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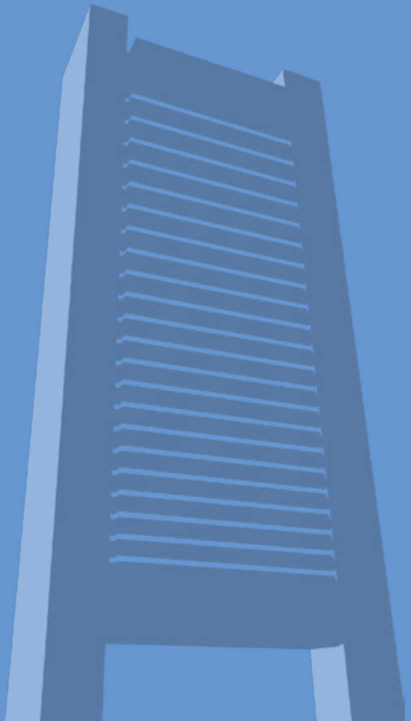

Welcome and Opening Remarks

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President & CEO
Federal Reserve Bank of Boston

September 7, 2018

Federal Reserve Bank of Boston's 62nd Economic Conference
"What Are the Consequences of Long Spells of Low Interest Rates?"
Boston, Massachusetts

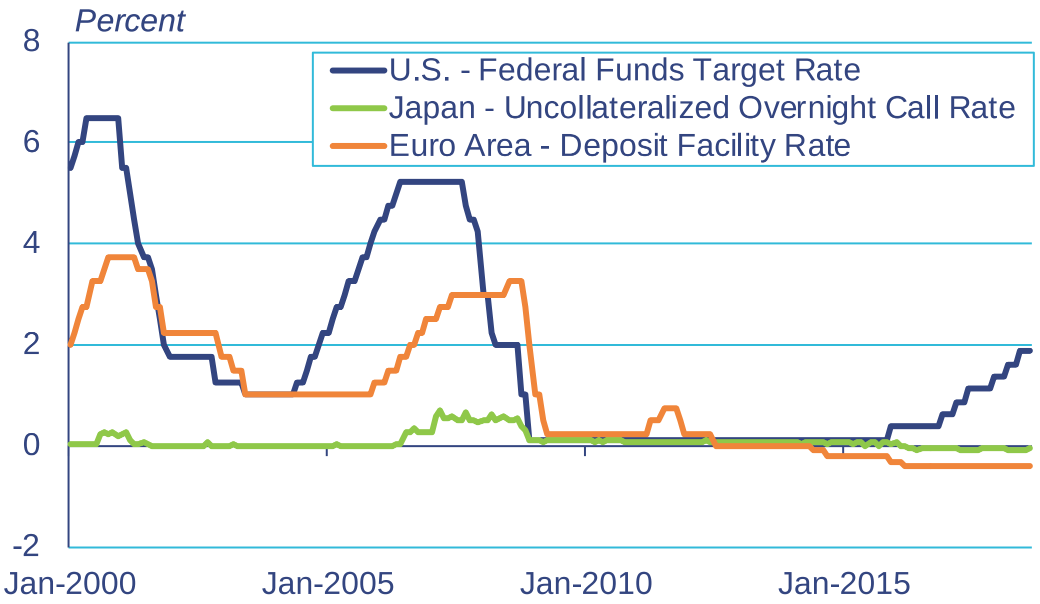
bostonfed.org

Why Focus on the Consequences of Long Spells of Low Interest Rates?

- The likelihood of rates being low for long has increased
  - Low rates are a global phenomenon
  - We see low productivity growth, low inflation, and low population growth in many developed countries
- The recent extended period of low rates makes it important to be evaluating potential costs
- The potential costs of low rates could impact how policy should prepare for, and react to, a recession

Figure 1: Overnight/Policy Rates for the Euro Area, Japan, and the U.S.

January 2000 - August 2018



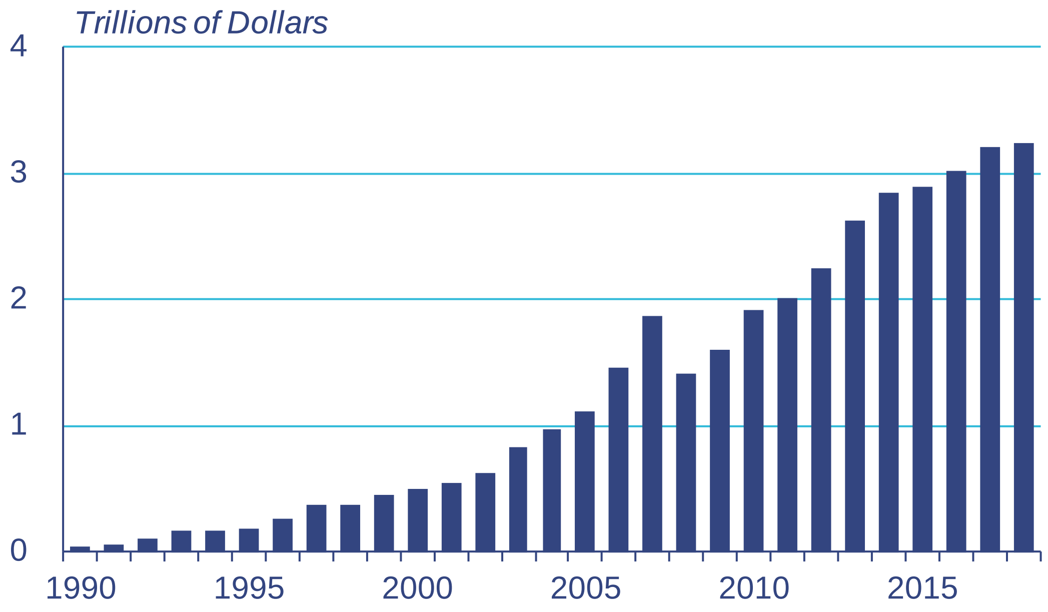
Note: Rates are as of end of period. U.S. target rate is the midpoint of the target range, beginning in December 2008.
Source: Bank of Japan, European Central Bank, Federal Reserve Board, Haver Analytics

“Reach for Yield”

- The prevalence and cost of potential “reach for yield” behavior may be important:
  - Do households alter savings, spending, and investing decisions in a low rate environment?
  - Do firms behave differently in a low interest rate environment?
  - Do regulated firms face different incentives in a low interest rate environment?

Figure 2: Estimated Global Hedge Fund Industry Assets Under Management

1990 - 2018:Q2

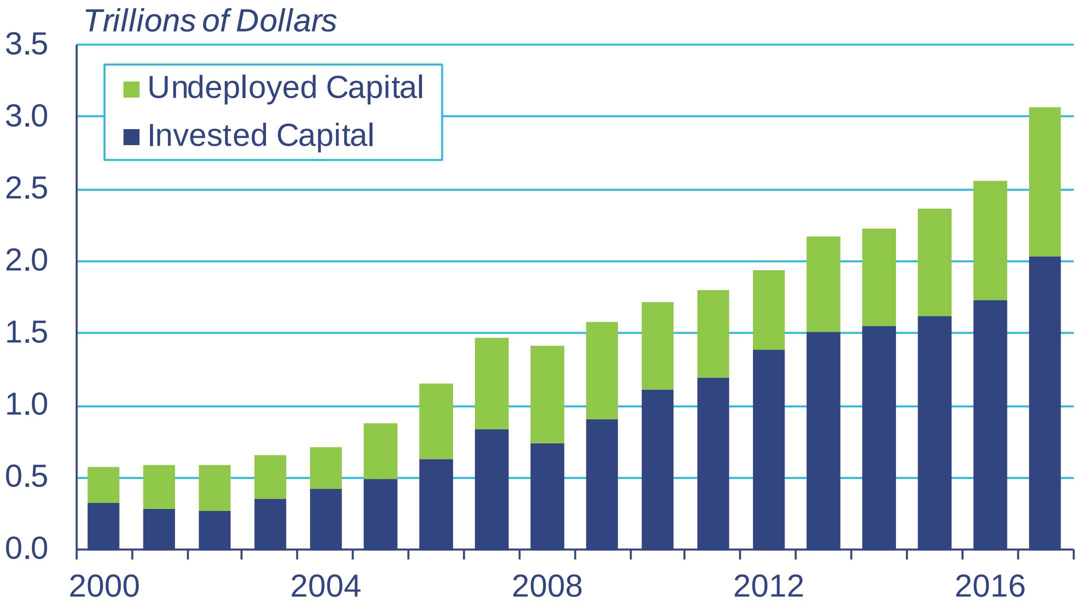


Note: Data are as of December 31 for 1990 - 2017 and as of June 30 for 2018:Q2.

Source: Hedge Fund Research, Inc. – www.HedgeFundResearch.com

Figure 3: Global Private Equity Assets Under Management

2000 - 2017



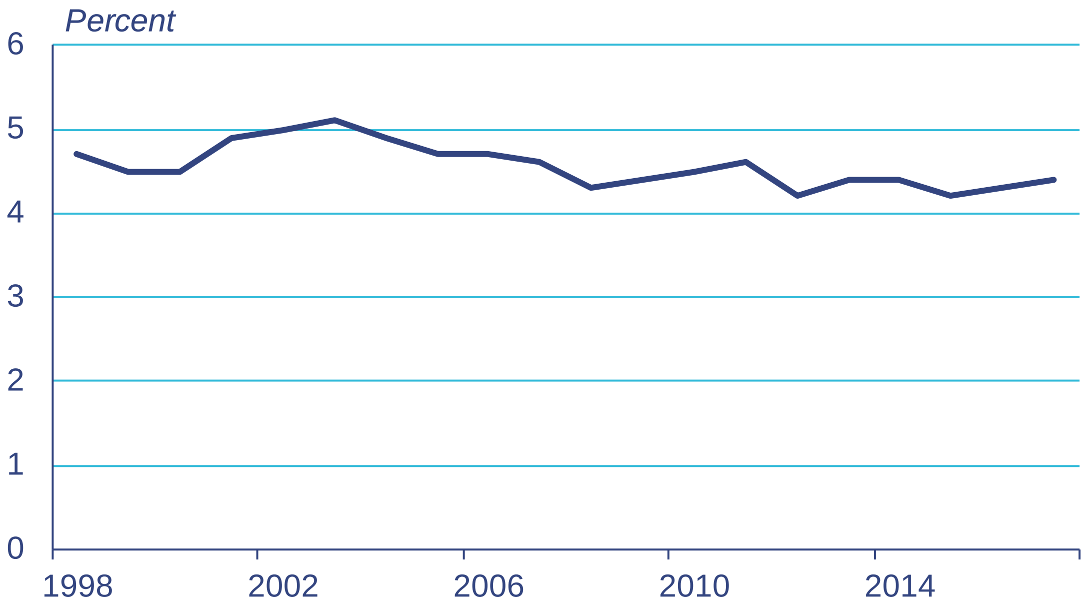
Note: Private equity refers to the core asset class centered on the buyout and venture capital industry. Data are as of December 31.
Source: Preqin

Growth in Alternative Assets

- Alternative asset classes have grown rapidly during the recent period of low rates
- “Reach for yield” and institutional constraints may interact to generate more risk for the economy
  - Example: College endowments
  - Example: Pension funds
- Has growth been due to financial innovation, or rather due to the potential to obtain higher returns through less traditional and riskier asset allocations?

Figure 4: Average Annual Effective Spending Rate for U.S. College and University Endowments and Affiliated Foundations

1998 - 2017

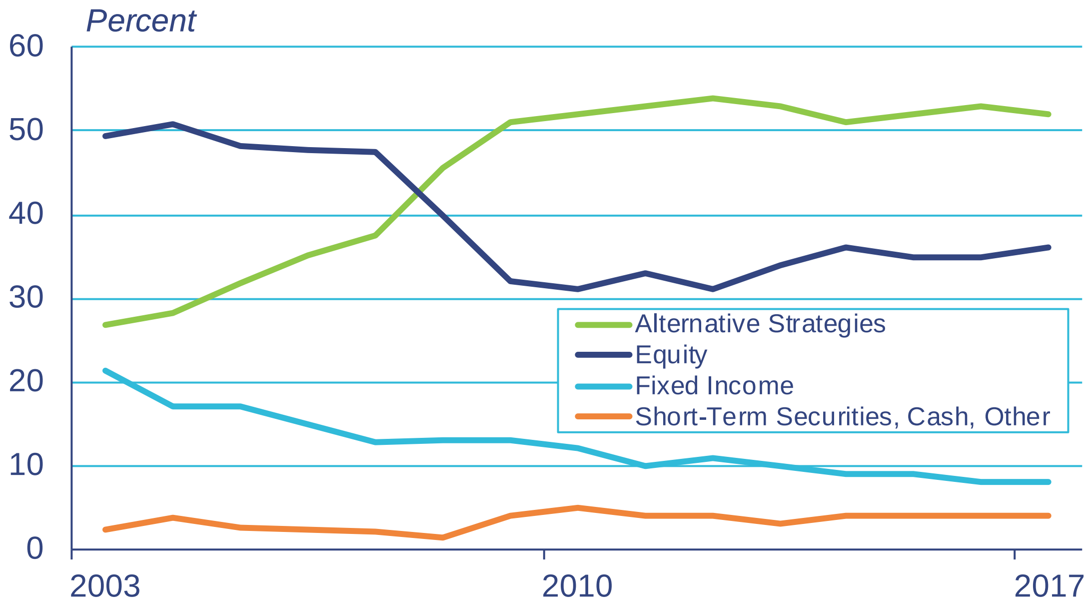


Note: Data are for fiscal years ending June 30.

Source: NACUBO Endowment Study (1998 - 2008), NACUBO-Commonfund Study of Endowments (2009 - 2017)

Figure 5: Asset Allocation for U.S. College and University Endowments and Affiliated Foundations

2003 - 2017

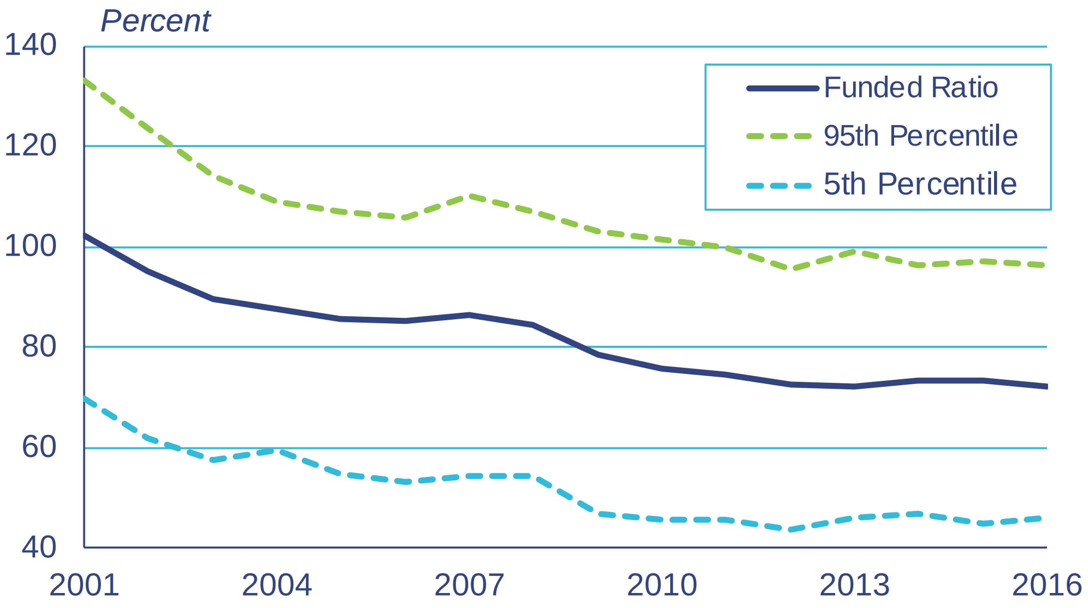


Note: Data are for fiscal years ending June 30. Asset Allocations are dollar-weighted. Alternative strategies include private equity and hedge funds among other investments.

Source: NACUBO Endowment Study (2003 - 2008), NACUBO-Commonfund Study of Endowments (2009 - 2017)

Figure 6: Ratio of U.S. Public Pension Fund Assets to Projected Liabilities

2001 - 2016

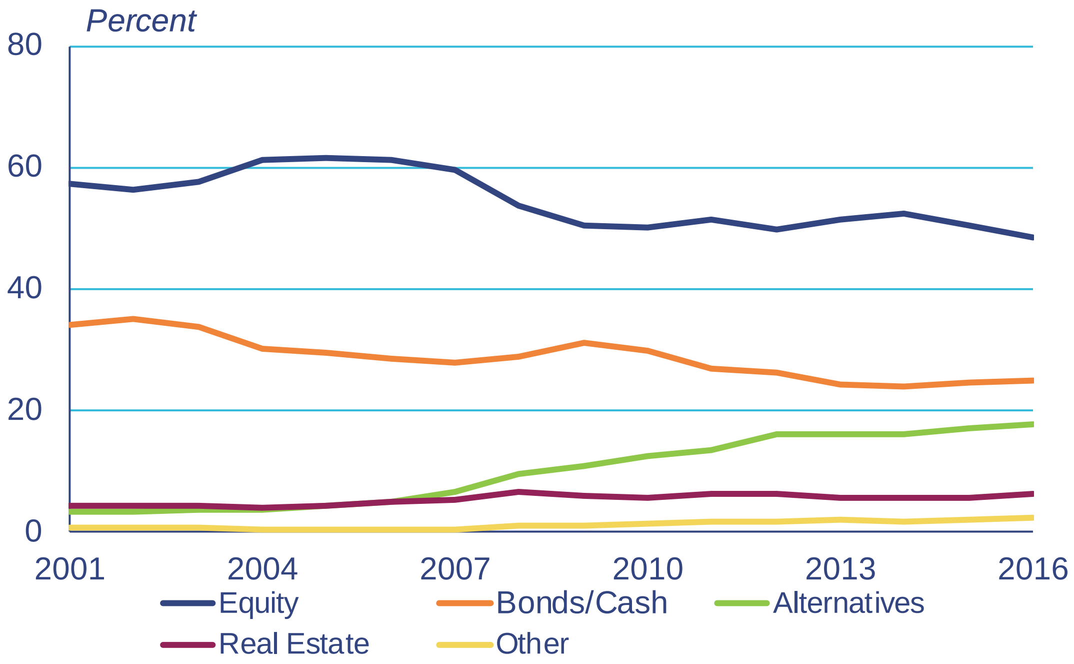


Note: For most public pension funds, the data are for fiscal years ending June 30; some have other fiscal years.

Source: Public Plans Data. 2001-2016. Center for Retirement Research at Boston College, Center for State and Local Government Excellence, and National Association of State Retirement Administrators

Figure 7: U.S. Public Pension Fund Portfolio Allocation

2001 - 2016



Note: For most public pension funds, the data are for fiscal years ending June 30; some have other fiscal years. Alternatives include private equity and hedge funds among other investments.

Source: Public Plans Data. 2001-2016. Center for Retirement Research at Boston College, Center for State and Local Government Excellence, and National Association of State Retirement Administrators

Implications for Micro Risk Management

- If institutions take on too much risk, what are the implications for institutions and their stakeholders?
- Will there be political pressures to mitigate the costs, if they are realized?
- Could risk-taking by households, firms, and regulated institutions manifest itself in financial stability problems?

Implications for Macro Risk Management

- Should we think differently about monetary policy goals and tools if the costs are large?
  - If we are likely to hit the effective lower bound frequently
    - Are inflation goals too low?
    - Should monetary policy implementation be different?
- Do we need additional financial stability tools?
- Should fiscal policies – at the national or state level – be different if the costs are great?
- Do we have sufficient policy buffers to mitigate the adverse effects of economic downturns?