

The Hardest Question in Investment Management

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Investment Management is Hard!

- Investment management is hard for many reasons:
 - Not least, the force of market efficiency that eliminates widely known profit opportunities.
- Today I will focus on a hard question that investment managers must always ask themselves:
 - **Are things the same as they were – or are we entering a new world?**
- It's easy to get this wrong:
 - Prematurely concluding that “this time is different”
 - Ignoring important regime shifts (“Dr. Doom”)
- I nominate this for the hardest question in investment management.

Are Things the Same as They Were?

- A statistical approach to this question is a filtering exercise.
 - One specifies a model with latent states that evolve over time.
 - “Hyperparameters” govern the evolution of those states and the mapping from states to observables.
 - Kalman filtering for continuous states, or the equivalent for discrete-state Markov switching models.
- Problems with the statistical approach:
 - It’s very technical and hard for investors to understand.
 - It’s critical to know the hyperparameters, and they are extremely hard to estimate.
 - Filtering is slow on the uptake and may miss the most important changes.

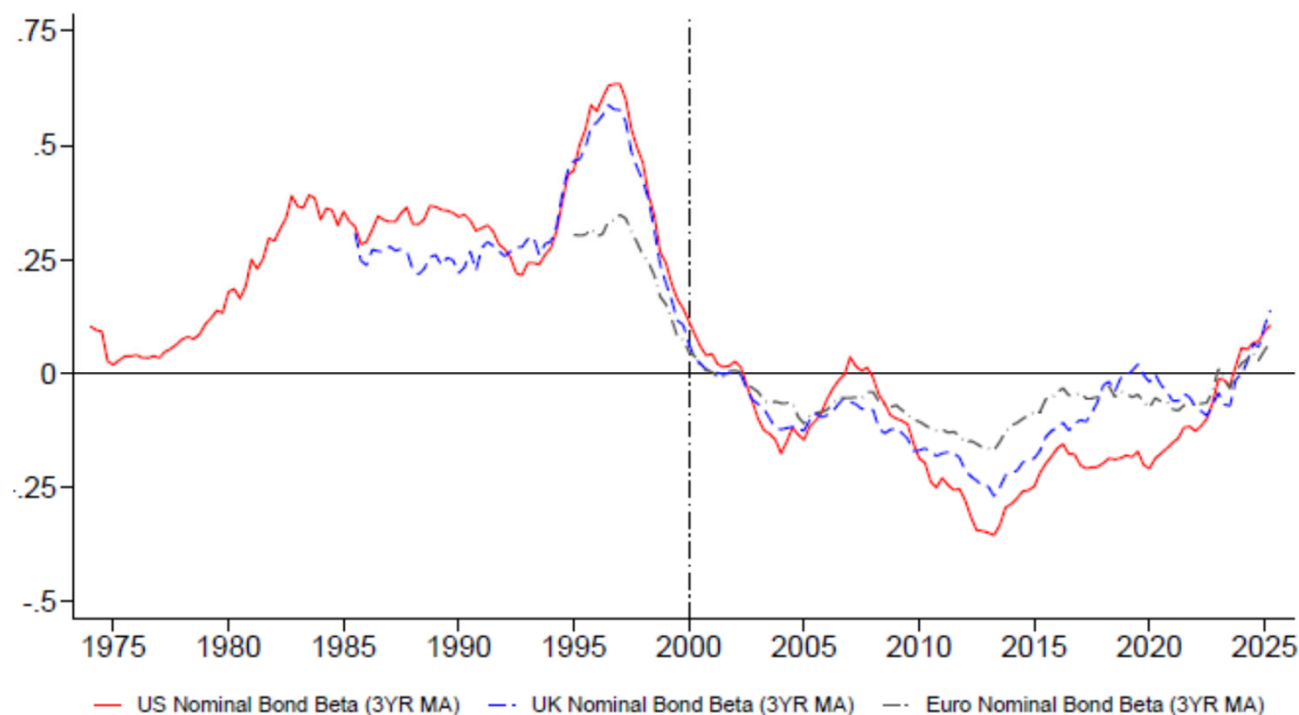
Combining Theory and Evidence

- I will argue that investment managers have no choice but to combine theory and statistical evidence in a more flexible way
- I will illustrate this by considering three applications:
 - The comovement of bonds and stocks (positive or negative?)
 - The value premium (has it gone away?)
 - The level of the US stock market (is it too high?)
- I will draw on two of my current papers:
 - John Campbell, Carolin Pflueger, and Luis Viceira, “Bond-Stock Comovements”, NBER WP 34323, October 2025 (CPV)
 - John Campbell, Stefano Giglio, and Christopher Polk, “What Drives Booms and Busts in Value?”, May 2025 (CGP)

The Comovement of Bonds and Stocks

- CPV focus on the **bond beta**, the beta (regression coefficient) of excess bond returns on excess stock returns
 - In a CAPM world, this determines the term premium
 - Beta, covariance, and correlation are scaled differently but they always have the same sign and have similar low-frequency movements
- Methodological details:
 - Returns on 10-year nominal zero-coupon government bonds and value-weighted stock indexes for the US, UK, and Eurozone
 - Regressions use daily returns within each quarter and coefficients are then smoothed over 12 quarters
 - We use inflation-indexed bonds, and inflation swaps where available, to distinguish real and breakeven inflation components. These add up to the nominal bond beta.

The Sign Switch at the Millennium

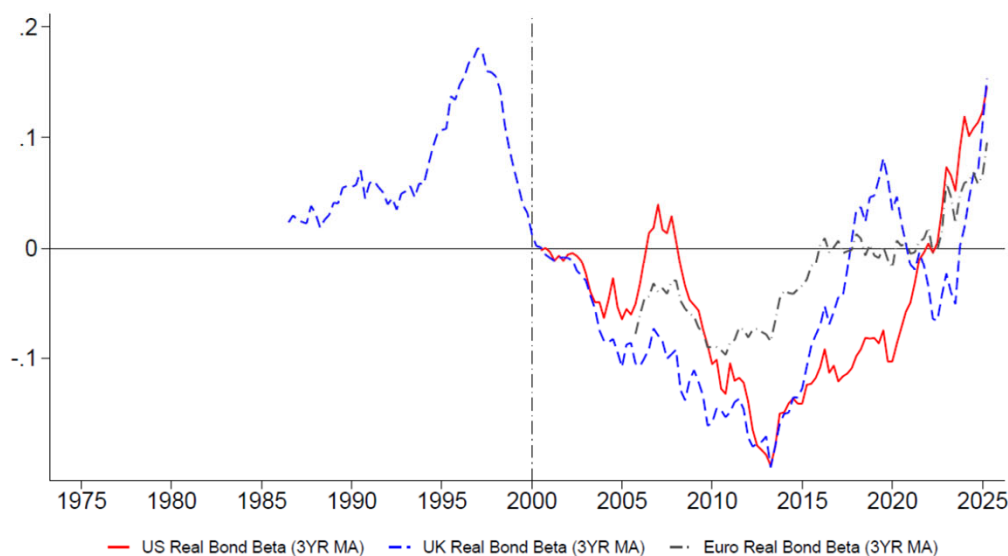


The average bond beta in the 1980s and 1990s was about 0.4. The average bond beta in the 2010s was about -0.2. The decline of 0.6 implies a large decline in the term premium in a CAPM world.

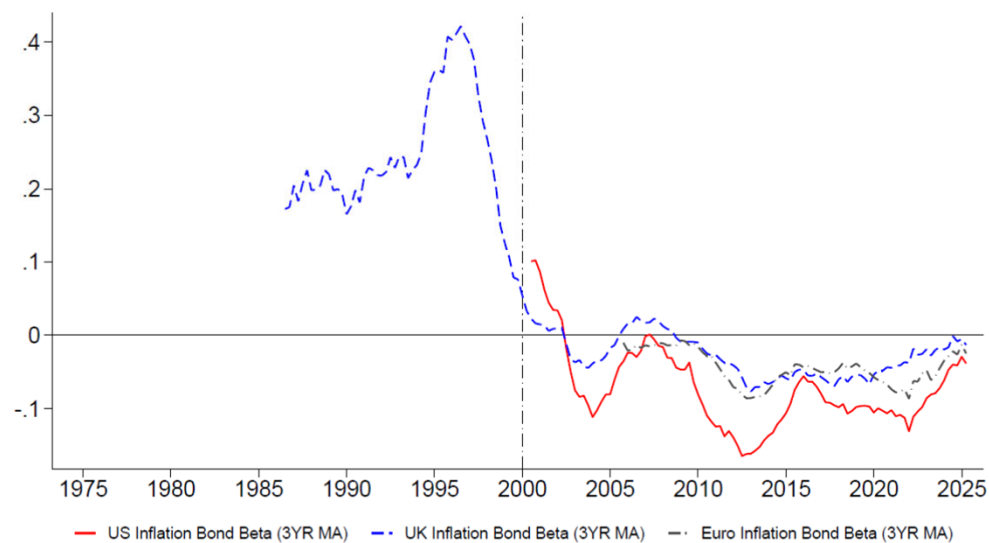
Recently the bond beta has turned positive again. Is this a return to the 20th Century pattern?

Real and Breakeven Inflation Bond Betas

Panel A: Real Bond-Stock Betas

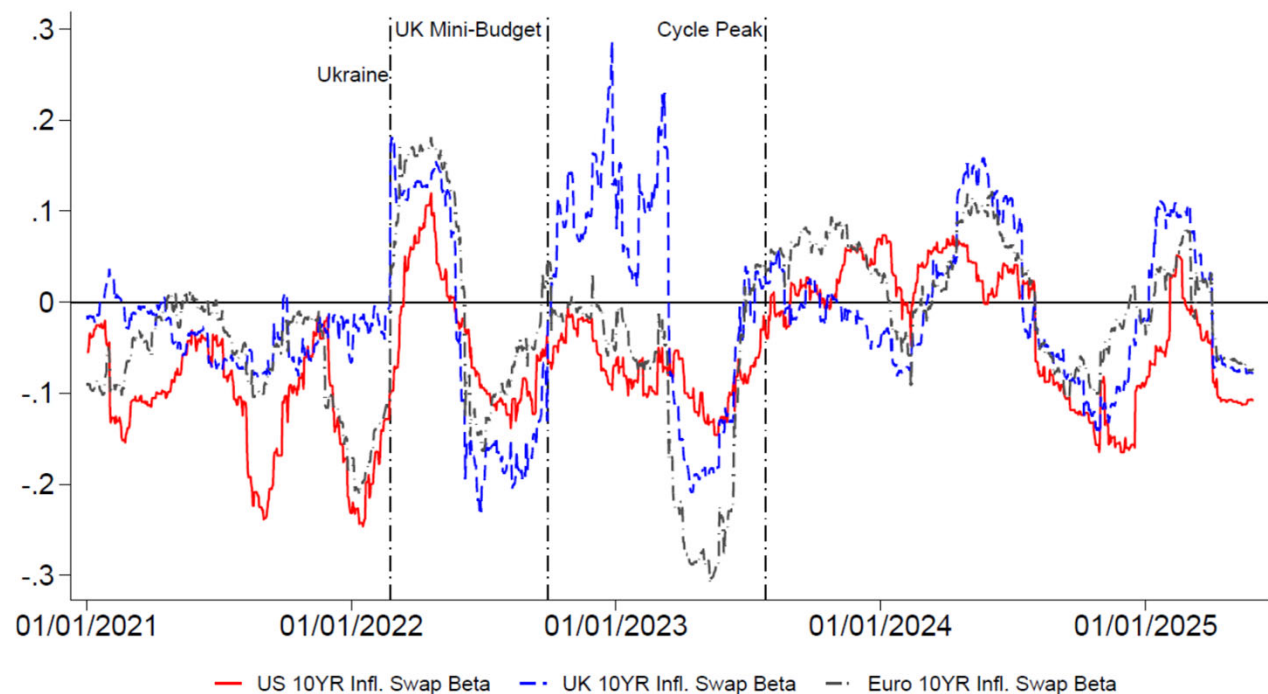


Panel B: Inflation Component of Bond-Stock Betas



Notice the difference in vertical scale. The positive bond beta in the 20th Century was primarily due to the inflation component, but the increase in bond beta recently has been driven by an increase in the real component.

High-Frequency Variation in Inflation Betas



We use 90-day rolling windows, without smoothing, to measure higher-frequency variation in inflation betas in the 2020s.

Events matter: Ukraine invasion increased UK and Eurozone betas more than US beta; UK mini-budget increased UK beta; peak of US interest rate was followed by higher average betas everywhere.

How Betas Change in Risky Times

- Bond betas change in risky times, but the effect depends on the average sign of the bond beta.
 - When it is positive, the bond beta increases in risky times (gets more positive)
 - When it is negative, the bond beta decreases in risky times (gets more negative)
- We show this by documenting that bond betas increased in risky periods of the 20th Century, but decreased in risky periods of the 21st Century (such as the global financial crisis in 2008-09).

Bond Beta Theory: Real Interest Rates

- Stocks tend to rise when the economy is strong today.
- Interest rates tend to rise when the economy is expected to grow strongly in the future
 - And high interest rates drive down bond prices
- So if a strong economy today is associated with expectations of strong growth in the future (persistent growth as in the 21st Century), bonds and stocks comove negatively
- But if there are temporary booms and short-lived recessions (more common in the 20th Century), bonds and stocks comove positively

Bond Beta Theory: Inflation

- What about the evidence for sign switches in inflation betas?
- Inflation betas are positive when inflation is countercyclical, and negative when it is procyclical.
 - Campbell-Pflueger-Viceira (2020) show that the cyclicalities of realized inflation changed around 2000, along with the bond beta sign switch.
- Countercyclical inflation can arise in several ways:
 - Growth shocks with fiscal dominance so that inflation erodes the nominal value of the public debt when growth is low (Cochrane 2001)
 - New Keynesian macro model with supply shocks and anti-inflationary monetary policy (Pflueger 2025)

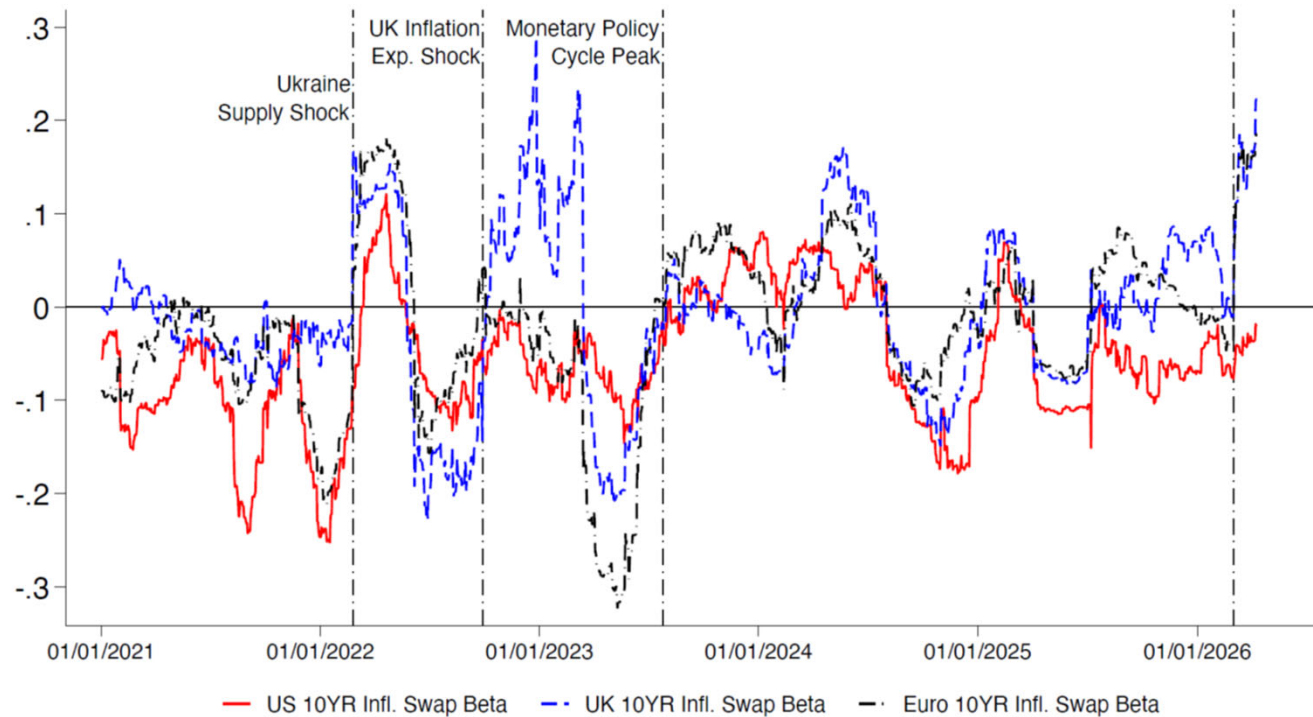
Bond Beta Theory: Flight to Quality

- It is often argued that unstable risk aversion causes periodic “flight to quality” that benefits bonds and hurts stocks, driving bond betas negative.
- But flight to quality only benefits bonds when these are regarded as safe assets!
- When bond betas are positive, flight to quality causes investors to sell both bonds and stocks and buy other safe assets (money market funds, perhaps real estate or gold)
- Thus theory predicts exactly the pattern we see in the data, with a sign switch in the flight to quality effect around 2000.

Back to the Hardest Question

- So are bond betas switching sign again?
- We can monitor the high-frequency data on bond and stock returns
 - Looking at the average sign of bond betas...
 - But also the movements in bond betas when proxies for risk premia change
- We can also look for signs of economic developments that theory suggests will be associated with positive bond betas:
 - An increase in short-term business cycle risk relative to long-term growth risk
 - Inflation coinciding with a weak real economy (countercyclical inflation)
 - Supply shocks driving up inflation and provoking a strong central bank response
 - Fiscal dominance (erosion of the independence of the central bank)

The Latest Evidence: The Iran War



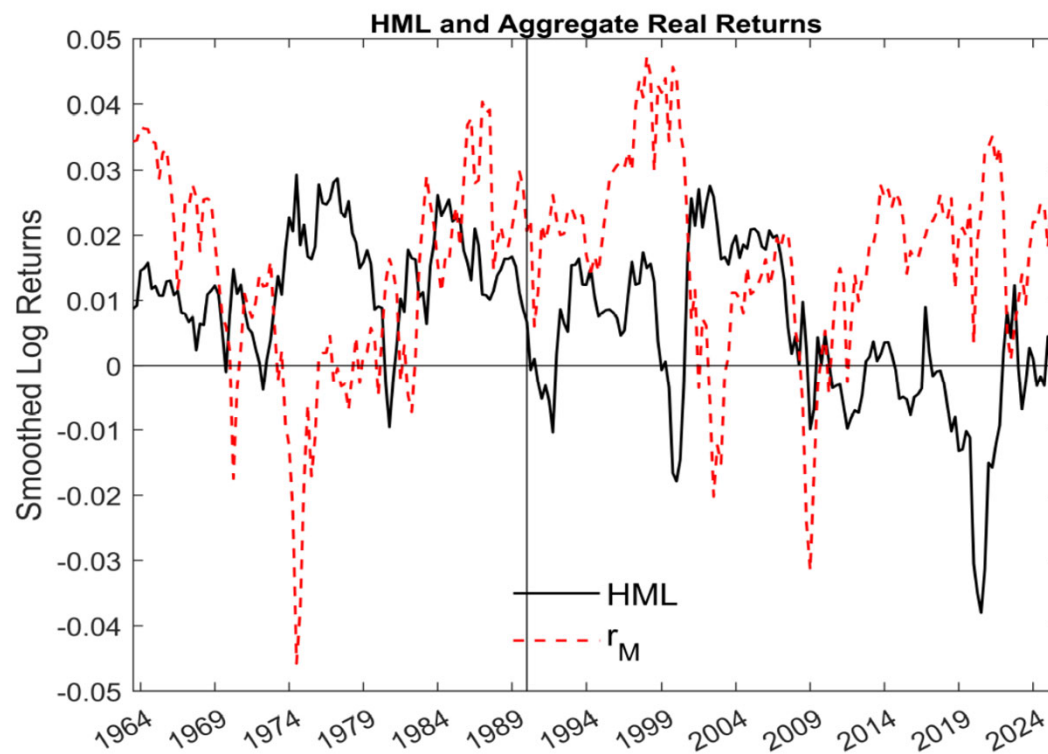
We use 90-day rolling windows, without smoothing, to measure higher-frequency variation in inflation betas in the 2020s.

Events matter: The Iran War has caused inflation betas to turn sharply positive in the UK and the Eurozone, not yet in the US.

The Value Premium

- Returns to value stocks have been high over the long run
 - The academic literature on value focuses on the return to a portfolio known as HML, which goes long stocks with high book-market ratios and short stocks with low ratios. I will follow suit in this talk
- But recent years have not been kind to value investors
 - “Lost decade” of the 2010s, disastrous returns in 2020 and again in 2025
- Has the value effect gone away, or should value investors stay the course?
 - In other words, has the world changed or has value just suffered from a series of unlucky shocks?

The Return to Value



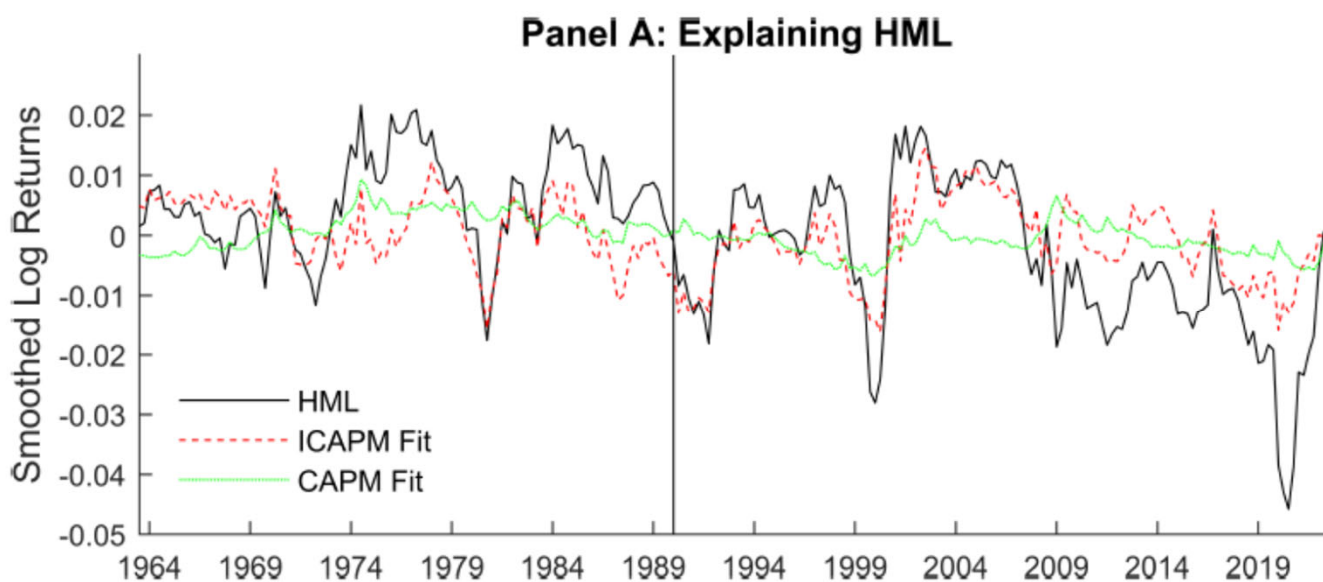
Log returns on HML and the aggregate stock market are exponentially smoothed with a two-year half-life.

Historically, HML returns were positive despite HML's small negative beta, but they are strikingly lower in the 2010s and 2020s, and particularly negative in the 2020 pandemic downturn.

Looking for Unlucky Shocks: ICAPM

- In a series of papers I have argued that the return to HML can be understood using an ICAPM (“intertemporal CAPM”) model.
- The model distinguishes between cash-flow news N_{CF} and discount-rate news N_{DR} to the aggregate market.
 - Value stocks have a relatively high beta with N_{CF}
 - Growth stocks are long-duration assets and have a high beta with N_{DR} .
- An extension brings in risk shocks to market variance N_V .
 - Value stocks have a more negative beta with N_V , perhaps because growth stocks have optionality that benefits from volatility.
- Long-term investors particularly dislike N_{CF} (cash-flow) beta and like N_V (variance) beta.
 - Hence the ICAPM predicts a high return to HML.

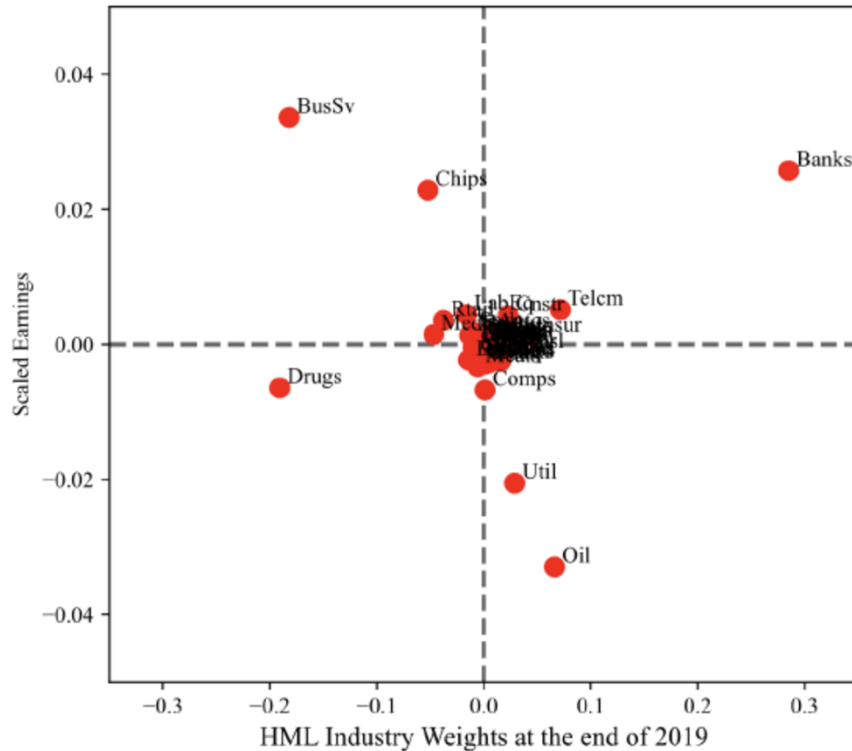
Looking for Unlucky Shocks: ICAPM



If these are the risk exposures of HML, then maybe unfavorable shocks N_{CF} , N_{DR} , and N_V explain recent poor HML returns.

CGP show that the shocks do explain cyclical fluctuations, particularly for the intra-industry component of HML, but do not explain the low average returns since 2010.

Looking for Unlucky Shocks: Sectors



If aggregate shocks don't work, what about idiosyncratic shocks to particular industries?

CGP show that this explains the poor performance of inter-industry HML in 2020, but again is not the explanation for persistent poor HML returns since 2010.

Looking for Unlucky Shocks: Repricing

- A final possibility is that the betas of HML have themselves shifted in a way that increases the ICAPM-implied return.
- This implies higher HML returns in the long run, but during the transition the repricing of value stocks implies lower returns.
- CGP show that beta movements are consistent with this story.
- The cash-flow beta of HML has increased and the variance beta of HML has become more negative, implying that HML is riskier now and should command a higher risk premium in the future.

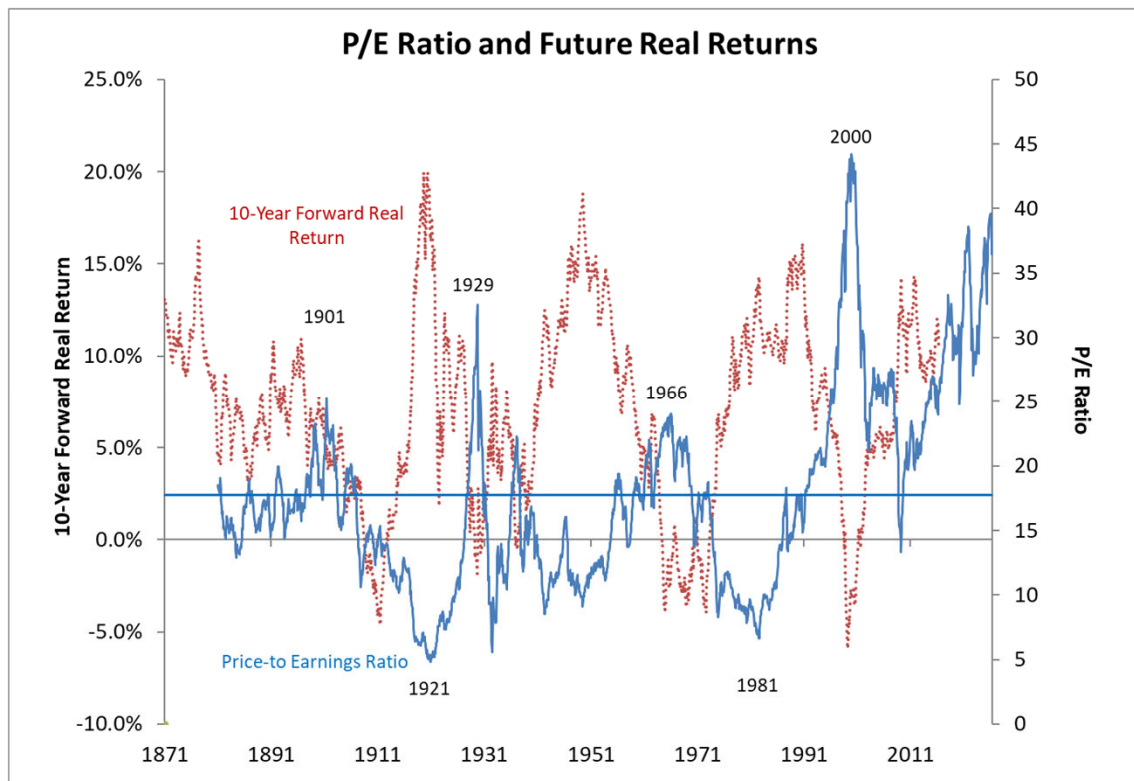
Looking for Unlucky Shocks: Value Spreads

- The repricing hypothesis suggests that value spreads should have widened in the period of poor value performance
 - Best measure is spread in $\log(M/B)$ since this is relatively insensitive to the overall level of market valuation
 - Contrast this with bad luck for value-stock cash flows, or slow deterioration of the economic meaning of book value, which do not have this implication
- Value spreads do appear to be unusually wide today
 - But of course this could be due to irrational sentiment driving up the prices of AI stocks, rather than rational repricing of risk in value stocks
- Historically, wide value spreads have predicted high returns to value (Cohen-Polk-Vuolteenaho 2003)

Back to the Hardest Question

- So what should value investors expect in the future?
- There are certainly reasons to think that the market-book ratio used to construct HML is less useful than it used to be.
 - There are many alternative valuation ratios, some of which have held up better than others.
- But there are also reasons to believe that HML has been unlucky in the 2010s and 2020s and its performance will recover.
- The value analysis can also be useful for judging the level of the aggregate stock market, which is strikingly high in the US today.
 - This likely reflects declines in discount rates (N_{DR}) that have driven prices up.

Valuation and the US Stock Market



The price-smoothed earnings or CAPE ratio has been a strong negative predictor of 10-year real returns in the past. It is currently very high at around 36.

Investors should expect lower than average returns (but not necessarily a crash) if they purchase stocks at these valuation levels.

Approaching the Hardest Question

- In this talk I have tried to illustrate an approach that combines direct statistical evidence with theory and auxiliary statistical evidence.
- The question is hard so it will be rare to have an example where the answer is clear!
- But I believe investors should give significant weight to theory and auxiliary evidence in formulating their answer.

A Book Unrelated to This Talk

John Campbell and Tarun Ramadorai,
*Fixed: Why Personal Finance is Broken
and How to Make It Work for Everyone*,
Princeton University Press

Publication date is October 21, 2025

The book is written for a general
audience, with no math, no tables, and
only a few figures

