Discussion: Low Interest Rates and Investor Behavior

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Low Interest Rates and Investor Behavior

- **Key question:** How do low interest rates affect portfolio choice?
  - **low:** artificially, or maybe partial equilibrium
  - **interest rates:** nominal, short-term treasury bills
  - **affect:** causal
  - **portfolio choice:** duration, credit, equity

- behavioral *versus* rational *versus* frictional *versus* agency
- reaching for return *versus* reaching for yield

- Real consequences of a behavioral reaching for return
  - low interest rates → portfolio choice → asset prices → real effects

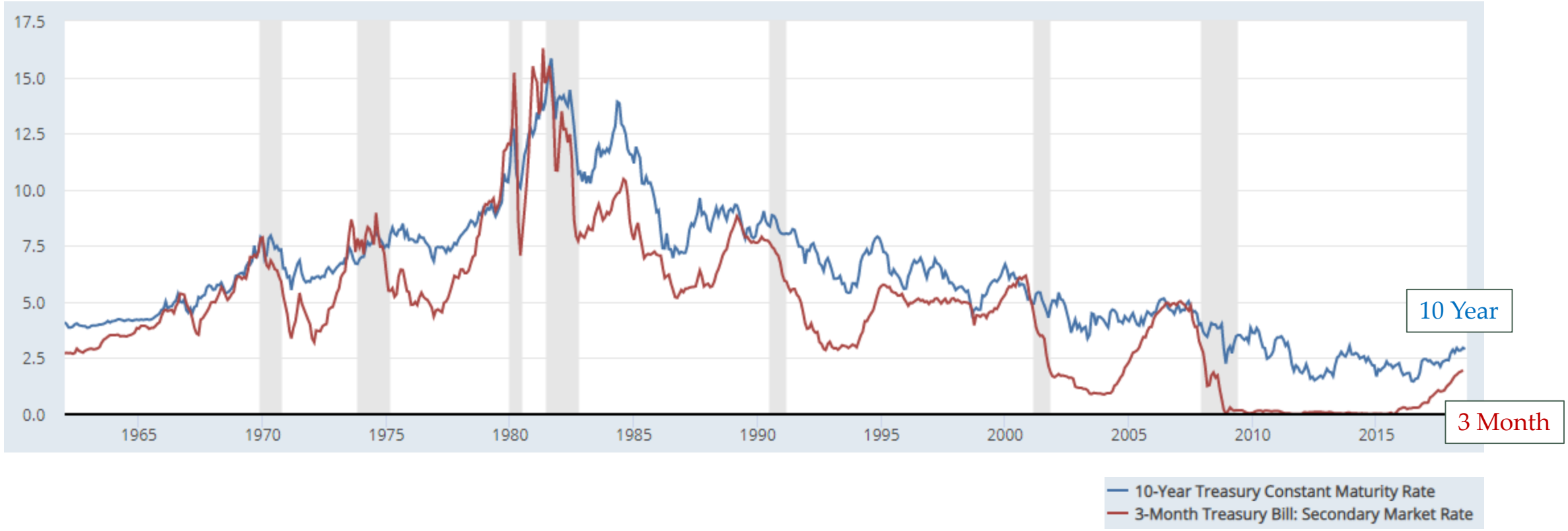
Plan

- **Data:** What is the link between the level of interest rates and the valuation of equity and credit risk?
- **Investor behavior:** How would we expect investors respond to low rates?
- **Real consequences:** What are the potential consequences and implications for monetary policy, for financial stability, for corporate finance, for wealth inequality?

Data

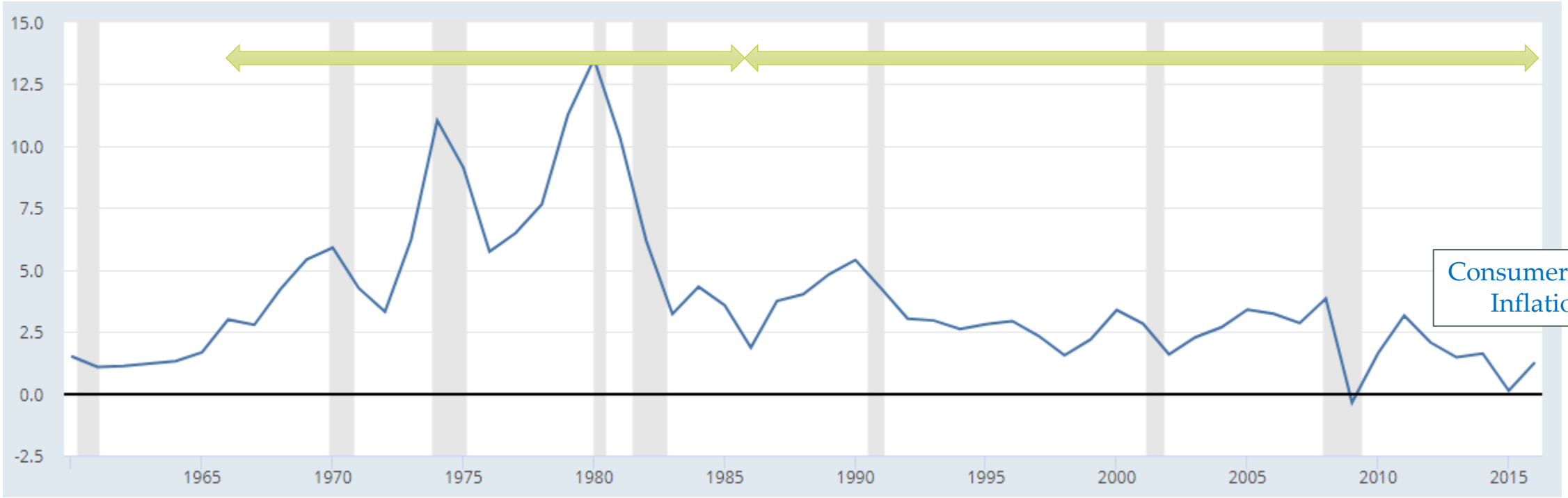
What is the link between the level of interest rates and the valuation of equity and credit risk?

Interest Rates



Source: Federal Reserve Bank of St. Louis

Inflation



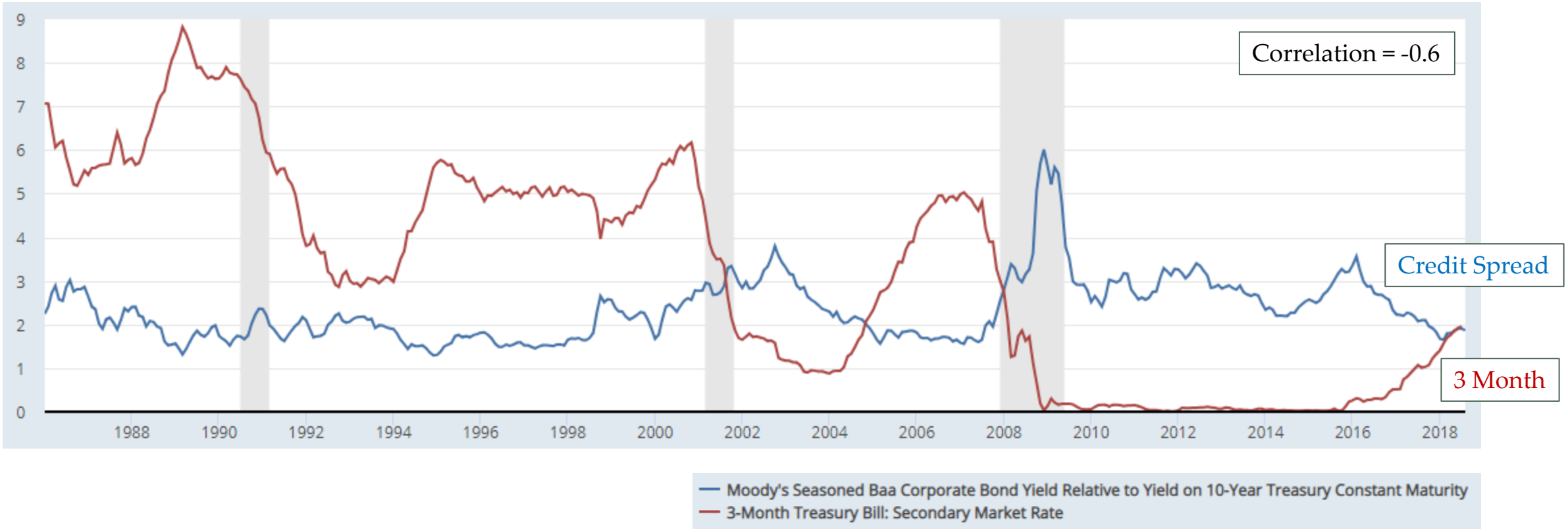
Source: Federal Reserve Bank of St. Louis

Rates and Valuation: The Data

- **Ideal experiment:** Lower rates, holding all else equal, and see the effect on investor preferences and the valuations of credit and equity risk
  - But, we don't have experimental evidence here

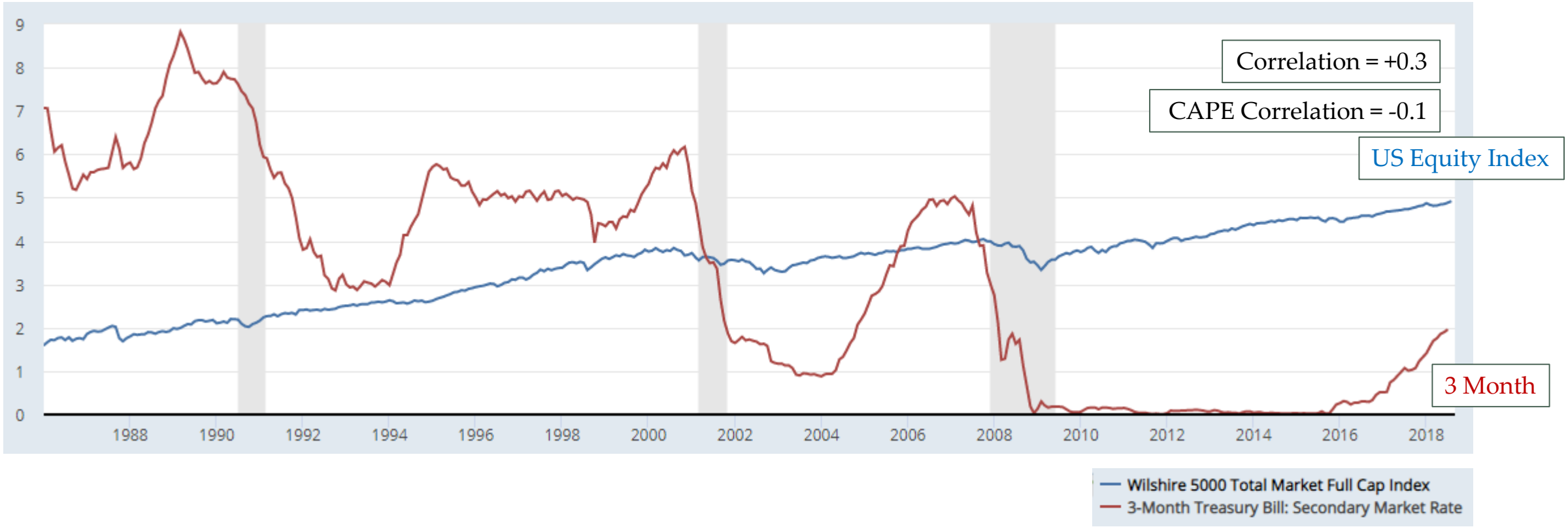
- **Actual experiment:** The choice to lower rates is confounded by the fact that policymakers are responding to economic conditions that affect valuations, or maybe to valuations themselves
  - Omitted variable bias or reverse causality causes the correlations to flip: Low rate **level** appears when valuations are low
  - The data point instead to a link between low rate **slope** and vluations

Reaching for Yield: Low Rate Level → Spreads Fall?



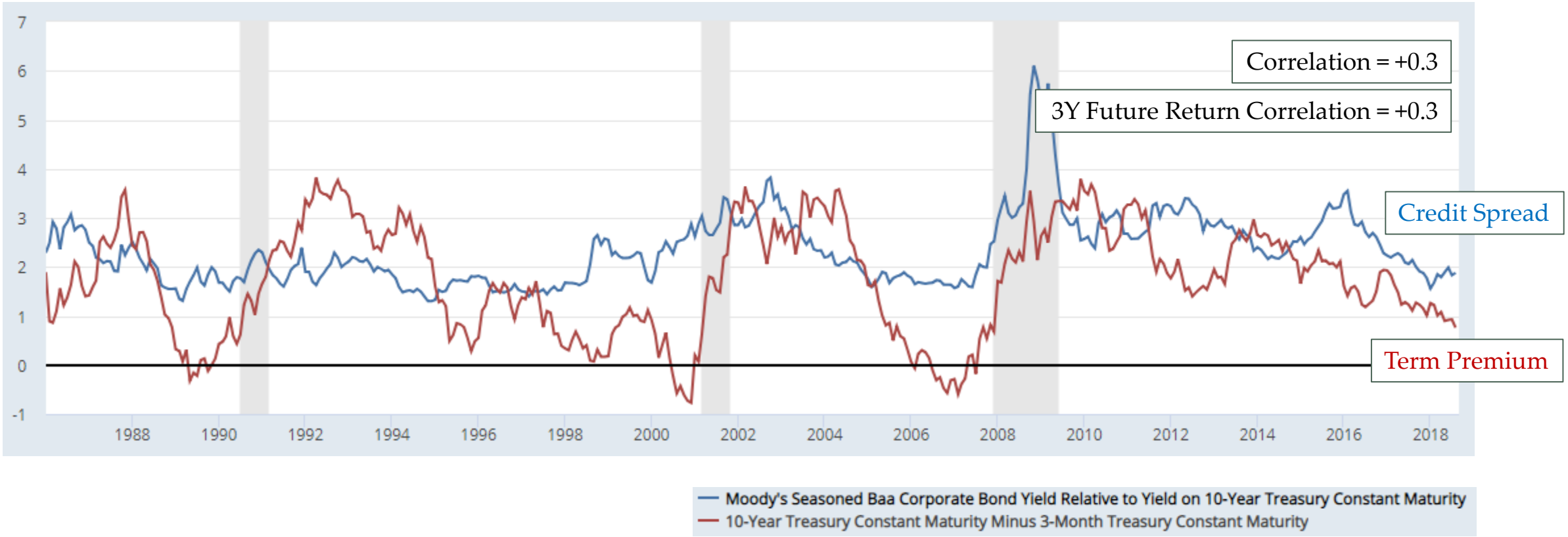
Source: Federal Reserve Bank of St. Louis

Reaching for Return: Low Rate Level → Equity Rises?



Source: Federal Reserve Bank of St. Louis

Reaching for Yield: Low Slope → Spreads Fall?



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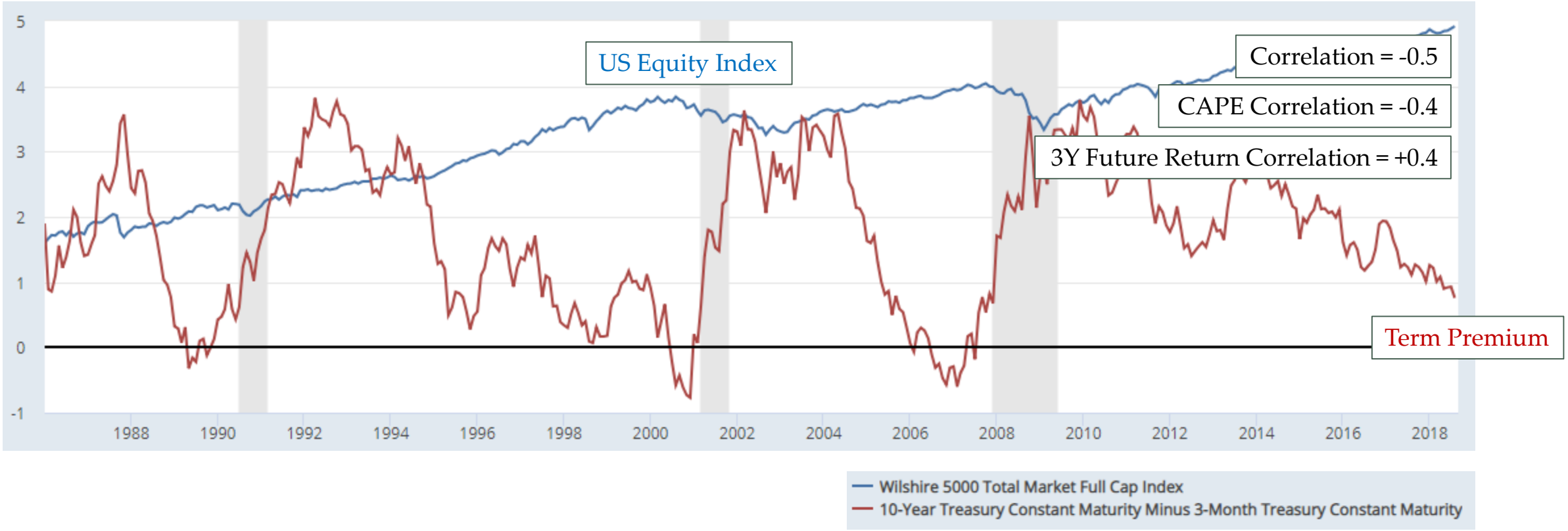
Reaching for Return: Low Slope → Equity Rises?



Source: Federal Reserve Bank of St. Louis

Investor Behavior

How would we expect investors respond to low rates?

Investor Behavior, In Partial Equilibrium

- Rational
- Frictional
- Agency
- Behavioral: Prospect Theory
- Behavioral: Anchoring

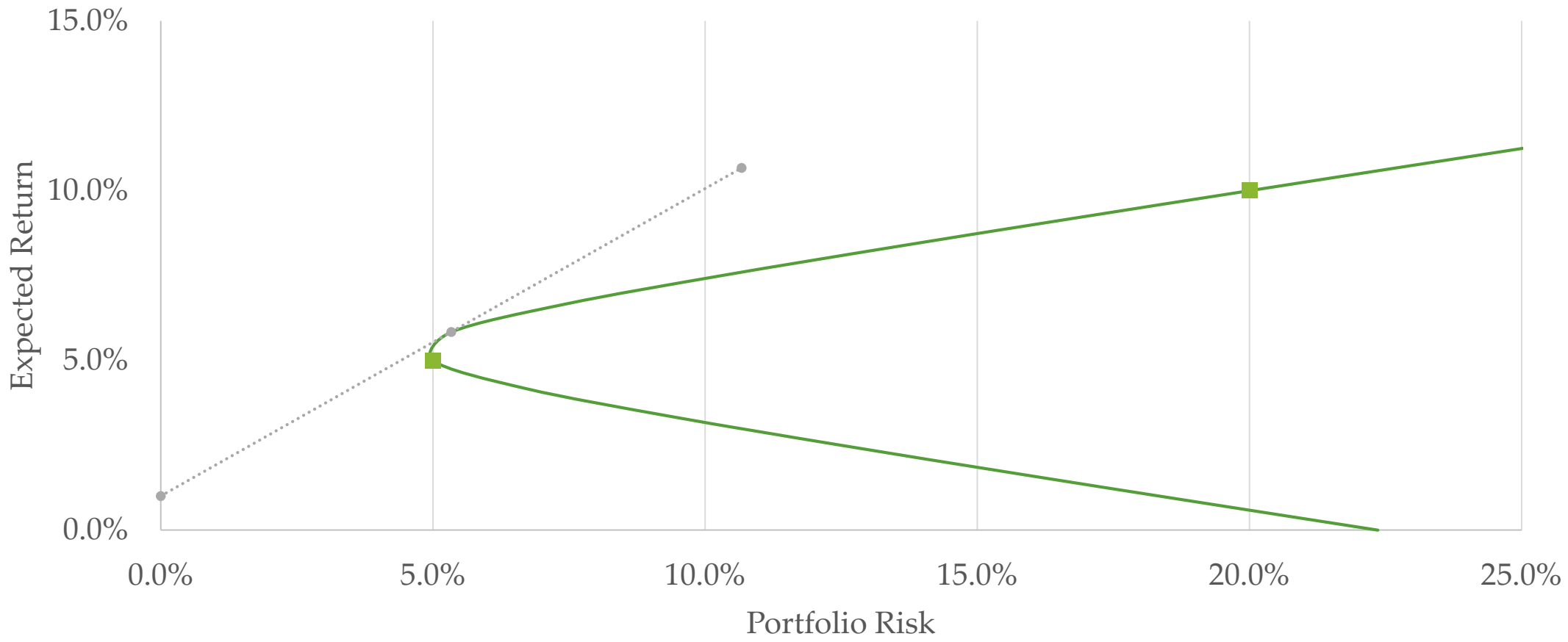
Investor Behavior: Rational

- **Mean-variance maximizing investors** in the spirit of Markowitz (1952) and Sharpe (1964) combine stocks and long-term bonds with cash
  - Goal is to maximize the ratio of excess return to standard deviation

- Lowering the **slope** of interest rates leads to a mix of fewer stocks, more bonds, and less cash (or more leverage)
  - Keeping the slope constant and varying the level has no effect

- Goes in the **wrong direction** of lower rates leading to a lower allocation to stocks, but the **right direction** for reaching for yield through duration

Mean Variance Analysis



Source: Illustration

Investor Behavior: Frictional

- For example, investors in the spirit of Black (1972, 1973) and Brennan (1971) are mean-variance maximizers but they face **restricted borrowing**
  - In Frazzini and Pedersen (2014), investors at a corner increase risk through stock selection, not asset allocation

- Lowering interest rates, or really **relaxing borrowing constraints**, allows investors to buy more equities
  - Investors take risk through asset allocation, and not stock selection

- Goes in the **right direction** of lower rates leading to a higher allocation to stocks, but it is really about funding constraints, not the rate

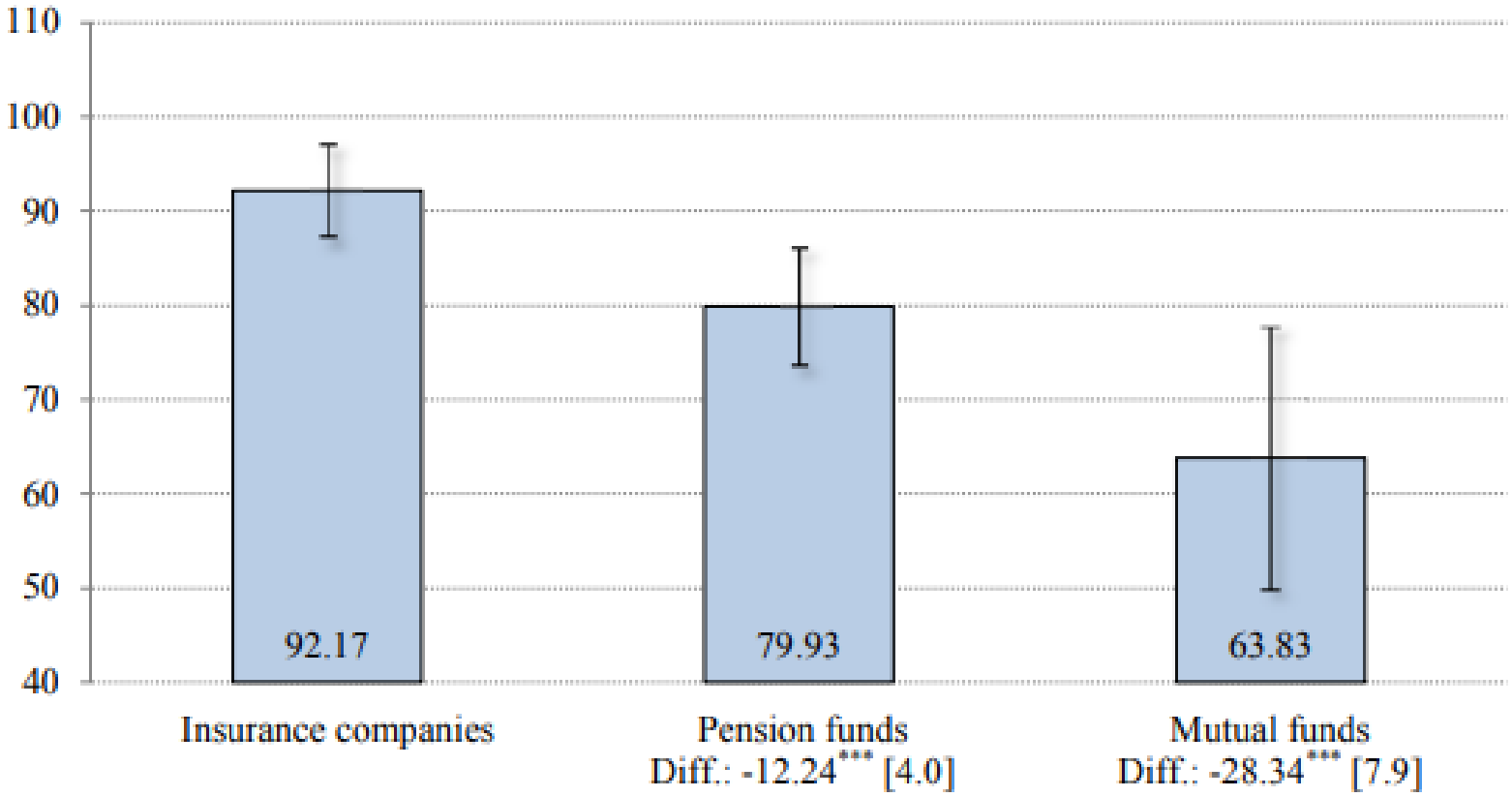
Investor Behavior: Agency, Reaching for Yield

- Institutional investors, making asset allocation choices on behalf of investors, may be prone to…

- Reach for **yield**, for example as insurance companies do in Becker and Ivashina (2014), to increase risk/profits, given credit-rating-driven capital regulation
  - A related phenomenon is that the legal or mental accounting definition of "income" versus "principal" might lead investors to reach for yield to provide sufficient income from a trust account

- Goes in the **right direction** of lower rates leading to a higher allocation to higher yielding duration and credit, but it is about spreads more than rates

Yields of Insurance Company Holdings



Source: Becker and Ivashina, Yield in Basis Points of Highly Rated Bonds

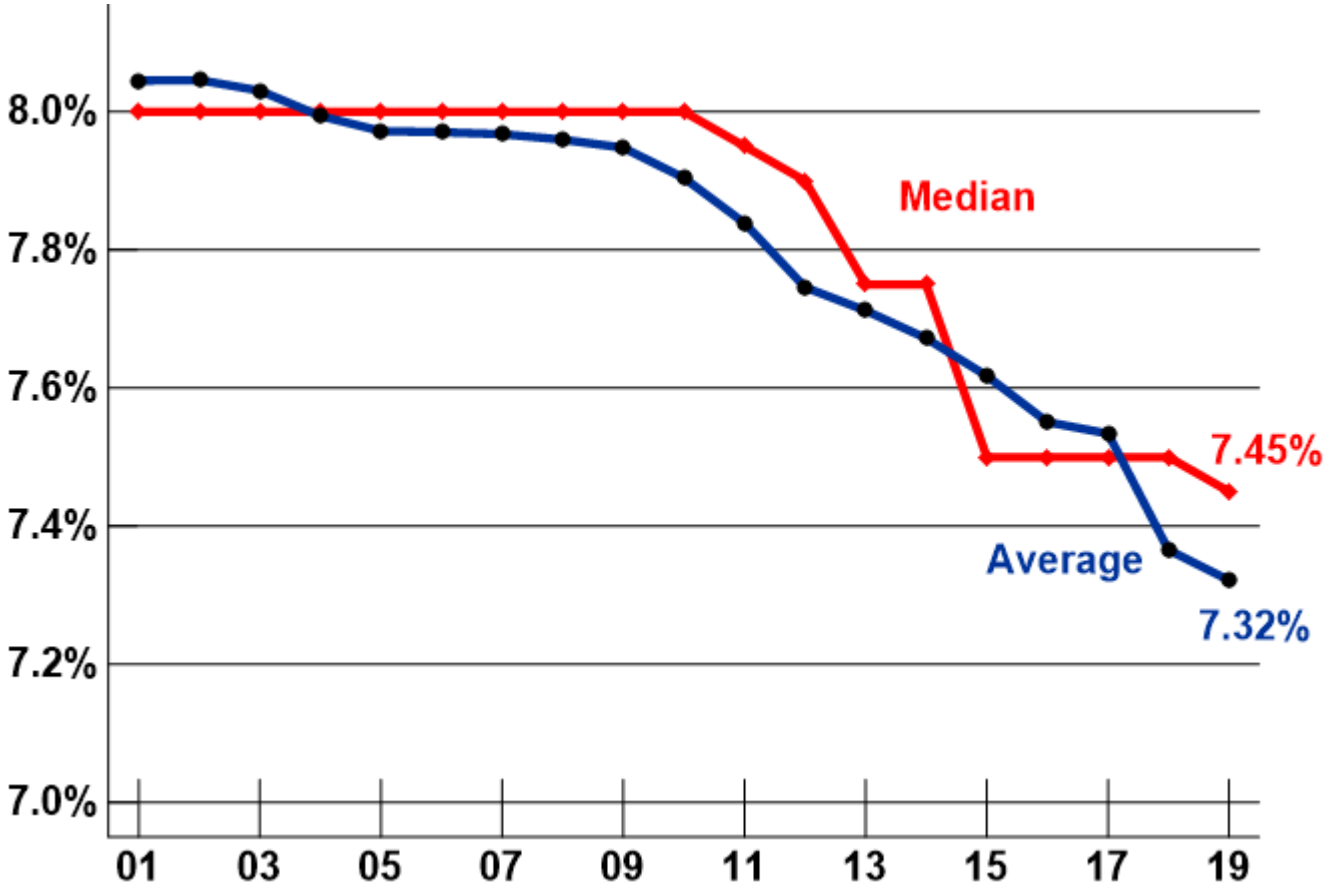
Investor Behavior: Agency, Reaching for Return

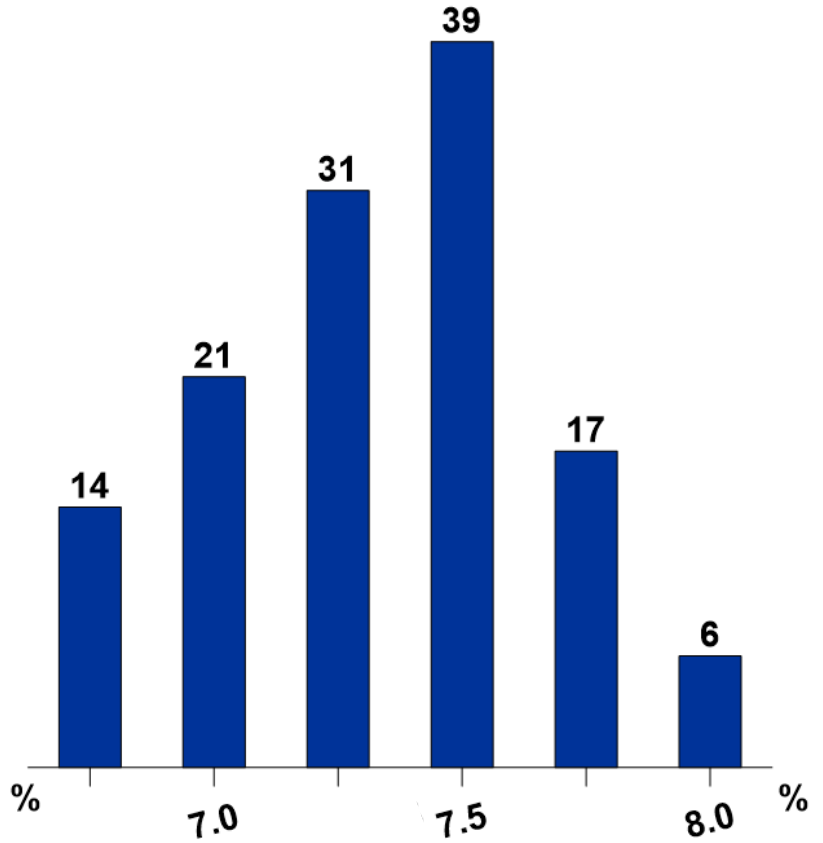
- Institutional investors, making asset allocation choices on behalf of investors, may be prone to…

- Reach for **return**, for example as pension funds like CapPERS aim to deliver a high "discount rate" for public DB plans, e.g. Rauh and Novy-Marx (2011)
  - As nominal rates have dropped, return expectations have dropped by much less
  - Corporate DB plans by contrast have less regulatory flexibility in defining return expectations, and have moved to liability matching

- Goes in the **right direction** of lower rates leading to a higher allocation by public DB plans to stocks and alternative investments, where return expectations are more subjective

Nominal Investment Return Assumptions





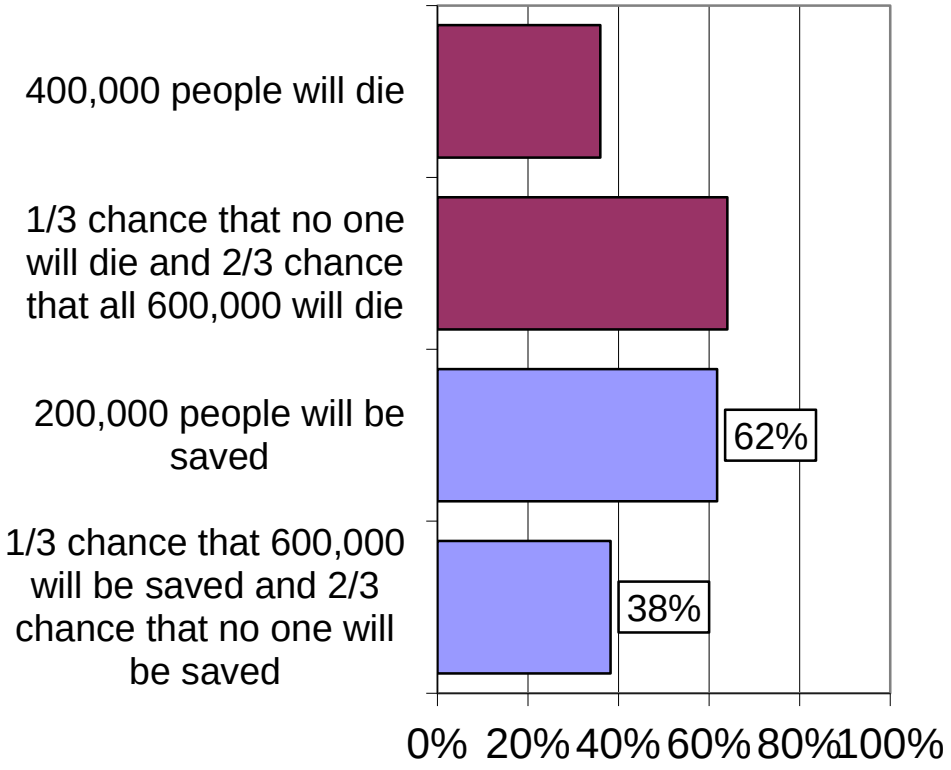
Source: NASRA, Investment Return Assumptions of Public Pension Fund Plans Over Time, and in July 2018

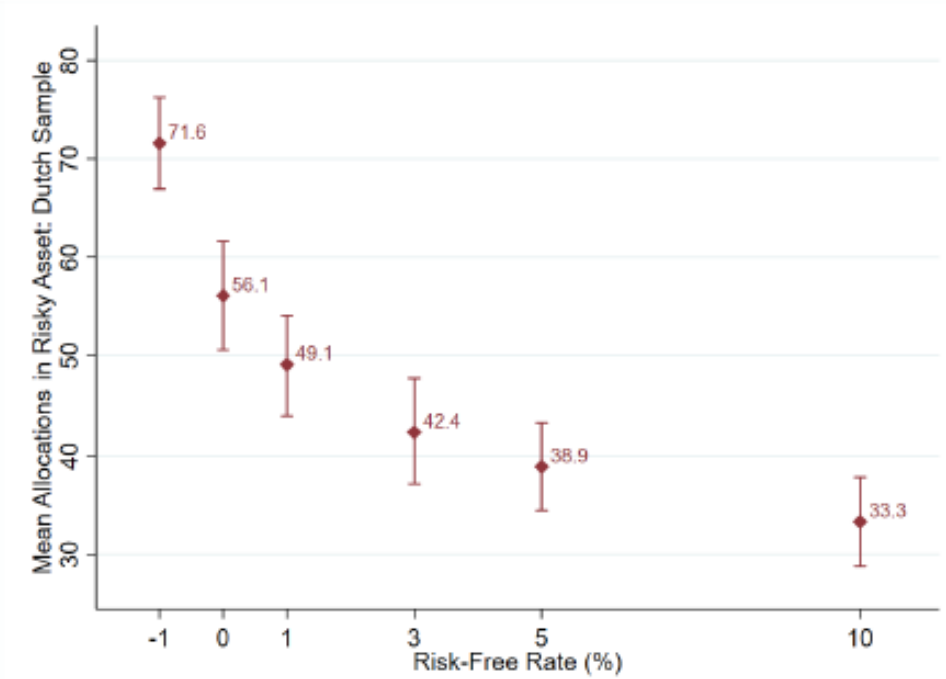
Investor Behavior: Prospect Theory

- When the risk-free rate is low, **reference-dependent** investors "experience discomfort and become more willing to invest in risky assets to seek higher returns"
  - Where does the reference point come from? "A growing number of studies that point to the importance of personal history and experiences in economic decisions," e.g. Malmendier and Nagel (2011)
  - Closely related to the problem faced by CalPERS
  - Preference-based and **intentional**

- Goes in the **right direction** of lower rates leading to a higher allocation to riskier, higher return asset classes

Prospect Theory



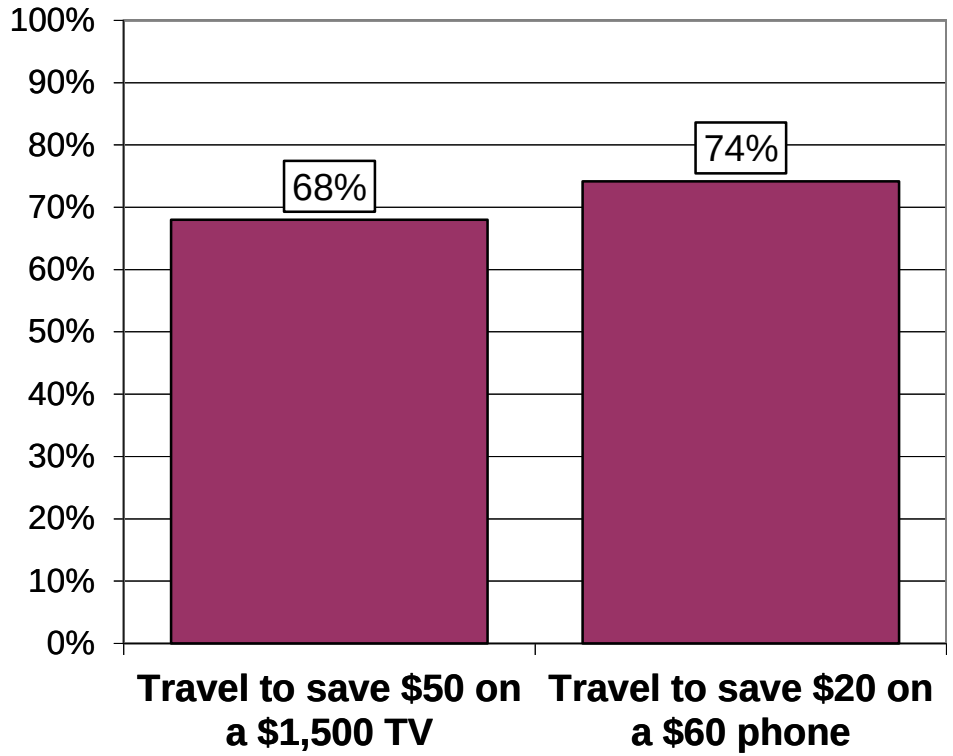


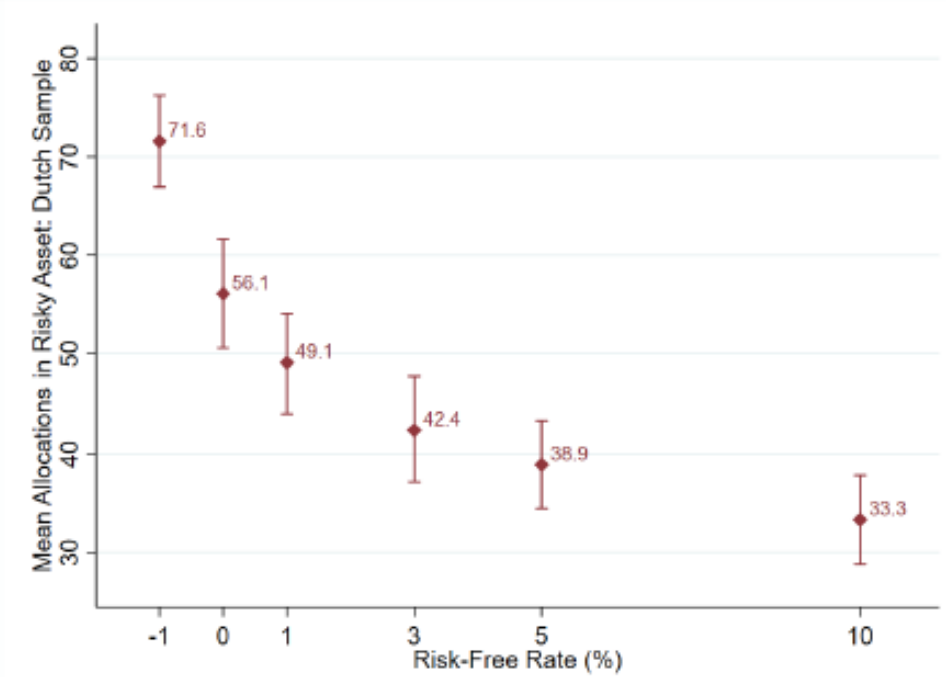
Investor Behavior: Anchoring

- When the risk-free rate is low, **anchored** investors feel like the return "a risky asset look[s] quite attractive"
  - "people tend to evaluate stimuli by proportions (i.e. 6/1 is much larger than 10/5) rather than by differences"
  - Belief-based and maybe **unintentional**

- Goes in the **right direction** of lower rates leading to a higher allocation to riskier, higher return asset classes

Anchoring


100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
68%
74%
Travel to save $50 on a $1,500 TV
Travel to save $20 on a $60 phone


Mean Allocations in Risky Asset: Dutch Sample
30
40
50
60
70
80
71.6
56.1
49.1
42.4
38.9
33.3
-1
0
1
3
5
10
Risk-Free Rate (%)

Experimental Evidence

- Very useful approach to separating funding constraints or agency problems from non-standard preferences, biases, and heuristics
  - About **ruling in** a behavioral mechanism, rather than ruling the others out

Two small comments:

- Which is better, **hypothetical** or **incentivized**?
- What is the analogue to the **observable return on the risky asset**?
  - Reaching for **yield** (observably higher yields that come with duration or credit risk) versus an unknown **return** on equities

Real Consequences

What are the potential consequences and implications for monetary policy, for financial stability, for corporate finance, for wealth inequality?

Real Consequences: Monetary Policy

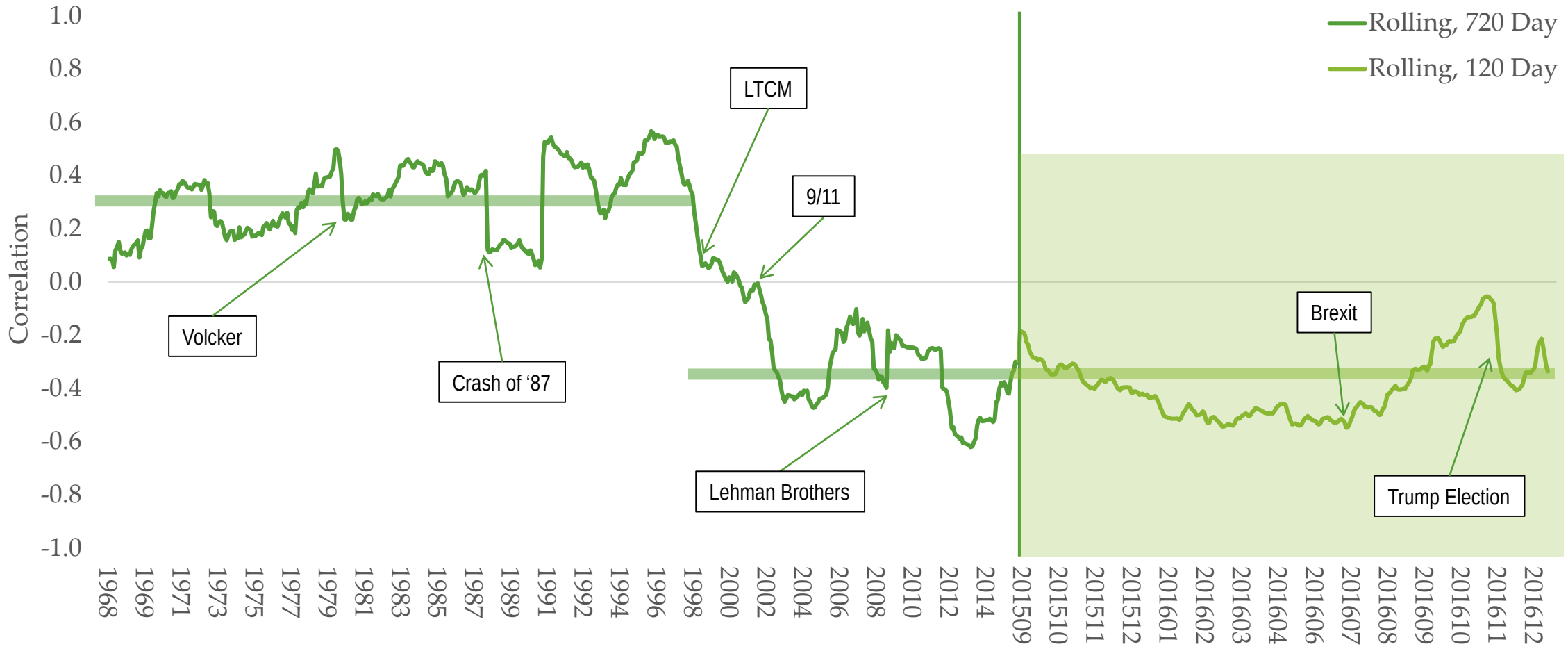
- These mechanisms suggest an underemphasized **causal and intended** channel for monetary policy, that lower interest rates raise risky asset prices
  - Through **cost-of-capital** and **wealth** effects

- Likely there are also **non-causal and unintended** links, in the spirit of e.g. Campbell, Viceira, Sunderam (2016):
  - Higher (lower) input prices/wages invite tightening (loosening)
    bad (good) for bonds, bad (good) stocks
  - Higher (lower) output prices/demand invite tightening (loosening)
    bad (good) for bonds, good (bad) for stocks
  - Higher (lower) asset prices/demand invite tightening (loosening)
    bad (good) for bonds, good (bad) for stocks

1970s, early 80s
Corr > 0

1987, Recent
Corr < 0

Stock-Bond Correlations



Real Consequences: Corporate Finance in the Recent Era

- These mechanisms suggest an underemphasized **causal** channel for monetary policy, that lower interest rates are designed to prop up risky asset prices

- **Implication/Corollary:** Stimulative monetary policy may lead companies to issue riskier claims
  - Depends on whether the primary effects are reaching for **yield** (which would suggest duration and riskier forms of credit) or reaching for **return** (which would suggest equity)
  - This is perhaps an intended **cost-of-capital** channel

Real Consequences: Wealth Effects in the Recent Era

- These mechanisms suggest an underemphasized **causal** channel for monetary policy, that lower interest rates are designed to prop up risky asset prices

- **Implication/Corollary:** Stimulative monetary policy may lead to greater wealth inequality as the gains in asset values accrue to the top end of the income and wealth distribution
  - Somewhat ironic that many critics of Fed policy in the crisis were its beneficiaries
  - Private equity investors are a case in point: Arguably, the entire asset class was saved by the V-shaped pattern that brought asset prices back from their depths before refinancing leveraged loans was contractually required
  - This is perhaps an intended **wealth-effect** channel

Real Consequences: Financial Stability in the Recent Era

- These mechanisms suggest an underemphasized **causal** channel for monetary policy, that lower interest rates are designed to prop up risky asset prices

- **Implication:** Monetary policy may be focused narrowly on the price level, but the consequences are asset price bubbles and crashes that adversely impact financial stability and amplify the business cycle
  - This is also a **cost-of-capital** or **wealth-effect** channel, but it is unintended and comes as a byproduct of maintaining stable prices through monetary policy

Conclusions

- Twin effects of reaching for yield and reaching for return, stimulated by low interest rates, mean that monetary policy can be an important driver of asset prices, both in fixed income *and* in equity markets
  - Anecdotal ← "Greenspan Put"
  - Experimental ← This paper
  - Empirical ← "Risk on, risk off" era of asset pricing

- Is the equity market (cost of capital/wealth) channel of monetary policy **intended**?
- Or, is it an **unintended** and undesirable byproduct of trying to achieve price stability and GDP growth with monetary (versus fiscal) policy?