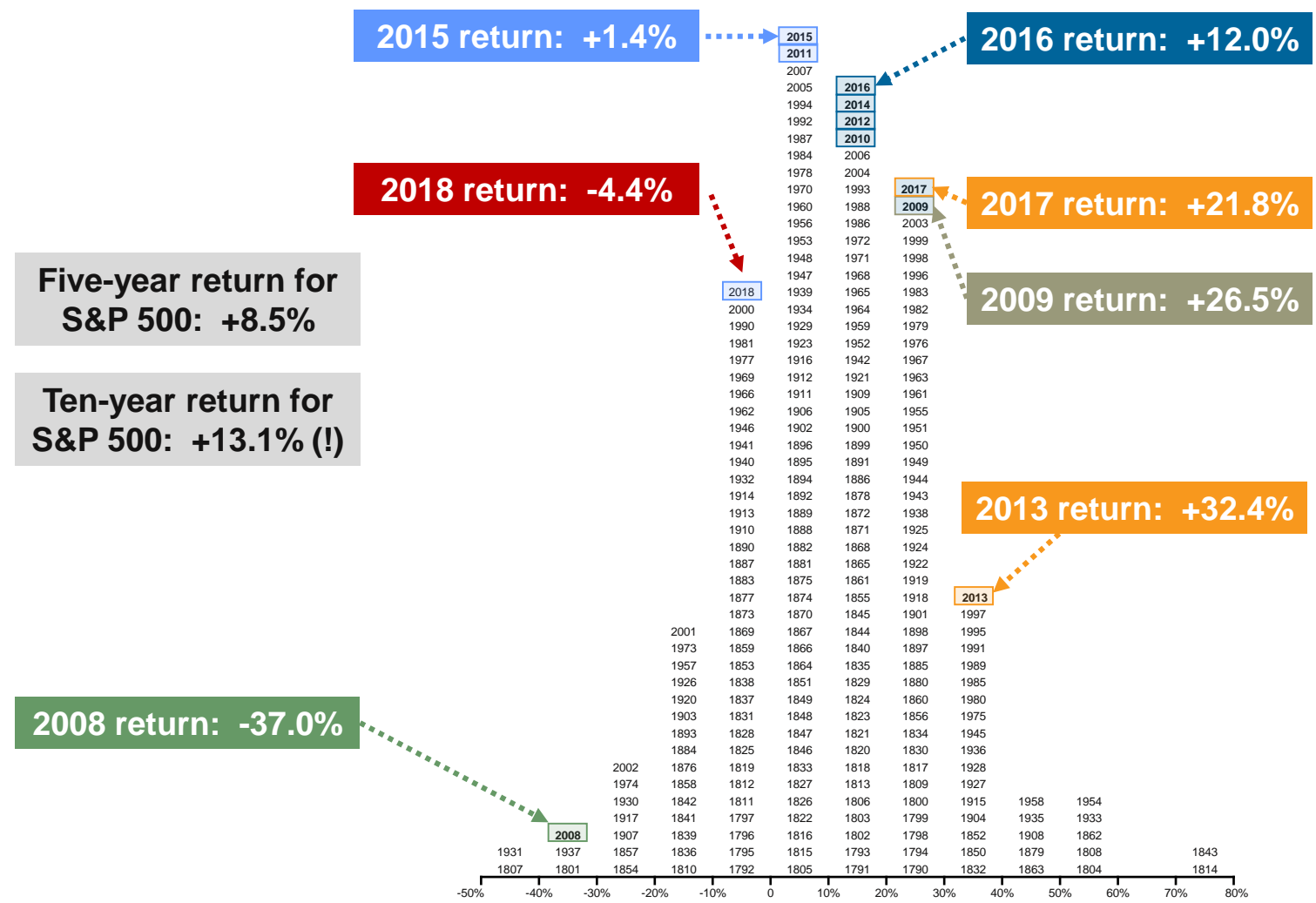
Source: Callan LLC

MSCI ACWI ex US Small Cap Index Since Inception (24 ½ years): 4.96%

MSCI Emerging Markets Index Since Inception (18 years): 8.66%

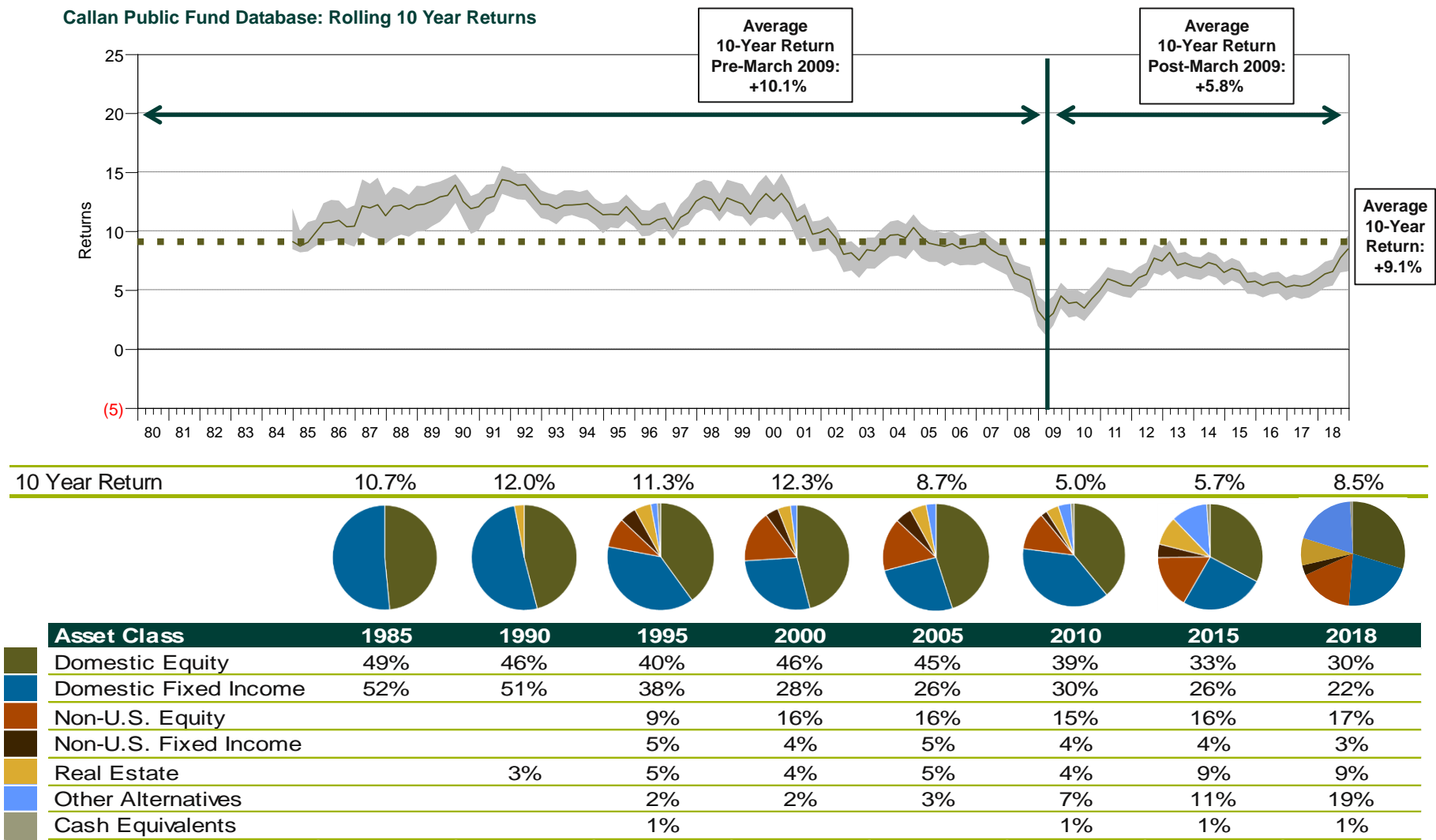
Stock Market Returns by Calendar Year

2018 Performance in Perspective: History of the U.S. Stock Market (230 Years of Returns)



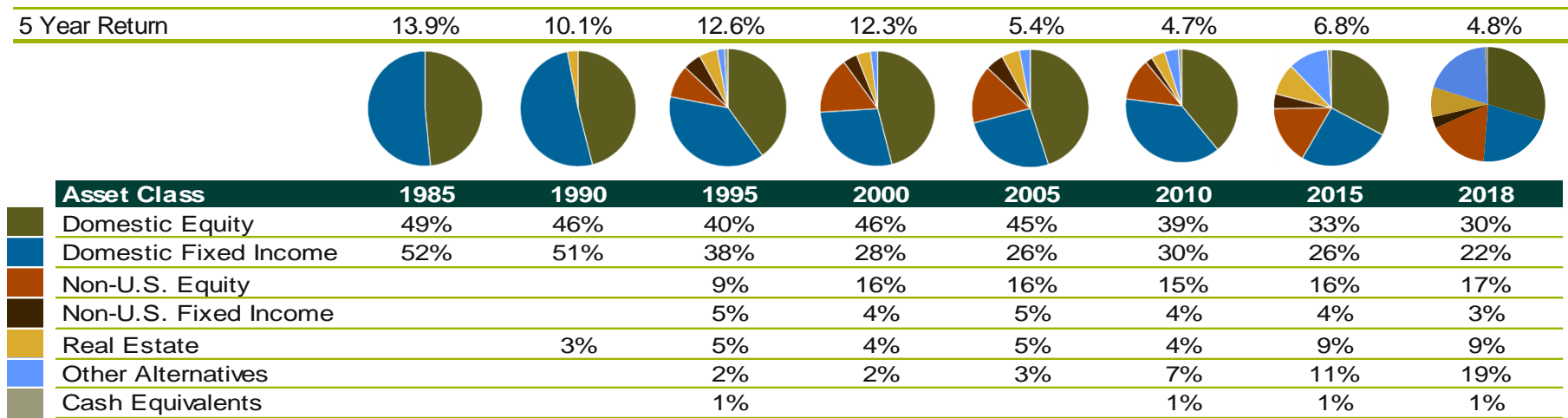
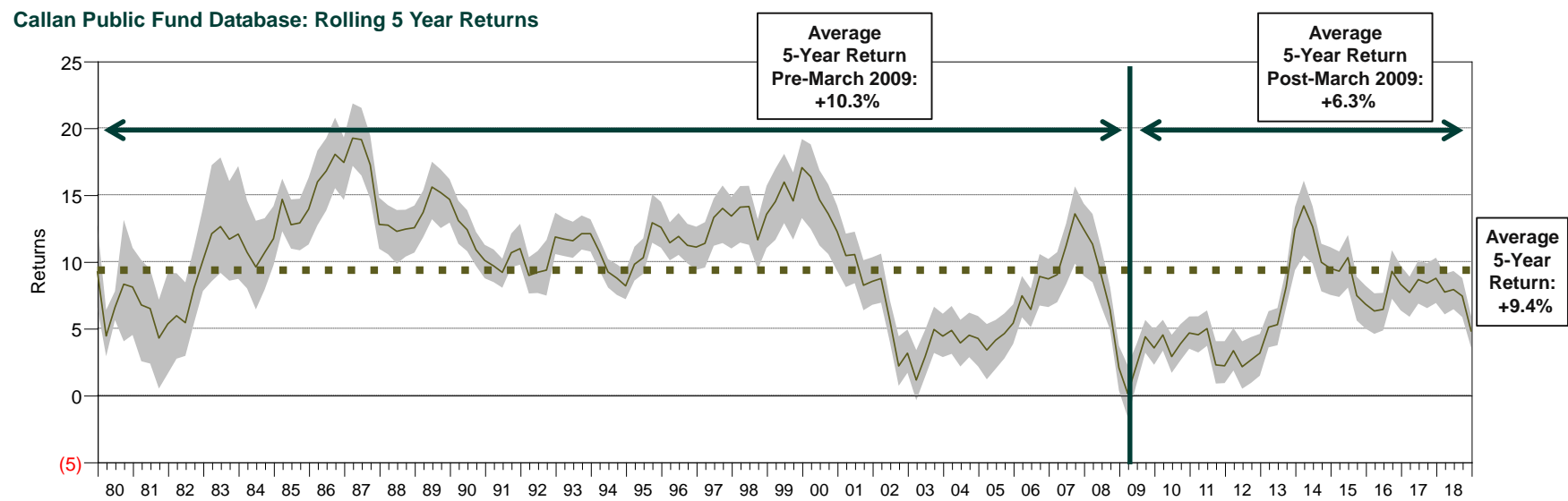
Source: Ibbotson, Callan LLC

Historical Public Fund Asset Allocation and Returns



Allocations are as of December 31 of the applicable year.

Historical Public Fund Asset Allocation and Returns

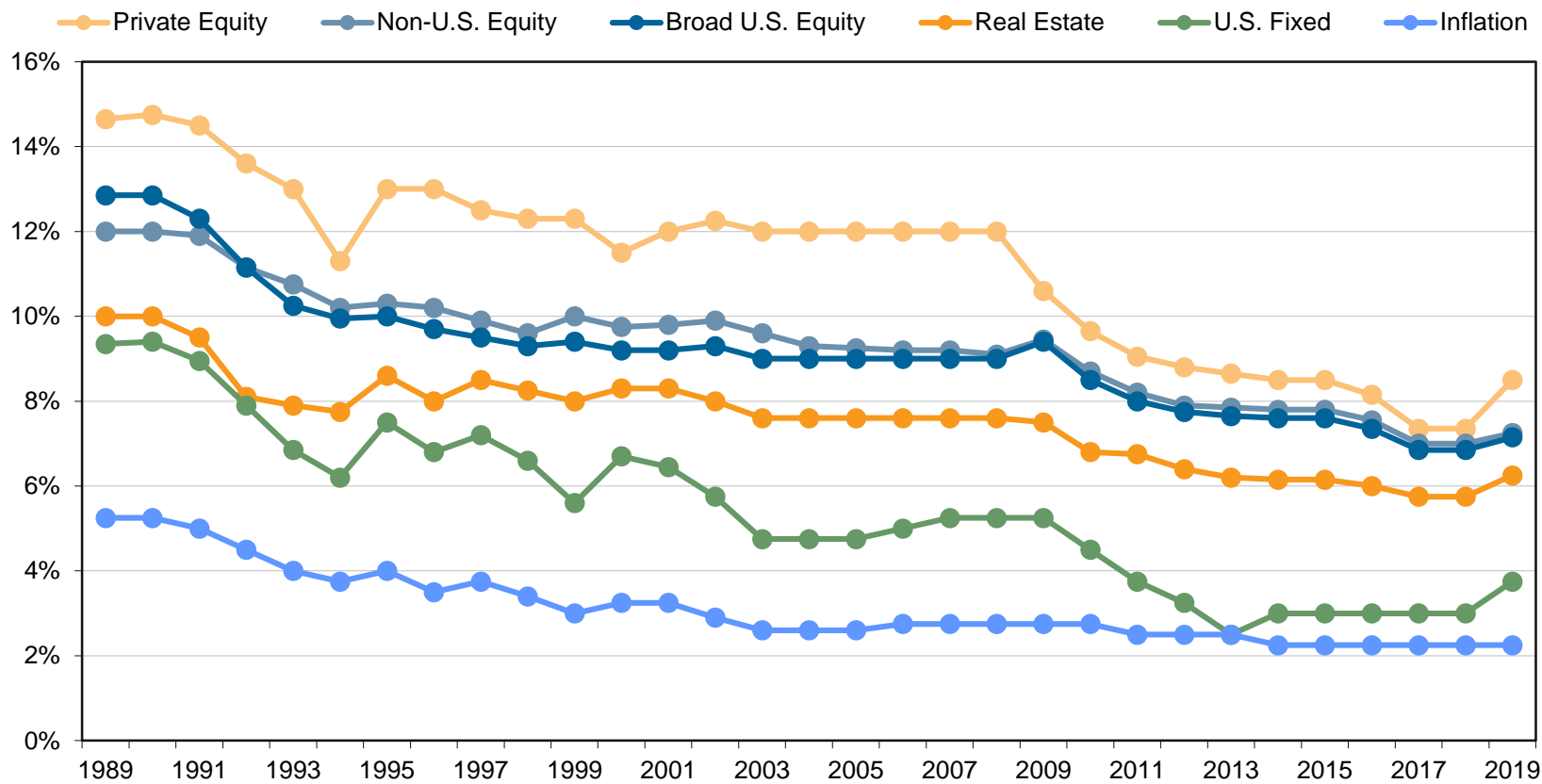


Allocations are as of December 31 of the applicable year.

Historical Projections

Historical Return Projections: Major Asset Classes

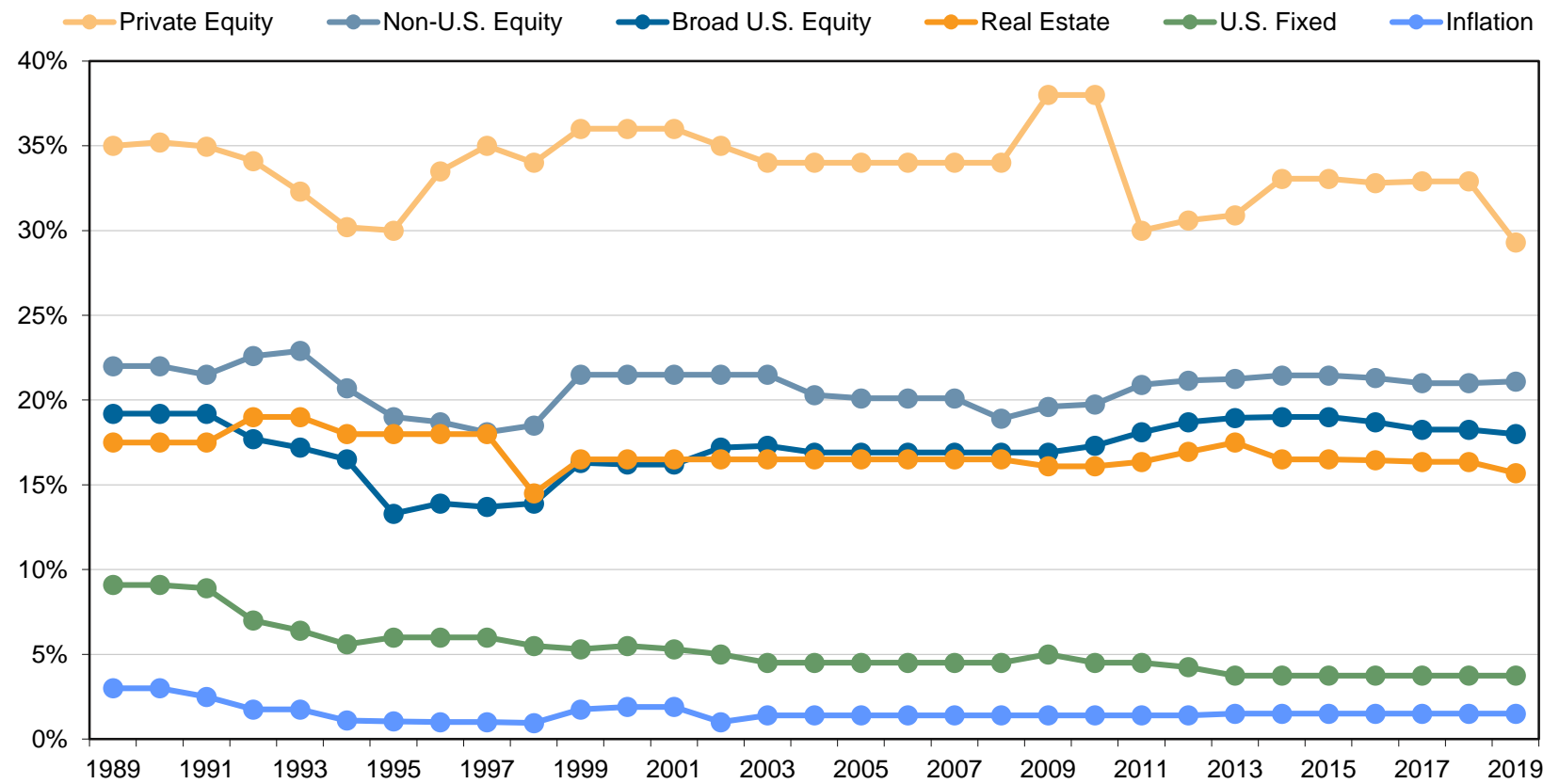
1989 – 2019



Source: Callan

Historical Risk Projections: Major Asset Classes

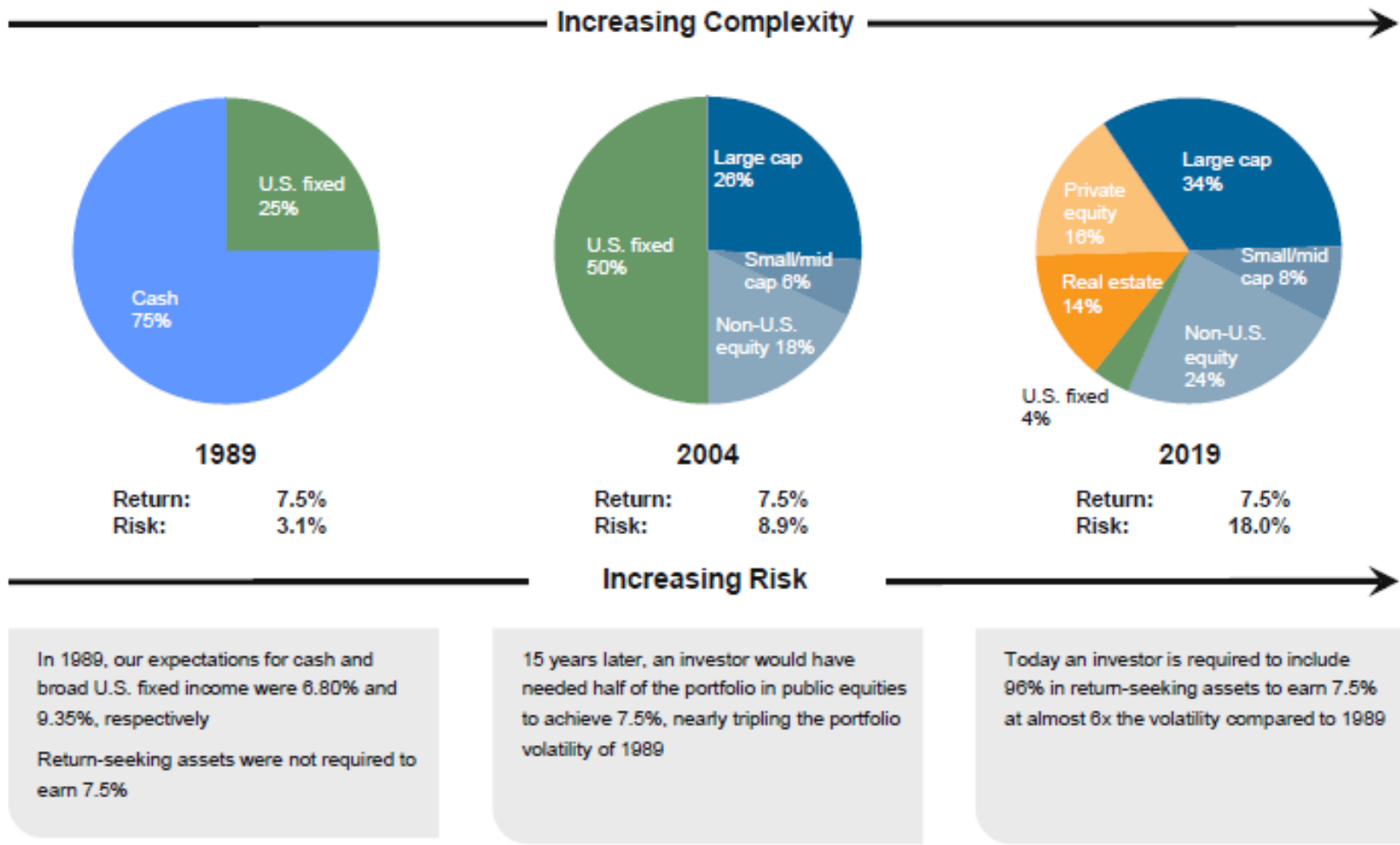
1989 – 2019



Source: Callan

Projected Allocations required to Achieve 7.5% Expected Return

Increasing Levels of Risk Required to Obtain the Same Expected Rate of Return



Projections

2019 Callan Capital Market Projections

Expected risk and return (2019–2028)

| Asset Class | Index | PROJECTED RETURN | | | PROJECTED RISK | | 2018 - 2027 | |
|------------------------|----------------------------------|-------------------|--------------------|--------|--------------------|-----------------|--------------------|--------------------|
| | | 1-Year Arithmetic | 10-Year Annualized | Real | Standard Deviation | Projected Yield | 10-Year Annualized | Standard Deviation |
| Equities | | | | | | | | |
| Broad U.S. Equity | Russell 3000 | 8.50% | 7.15% | 4.90% | 17.95% | 2.00% | 6.85% | 18.25% |
| Large Cap | S&P 500 | 8.25% | 7.00% | 4.75% | 17.10% | 2.10% | 6.75% | 17.40% |
| Small/Mid Cap | Russell 2500 | 9.55% | 7.25% | 5.00% | 22.65% | 1.55% | 7.00% | 22.60% |
| Global ex-US Equity | MSCI ACWI ex USA | 9.20% | 7.25% | 5.00% | 21.10% | 3.10% | 7.00% | 21.00% |
| Non-U.S. Equity | MSCI World ex USA | 8.70% | 7.00% | 4.75% | 19.75% | 3.25% | 6.75% | 19.70% |
| Emerging Market Equity | MSCI Emerging Markets | 10.70% | 7.25% | 5.00% | 27.45% | 2.65% | 7.00% | 27.45% |
| Fixed Income | | | | | | | | |
| Short Duration | Bloomberg Barclays 1-3 Yr G/C | 3.40% | 3.40% | 1.15% | 2.10% | 3.25% | 2.60% | 2.10% |
| U.S. Fixed | Bloomberg Barclays Aggregate | 3.75% | 3.75% | 1.50% | 3.75% | 3.50% | 3.00% | 3.75% |
| Long Duration | Bloomberg Barclays Long G/C | 4.25% | 3.75% | 1.50% | 10.65% | 4.80% | 3.00% | 10.95% |
| TIPS | Bloomberg Barclays TIPS | 3.80% | 3.75% | 1.50% | 5.05% | 3.90% | 3.00% | 5.25% |
| High Yield | Bloomberg Barclays High Yield | 5.75% | 5.35% | 3.10% | 10.35% | 7.75% | 4.75% | 10.35% |
| Non-U.S. Fixed | Bloomberg Barclays Gbl Agg ex US | 1.80% | 1.40% | -0.85% | 9.20% | 2.50% | 1.40% | 9.20% |
| Emerging Market Debt | EMBI Global Diversified | 5.40% | 5.05% | 2.80% | 9.50% | 6.00% | 4.50% | 9.60% |
| Other | | | | | | | | |
| Real Estate | NFI-ODCE | 7.30% | 6.25% | 4.00% | 15.70% | 4.75% | 5.75% | 16.35% |
| Private Equity | Cambridge Private Equity | 12.40% | 8.50% | 6.25% | 29.30% | 0.00% | 7.35% | 32.90% |
| Hedge Funds | Callan Hedge FOF Database | 5.75% | 5.50% | 3.25% | 8.85% | 2.25% | 5.05% | 9.15% |
| Commodities | Bloomberg Commodity | 4.75% | 3.20% | 0.95% | 18.00% | 2.50% | 2.65% | 18.30% |
| Cash Equivalents | 90-Day T-Bill | 2.50% | 2.50% | 0.25% | 0.90% | 2.50% | 2.25% | 0.90% |
| Inflation | CPI-U | | 2.25% | | 1.50% | | 2.25% | 1.50% |

Note that return projections for public markets assume index returns with no premium for active management.

Source: Callan

Expanding the Length of the Forecast Horizon

10-Year vs. Equilibrium Capital Market Expectations

- As the time horizon grows beyond 10 years, our capital market expectations increasingly incorporate “equilibrium returns”. Equilibrium returns reference **long-term historical mean results**, with an overlay of informed judgment. Key elements to consider:
 - Nominal returns
 - Inflation
 - Real returns
 - Risk premium – bonds over cash, stocks over bonds, long duration over short
 - Long-term underlying economic growth (real GDP)
- 10-Year expectations:
 - Large Cap Stocks: 7.0% nominal, 4.75% real, 3.25% premium over bonds
 - Bonds: 3.75% nominal, 1.50% real, 1.25% premium over cash
 - Cash: 2.50% nominal, 0.25% real
 - Inflation: 2.25%
 - Underlying economic growth (real GDP) – 2 to 2.5% per year
- Equilibrium expectations:
 - Large Cap Stocks: 8.25% nominal, 6.0% real, 3.25% premium over bonds
 - Bonds: 5% nominal, 2.75% real, 1.75% premium over cash
 - Cash: 3.25% nominal, 1.0% real
 - Inflation: 2.25%
 - Underlying economic growth (real GDP) – 3% per year

Comparison of 10-year Returns with Equilibrium Returns

| Asset Class | Index | 2019-2028 | | Equilibrium | | Change from 10-year to Equilibrium | |
|-------------------------|---------------------------------|---------------------------|--------------------|----------------------|--------------------|------------------------------------|--------------------|
| | | 10-Year Annualized Return | Standard Deviation | LT Annualized Return | Standard Deviation | Annualized Return | Standard Deviation |
| Equities | | | | | | | |
| Broad Domestic Equity | Russell 3000 | 7.15% | 17.95% | 8.50% | 17.95% | 1.35% | 0.00% |
| Large Cap | S&P 500 | 7.00% | 17.10% | 8.25% | 17.10% | 1.25% | 0.00% |
| Small/Mid Cap | Russell 2500 | 7.25% | 22.65% | 9.05% | 22.65% | 1.80% | 0.00% |
| Global ex-US Equity | MSCI ACWI ex USA | 7.25% | 21.10% | 8.75% | 21.10% | 1.50% | 0.00% |
| International Equity | MSCI World ex USA | 7.00% | 19.75% | 8.25% | 19.75% | 1.25% | 0.00% |
| Emerging Markets Equity | MSCI Emerging Markets | 7.25% | 27.45% | 9.50% | 27.45% | 2.25% | 0.00% |
| Fixed Income | | | | | | | |
| Short Duration | Bloomberg Barclays 1-3 Yr G/C | 3.40% | 2.10% | 3.80% | 2.10% | 0.40% | 0.00% |
| Domestic Fixed | Bloomberg Barclays Aggregate | 3.75% | 3.75% | 5.00% | 3.75% | 1.25% | 0.00% |
| Long Duration | Bloomberg Barclays Long G/C | 3.75% | 10.65% | 5.65% | 10.65% | 1.90% | 0.00% |
| TIPS | Bloomberg Barclays TIPS | 3.75% | 5.05% | 4.75% | 5.05% | 1.00% | 0.00% |
| High Yield | Bloomberg Barclays High Yield | 5.35% | 10.35% | 6.50% | 10.35% | 1.15% | 0.00% |
| Non-US Fixed | Bloomberg Barclays Gbl Agg xUSD | 1.40% | 9.20% | 4.25% | 9.20% | 2.85% | 0.00% |
| Emerging Market Debt | EMBI Global Diversified | 5.05% | 9.50% | 6.25% | 9.50% | 1.20% | 0.00% |
| Other | | | | | | | |
| Real Estate | NCREIF ODCE | 6.25% | 15.70% | 7.00% | 15.70% | 0.75% | 0.00% |
| Private Equity | Cambridge Private Equity | 8.50% | 29.30% | 10.00% | 29.30% | 1.50% | 0.00% |
| Hedge Funds | Callan Hedge FoF Database | 5.50% | 8.85% | 6.10% | 8.85% | 0.60% | 0.00% |
| Commodities | Bloomberg Commodity | 3.20% | 18.00% | 3.75% | 18.00% | 0.55% | 0.00% |
| Cash Equivalents | 90-Day T-Bill | 2.50% | 0.90% | 3.25% | 0.90% | 0.75% | 0.00% |
| Inflation | CPI-U | 2.25% | 1.50% | 2.25% | 1.50% | 0.00% | 0.00% |

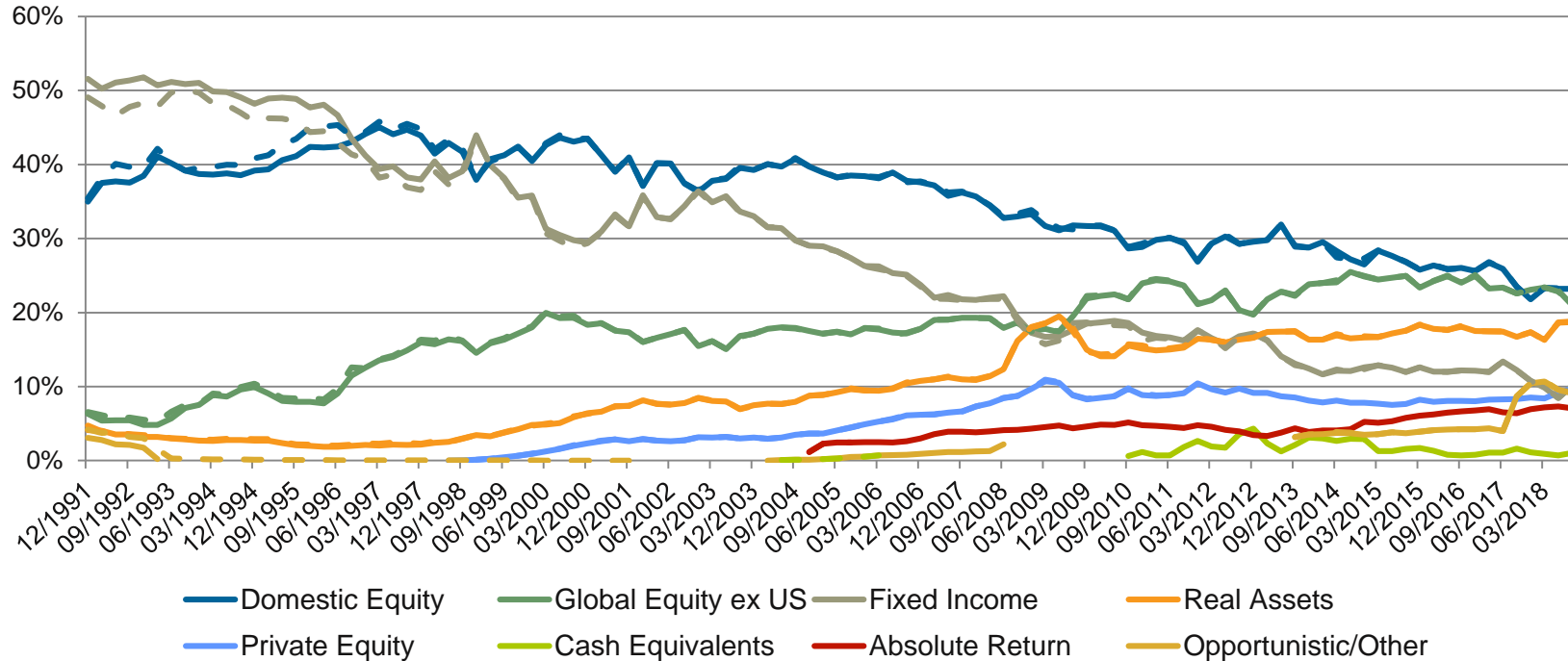
Note that return projections for public markets assume index returns with no premium for active management.

Source: Callan

2019 Capital Market Projections versus Other Firms

| 2019 Capital Market Return Projections | Callan | AQR | BlackRock | Credit Suisse | Franklin Templeton | JP Morgan | MFS | NEPC | Research Affiliates | SSGA | Voya | High | Median | Average | Low |
|--|----------|------------|-----------|---------------|--------------------|-------------|----------|-----------|---------------------|-----------|----------|--|--------|---------|-------|
| Equities | | | | | | | | | | | | Equities | | | |
| Broad Domestic Equity | 7.15% | 7.15% | | | | | 2.90% | | | | 5.00% | 7.15% | 6.08% | 5.55% | 2.90% |
| Large Cap | 7.00% | 6.50% | 7.00% | 6.80% | 5.70% | 5.25% | 2.90% | 6.00% | 2.80% | 6.40% | 4.60% | 7.00% | 6.00% | 5.54% | 2.80% |
| Small/Mid Cap | 7.25% | | 7.30% | | 6.30% | 5.88% | 2.60% | | 3.40% | 6.80% | 5.95% | 7.30% | 6.13% | 5.68% | 2.60% |
| Global ex-US Equity | 7.25% | | 9.30% | | | | | | | 7.20% | | 9.30% | 7.25% | 7.92% | 7.20% |
| Developed NUS Equity | 7.00% | 7.30% | | 8.00% | 5.52% | 6.75% | 6.90% | 6.00% | 7.80% | 6.40% | 2.50% | 8.00% | 6.83% | 6.42% | 2.50% |
| Emerging Markets Equity | 7.25% | 7.60% | 8.80% | 9.80% | 7.20% | 8.50% | 9.20% | 9.25% | 9.60% | 9.90% | 4.70% | 9.90% | 8.80% | 8.35% | 4.70% |
| Fixed Income | | | | | | | | | | | | Fixed Income | | | |
| Short Duration | 3.40% | | | | | 3.25% | | | 2.20% | | | 3.40% | 3.25% | 2.95% | 2.20% |
| Domestic Fixed | 3.75% | 3.28% | 3.30% | 2.75% | 3.09% | 4.00% | 3.70% | 3.05% | 2.60% | 3.31% | 2.80% | 4.00% | 3.28% | 3.24% | 2.60% |
| Long Duration | 3.75% | | 3.08% | | | 4.00% | 4.10% | | | | 1.30% | 4.10% | 3.75% | 3.25% | 1.30% |
| TIPS | 3.75% | | 3.30% | 2.70% | 2.90% | 3.25% | 3.60% | | 2.90% | 3.10% | 2.90% | 3.75% | 3.10% | 3.16% | 2.70% |
| High Yield | 5.35% | 5.30% | 5.20% | 6.00% | 4.30% | 5.50% | 4.60% | 5.25% | 4.90% | 5.50% | 4.50% | 6.00% | 5.25% | 5.13% | 4.30% |
| Non-US Fixed | 1.40% | 1.90% | 2.40% | 0.90% | 1.07% | 2.75% | | | | 1.90% | 0.00% | 2.75% | 1.65% | 1.54% | 0.00% |
| Emerging Mkt Debt | 5.05% | | 4.80% | 6.00% | 5.20% | 6.25% | 6.30% | | 4.90% | 6.70% | 5.50% | 6.70% | 5.50% | 5.63% | 4.80% |
| Other | | | | | | | | | | | | Other | | | |
| Real Estate | 6.25% | 5.10% | 5.90% | 4.50% | 6.20% | 5.75% | 4.20% | 6.00% | 4.20% | | | 6.25% | 5.75% | 5.34% | 4.20% |
| Private Equity | 8.50% | 6.90% | 12.70% | 9.40% | 7.00% | 8.25% | 5.70% | | | 7.40% | | 12.70% | 7.83% | 8.23% | 5.70% |
| Hedge Funds | 5.50% | | 6.30% | 4.50% | 6.30% | 4.25% | 4.80% | 5.75% | 5.94% | 6.10% | | 6.30% | 5.75% | 5.49% | 4.25% |
| Commodities | 3.20% | 5.60% | | 3.60% | 2.50% | 2.25% | 4.70% | 4.25% | 3.90% | 5.70% | 2.60% | 5.70% | 3.75% | 3.83% | 2.25% |
| Cash Equivalents | 2.50% | | 2.60% | 2.90% | 2.40% | 2.00% | 2.60% | 2.50% | 2.00% | 2.80% | 2.80% | 2.90% | 2.55% | 2.51% | 2.00% |
| Inflation | 2.25% | 2.20% | 2.10% | 2.50% | 2.25% | 2.00% | 2.10% | 2.25% | 2.10% | 2.00% | 2.20% | 2.50% | 2.20% | 2.18% | 2.00% |
| Projection Period | 10 Years | 5-10 Years | 10 Years | 5 Years | 7 Years | 10-15 Years | 10 Years | 5-7 Years | 10 Years | 10+ Years | 10 Years | Shading denotes Callan is the (or one of the) high/low | | | |

PERS and TRS – Asset Allocation Over Time



- Table shows asset allocations for PERS (solid line) and TRS (dashed line) over time. Dashes are only visible when differences arise.
- Through much of the 1990's, PERS and TRS had slightly different asset allocations
 - PERS had a moderately higher Fixed Income allocation
 - TRS had a slightly higher allocation to Domestic and Non-US Equities
- Asset Allocations have been effectively similar since 2000

Buck Analysis

Impact of Actuarial Assumption Changes

| | PERS | | | TRS | | |
|---|------------|------------|-------------|-----------|------------|------------|
| | Pension | Healthcare | Total | Pension | Healthcare | Total |
| Actuarial Accrued Liability at 6/30/17 (\$000's) | | | | | | |
| 1. Current Assumptions | 13,832,130 | 8,049,264 | 21,881,394 | 7,217,525 | 2,927,095 | 10,144,620 |
| 2. New Assumptions, excluding EGWP | 14,329,968 | 8,810,122 | 23,140,090 | 7,224,735 | 3,009,360 | 10,234,095 |
| - Increase/(Decrease) vs #1 => effect of new assumptions | 497,838 | 760,858 | 1,258,696 | 7,210 | 82,265 | 89,475 |
| (% increase) | 3.6% | 9.5% | 5.8% | 0.1% | 2.8% | 0.9% |
| 3. New Assumptions, including EGWP | 14,329,968 | 8,255,084 | 22,585,052 | 7,224,735 | 2,807,733 | 10,032,468 |
| - Increase/(Decrease) vs #2 => effect of EGWP | 0 | (555,038) | (555,038) | 0 | (201,627) | (201,627) |
| Additional State Contributions FY21-FY39 (\$000's) | | | | | | |
| 1. Current Assumptions | | | 4,056,822 | | | 3,741,919 |
| 2. New Assumptions, excluding EGWP, without 25-year layering | | | 7,117,139 | | | 3,535,475 |
| - Increase/(Decrease) vs #1 => effect of new assumptions | | | 3,060,317 | | | (206,444) |
| 3. New Assumptions, excluding EGWP, with 25-year layering | | | 6,814,331 | | | 3,594,760 |
| - Increase/(Decrease) vs #2 => effect of 25-year layering | | | (302,808) | | | 59,285 |
| 4. New Assumptions/Methods, including EGWP, with 25-year layering | | | 5,691,491 | | | 3,144,050 |
| - Increase/(Decrease) vs #3 => effect of EGWP | | | (1,122,840) | | | (450,710) |
| 5. Net Increase/(Decrease) from #1 to #4 | | | 1,634,669 | | | (597,869) |

Employer Group Waiver Plans (EGWP): a program offered by the federal government that increases federal subsidies for prescription drugs for the retiree health trusts.

Percentage Impact of New Assumptions/Methods on Actuarial Accrued Liability as of June 30, 2017

| | <u>PERS</u> | <u>TRS</u> |
|---|-------------|------------|
| Actuarial Accrued Liability - Pension | | |
| - Demographic Assumptions | 3.1% | (1.6)% |
| - Salary Increase Rates | (2.6)% | (1.1)% |
| - Inflation Rate (impact on COLA-related benefits only) | (3.7)% | (3.7)% |
| - Investment Return | 7.1% | 6.7% |
| - All* | 3.6% | 0.1% |
| Actuarial Accrued Liability - Healthcare | | |
| - Demographic Assumptions | 1.4% | (5.3)% |
| - Trend Rates | 2.2% | 2.4% |
| - Investment Return | 8.3% | 8.6% |
| - Level % of Pay Funding Method | (2.6)% | (2.4)% |
| - All* | 9.5% | 2.8% |

* The combined effect of all changes is not additive.

| | layer #1 | layer #1 | layer #2 | layer #2 | layer #3 | layer #3 | layer #4 | layer #4 | layer #5 | layer #5 | TOTAL |
|-------------------------------------|--|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|--------------|
| | UAAL | amortization | UAAL | amortization | UAAL | amortization | UAAL | amortization | UAAL | amortization | amortization |
| date created: | before 6/30/18 | | 6/30/2018 | | 6/30/2019 | | 6/30/2020 | | 6/30/2021 | | |
| 2019 | 5,000,000 | 357,115 | 450,000 | 29,057 | | | | | | | 386,172 |
| 2020 | 4,985,530 | 366,936 | 452,008 | 29,856 | (200,000) | (12,914) | | | | | 383,878 |
| 2021 | 4,959,446 | 377,027 | 453,307 | 30,677 | (200,893) | (13,269) | 250,000 | 16,143 | | | 410,577 |
| 2022 | 4,920,602 | 387,395 | 453,820 | 31,521 | (201,470) | (13,634) | 251,116 | 16,587 | 150,000 | 9,686 | 431,554 |
| 2023 | 4,867,758 | 398,048 | 453,465 | 32,388 | (201,698) | (14,009) | 251,837 | 17,043 | 150,669 | 9,952 | 443,422 |
| 2024 | 4,799,574 | 408,995 | 452,153 | 33,279 | (201,540) | (14,395) | 252,122 | 17,512 | 151,102 | 10,226 | 455,616 |
| 2025 | 4,714,604 | 420,242 | 449,787 | 34,194 | (200,957) | (14,790) | 251,925 | 17,993 | 151,273 | 10,507 | 468,145 |
| 2026 | 4,611,286 | 431,799 | 446,264 | 35,134 | (199,906) | (15,197) | 251,196 | 18,488 | 151,155 | 10,796 | 481,019 |
| 2027 | 4,487,934 | 443,673 | 441,471 | 36,100 | (198,340) | (15,615) | 249,882 | 18,997 | 150,718 | 11,093 | 494,247 |
| 2028 | 4,342,727 | 455,874 | 435,287 | 37,093 | (196,210) | (16,045) | 247,925 | 19,519 | 149,929 | 11,398 | 507,839 |
| 2029 | 4,173,703 | 468,411 | 427,581 | 38,113 | (193,462) | (16,486) | 245,262 | 20,056 | 148,755 | 11,711 | 521,805 |
| 2030 | 3,978,743 | 481,292 | 418,211 | 39,161 | (190,037) | (16,939) | 241,827 | 20,607 | 147,157 | 12,033 | 536,154 |
| 2031 | 3,755,563 | 494,527 | 407,024 | 40,238 | (185,872) | (17,405) | 237,546 | 21,174 | 145,096 | 12,364 | 550,899 |
| 2032 | 3,501,700 | 508,127 | 393,855 | 41,345 | (180,900) | (17,884) | 232,340 | 21,756 | 142,527 | 12,704 | 566,048 |
| 2033 | 3,214,499 | 522,100 | 378,526 | 42,482 | (175,047) | (18,375) | 226,125 | 22,355 | 139,404 | 13,054 | 581,615 |
| 2034 | 2,891,098 | 536,458 | 360,844 | 43,650 | (168,234) | (18,881) | 218,809 | 22,969 | 135,675 | 13,413 | 597,609 |
| 2035 | 2,528,412 | 551,211 | 340,603 | 44,850 | (160,376) | (19,400) | 210,293 | 23,601 | 131,285 | 13,782 | 614,043 |
| 2036 | 2,123,119 | 566,369 | 317,579 | 46,083 | (151,380) | (19,934) | 200,470 | 24,250 | 126,175 | 14,160 | 630,930 |
| 2037 | 1,671,638 | 581,944 | 291,532 | 47,351 | (141,147) | (20,482) | 189,225 | 24,917 | 120,281 | 14,550 | 648,280 |
| 2038 | 1,170,113 | 597,948 | 262,202 | 48,653 | (129,570) | (21,045) | 176,434 | 25,602 | 113,534 | 14,950 | 666,108 |
| 2039 | 614,391 | 614,391 | 229,309 | 49,991 | (116,534) | (21,623) | 161,963 | 26,306 | 105,859 | 15,361 | 684,426 |
| 2040 | | | 192,552 | 51,366 | (101,915) | (22,218) | 145,668 | 27,029 | 97,177 | 15,784 | 71,961 |
| 2041 | | | 151,606 | 52,778 | (85,578) | (22,829) | 127,394 | 27,773 | 87,400 | 16,218 | 73,940 |
| 2042 | | | 106,121 | 54,230 | (67,380) | (23,457) | 106,973 | 28,536 | 76,436 | 16,664 | 75,973 |
| 2043 | | | 55,721 | 55,721 | (47,165) | (24,102) | 84,225 | 29,321 | 64,184 | 17,122 | 78,062 |
| 2044 | | | | | (24,765) | (24,765) | 58,956 | 30,128 | 50,535 | 17,593 | 22,955 |
| 2045 | | | | | | | 30,956 | 30,956 | 35,373 | 18,076 | 49,032 |
| 2046 | | | | | | | | | 18,573 | 18,573 | 18,573 |
| Description of Hypothetical Layers: | | | | | | | | | | | |
| #1 | Remaining balance of UAAL from 2017 valuation plus effect of FY18 experience, before new assumptions/methods | | | | | | | | | | |
| #2 | Change in UAAL due to new assumptions/methods and EGWP (first measured 6/30/18) | | | | | | | | | | |
| #3 | Change in UAAL due to FY19 experience (first measured 6/30/19) | | | | | | | | | | |
| #4 | Change in UAAL due to FY20 experience (first measured 6/30/20) | | | | | | | | | | |
| #5 | Change in UAAL due to FY21 experience (first measured 6/30/21) | | | | | | | | | | |