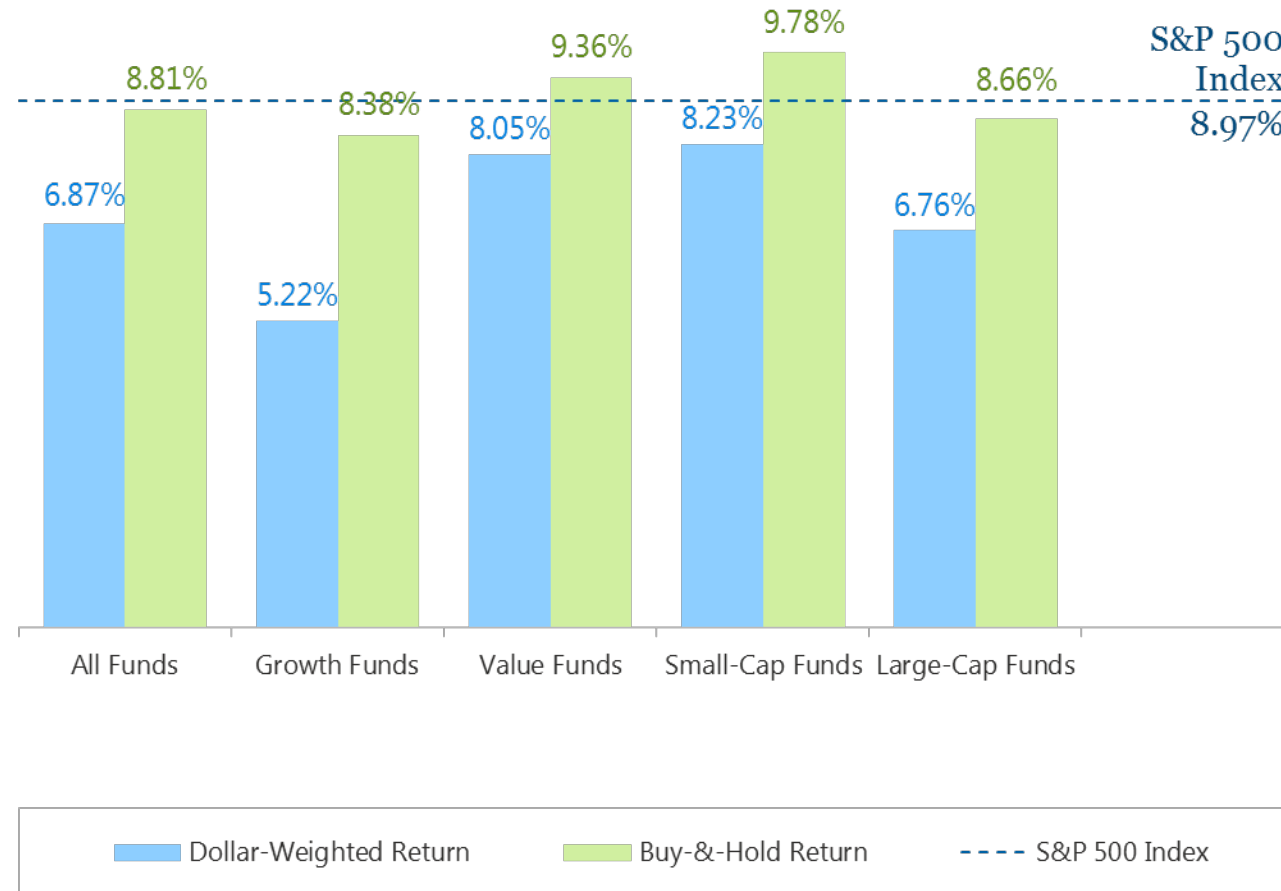


Are Valuations Now Irrelevant?

Rob Arnott
Chairman & Founder
Research Affiliates, LLC

Valuing Equity Strategies: Past Is Not Prologue

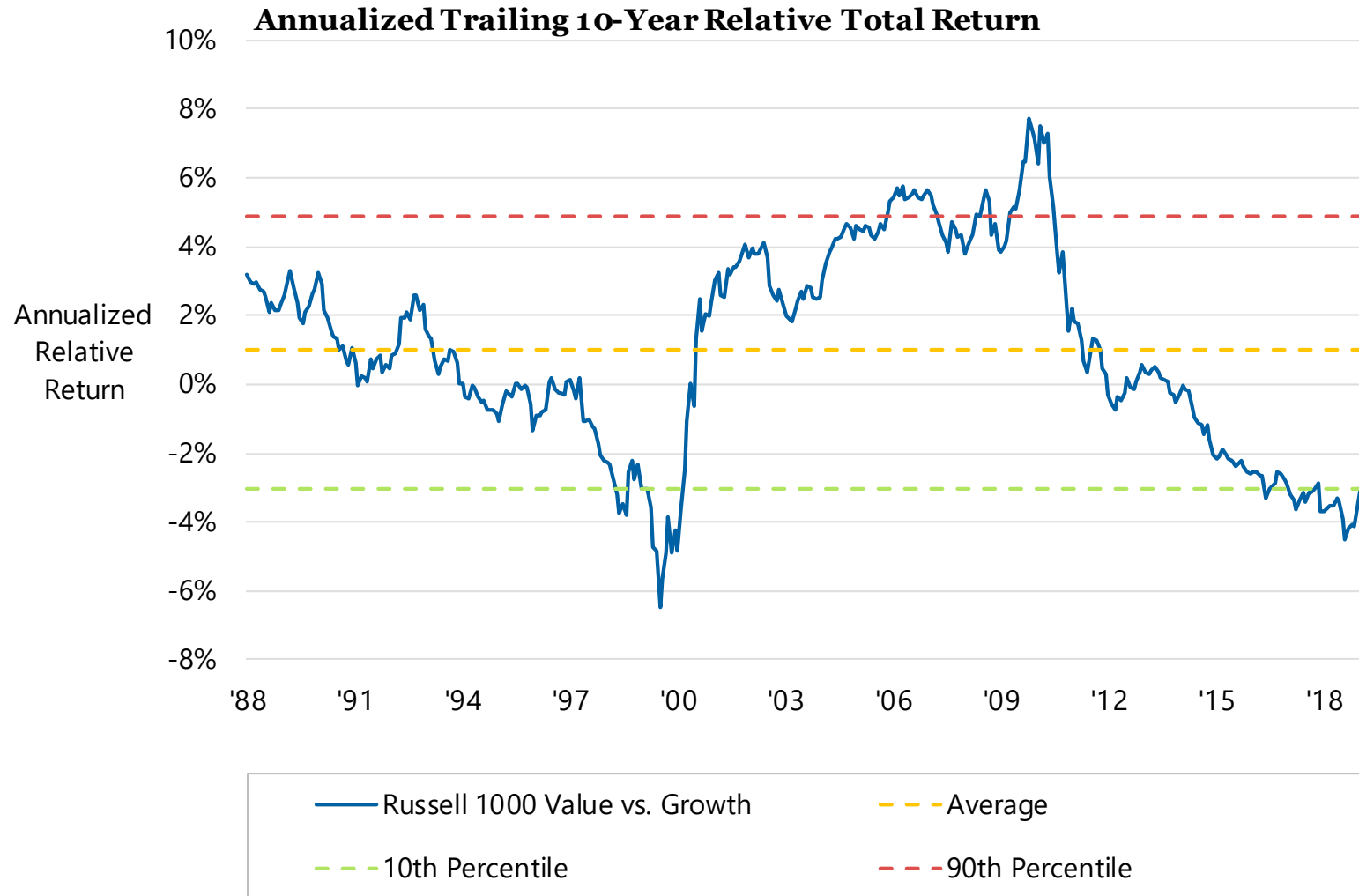
Most Investors Are Trend Chasers!



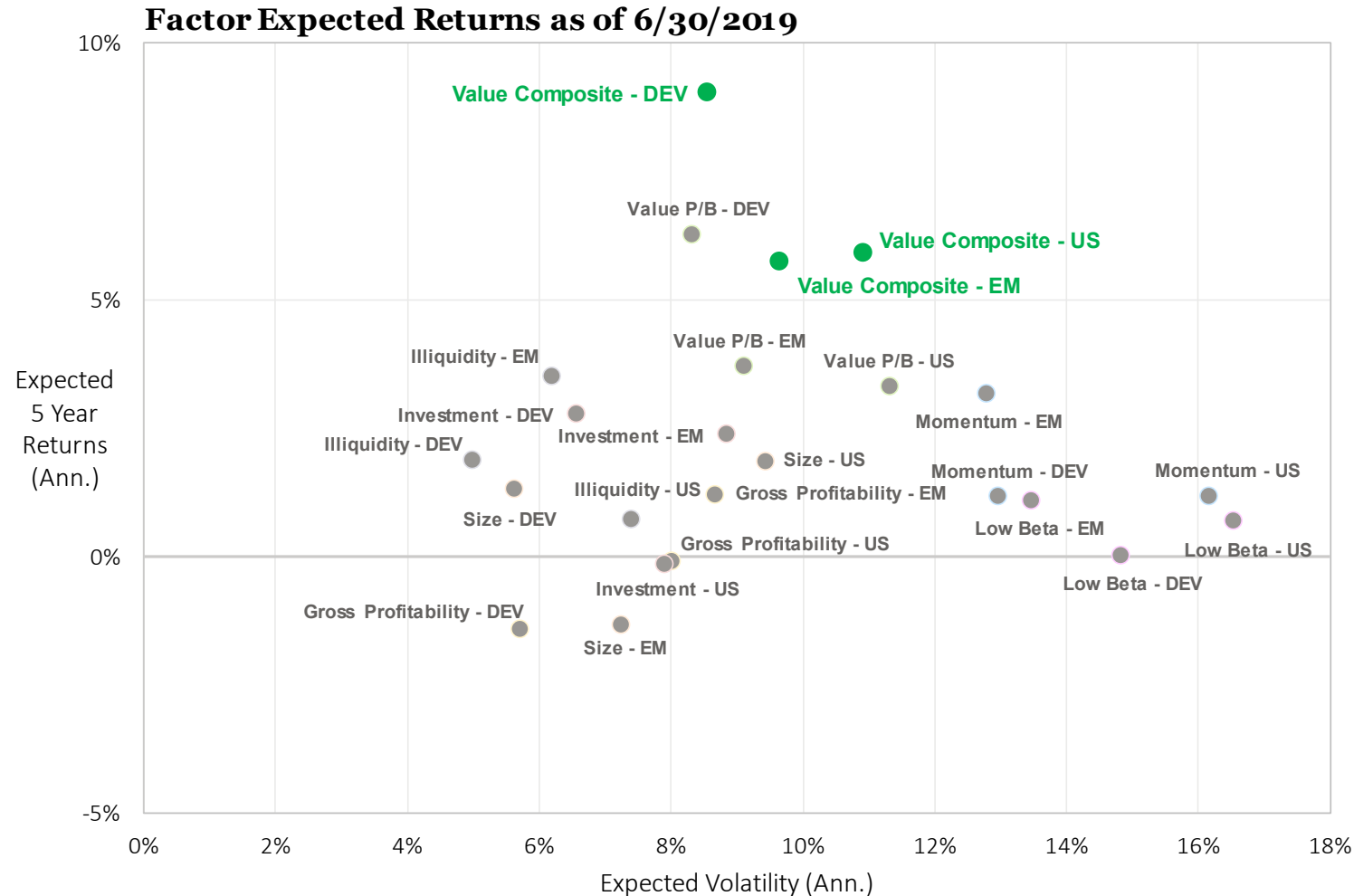
Source: Research Affiliates, using data from the CRSP Mutual Funds Database and Morningstar Direct, 1/1991-6/2013. The buy-and-hold return is the geometric average return over the sample period. The dollar-weighted return is the category IRR (inclusive of all category mutual funds weighted by their total assets).

Hsu, Myers, and Whitby, "Timing Poorly: A Guide to Generating Poor Returns While Investing in Successful Strategies," *Journal of Portfolio Management* (Winter 2016).

What Style Are Investors Chasing Today? Growth!

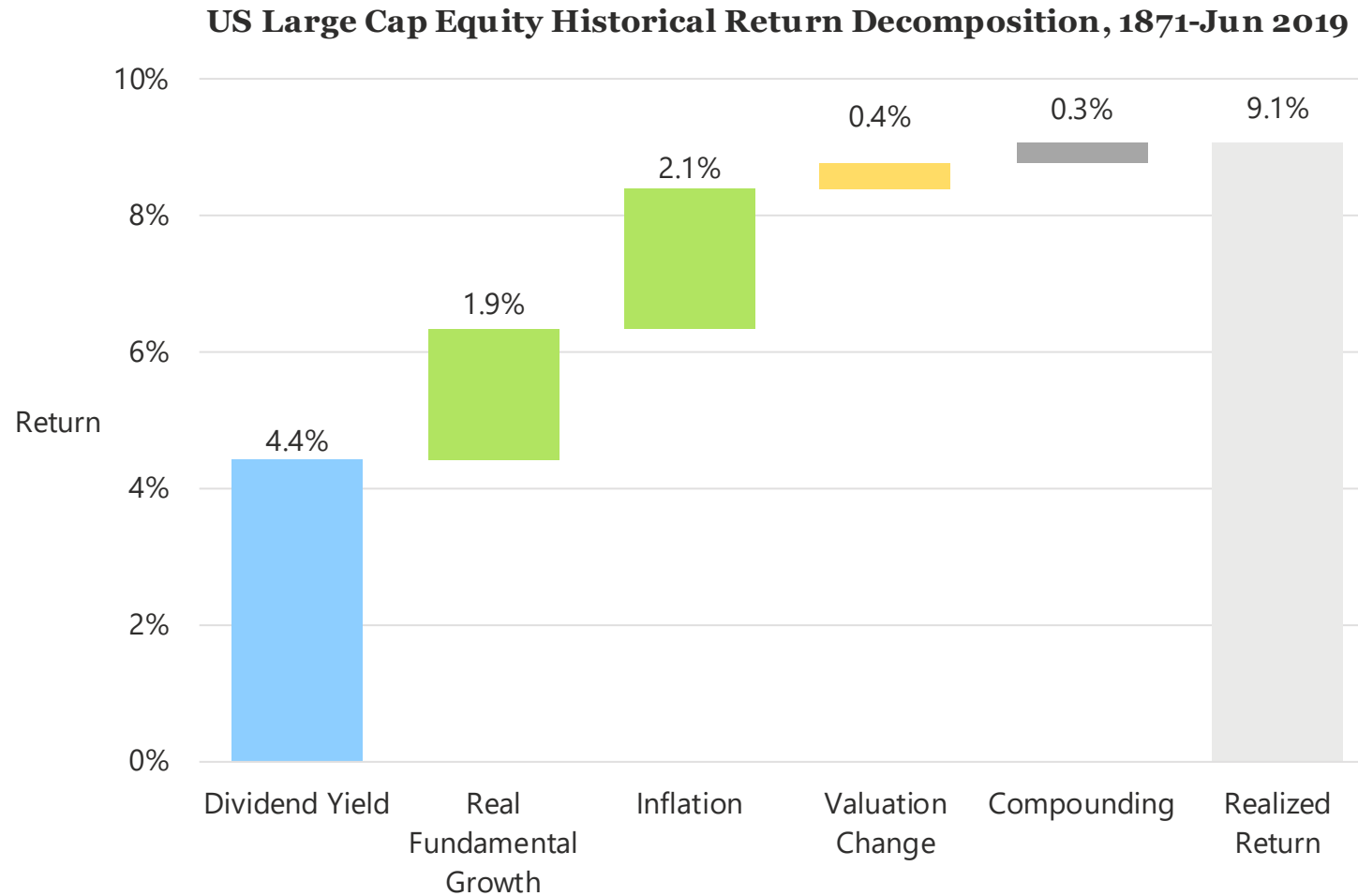


What Factor Is Priced—Relative to Its Own History—to Deliver the Best Future Returns? Value!

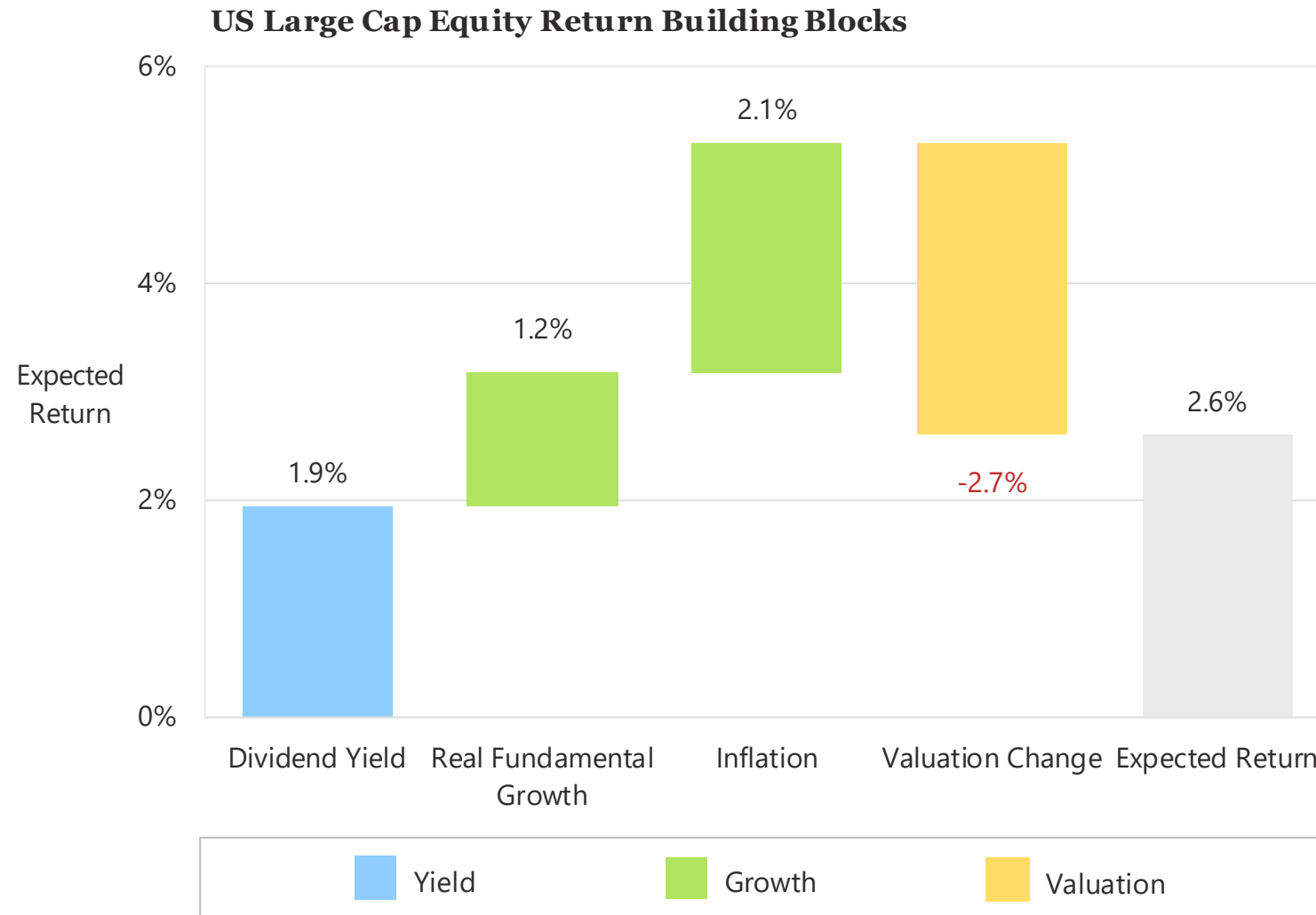


Equity Forecasts: Past Is Not Prologue... Again

What Were the Sources of Historical Returns?

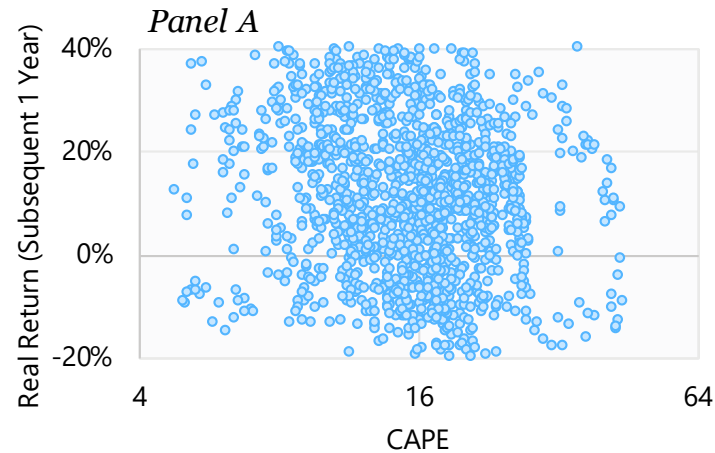


Equity Returns Are a Function of Dividend Yield, Earnings Growth, and Valuation Changes



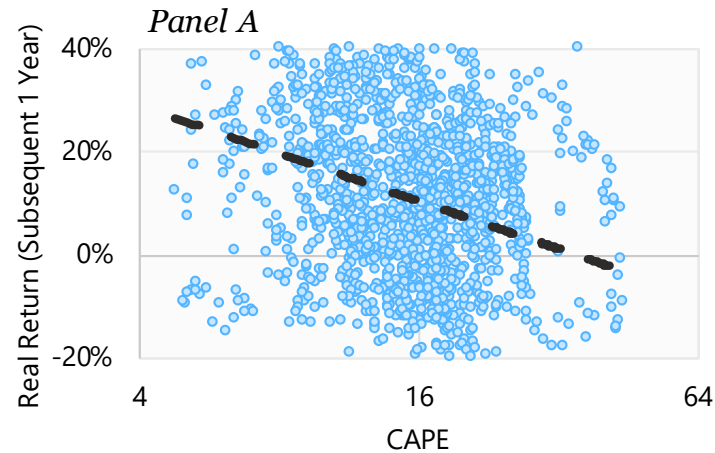
CAPE Is Powerful at Forecasting Long-Horizon Returns, but Almost Useless for Market Timing

Correlation of CAPE Ratio with US Equity Market
Real Return at 1-Year Horizons, Jan 1881–Oct 2017



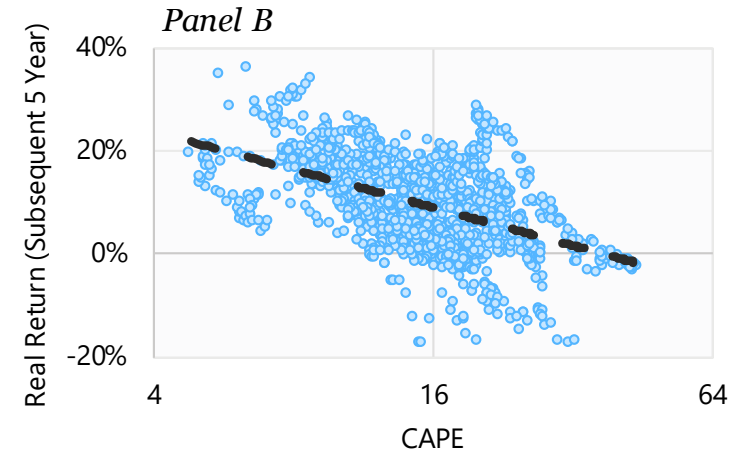
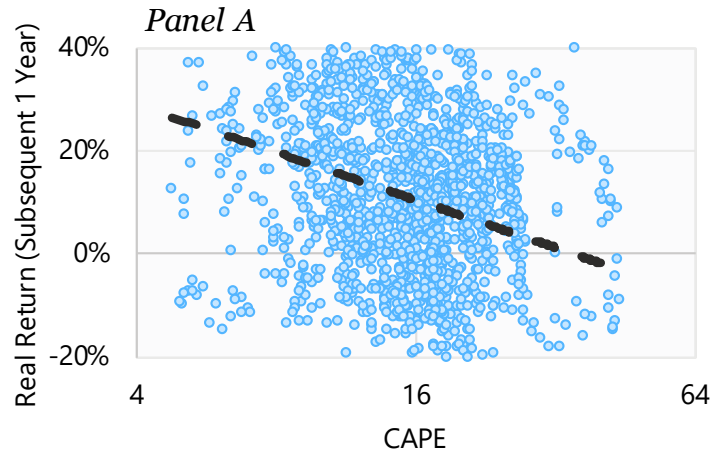
CAPE Is Powerful at Forecasting Long-Horizon Returns, but Almost Useless for Market Timing

Correlation of CAPE Ratio with US Equity Market
Real Return at 1-Year Horizons, Jan 1881–Oct 2017



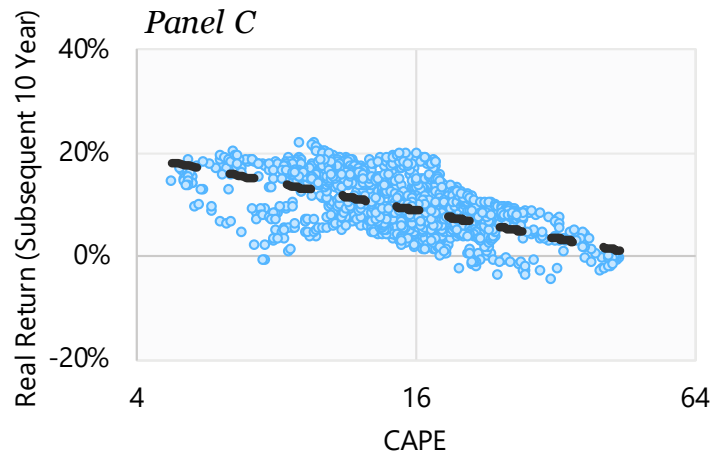
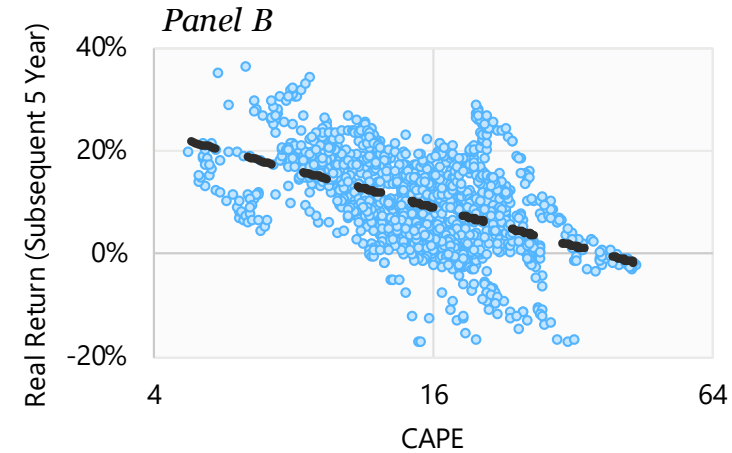
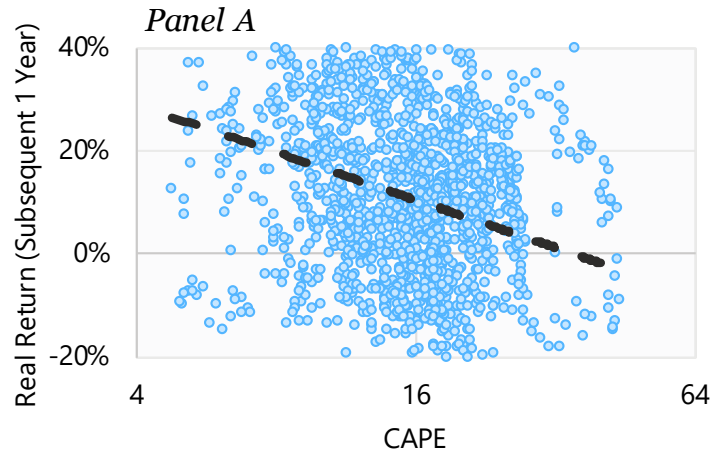
CAPE Is Powerful at Forecasting Long-Horizon Returns, but Almost Useless for Market Timing

Correlation of CAPE Ratio with US Equity Market Real Return at 1- and 5-Year Horizons, Jan 1881–Oct 2017



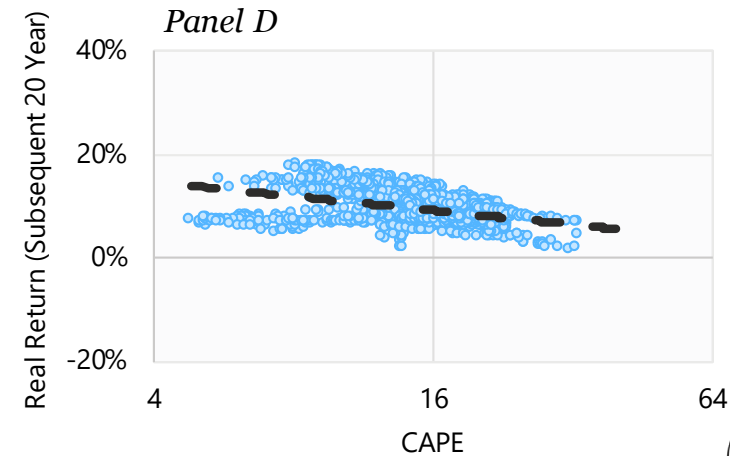
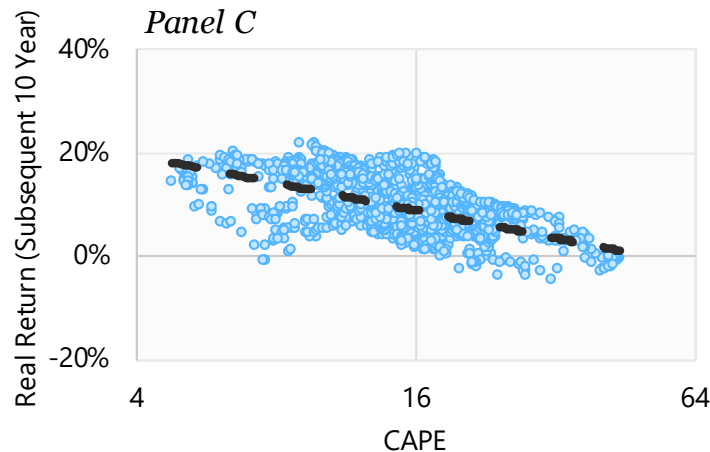
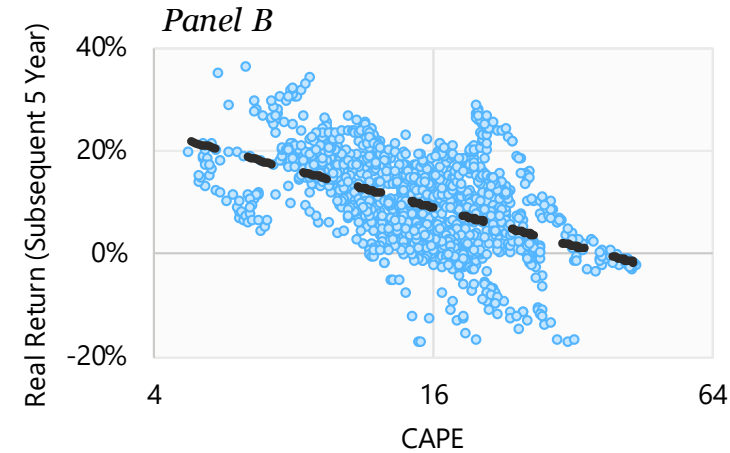
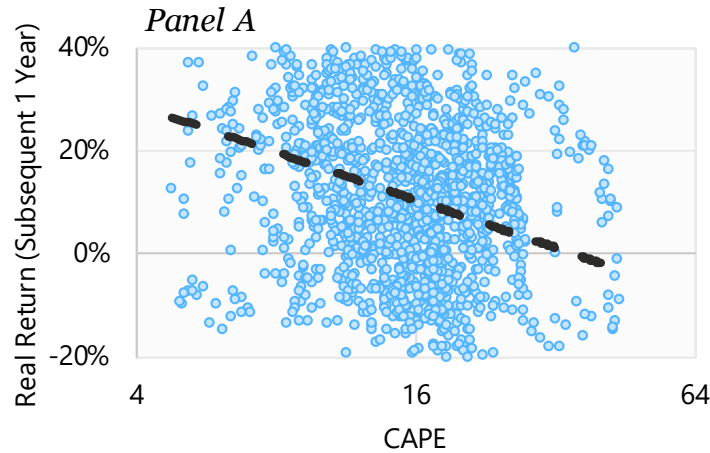
CAPE Is Powerful at Forecasting Long-Horizon Returns, but Almost Useless for Market Timing

Correlation of CAPE Ratio with US Equity Market Real Return at 1-, 5-, and 10-Year Horizons, Jan 1881–Oct 2017



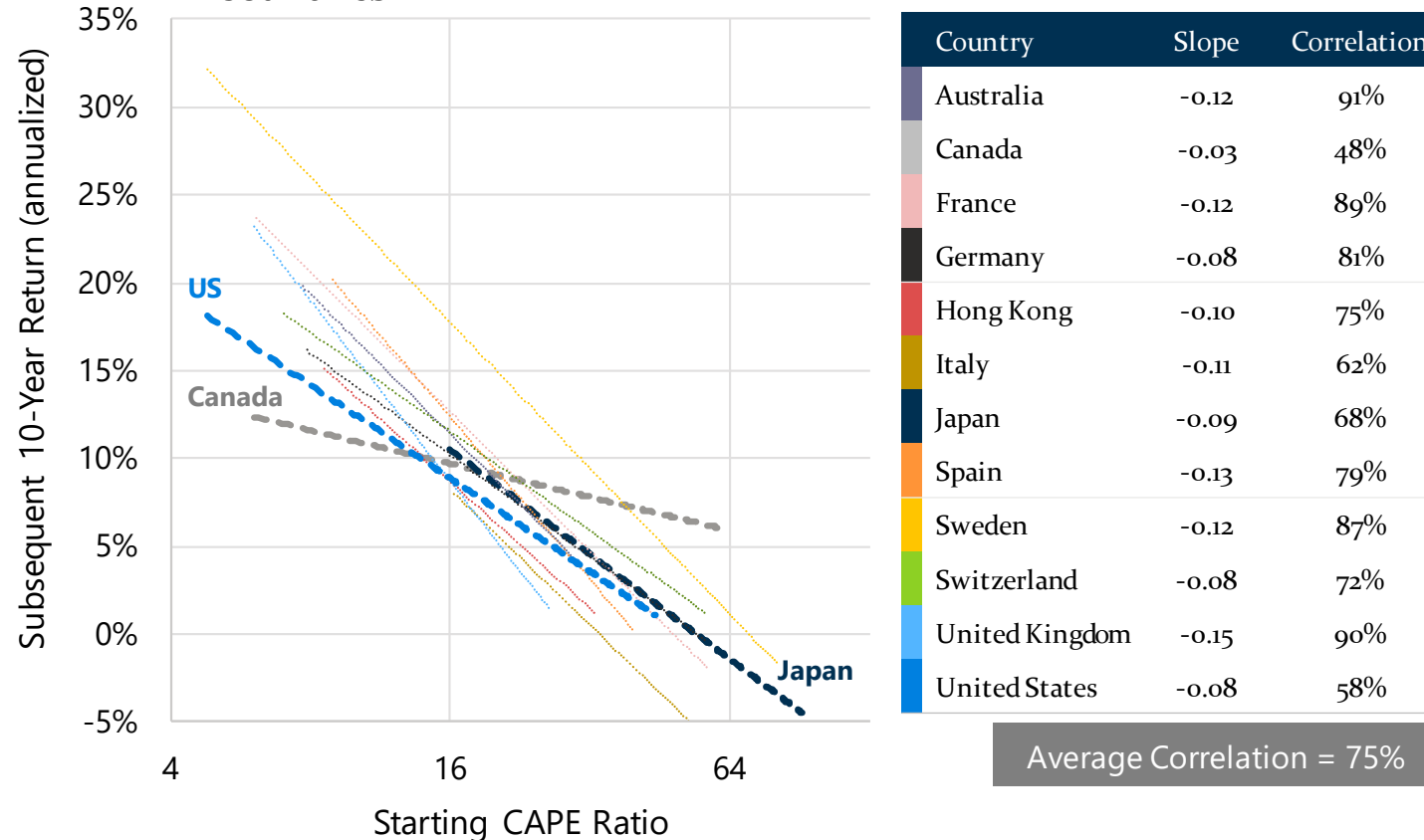
CAPE Is Powerful at Forecasting Long-Horizon Returns, but Almost Useless for Market Timing

Correlation of CAPE Ratio with US Equity Market Real Return at 1-, 5-, 10-, and 20-Year Horizons, Jan 1881–Oct 2017



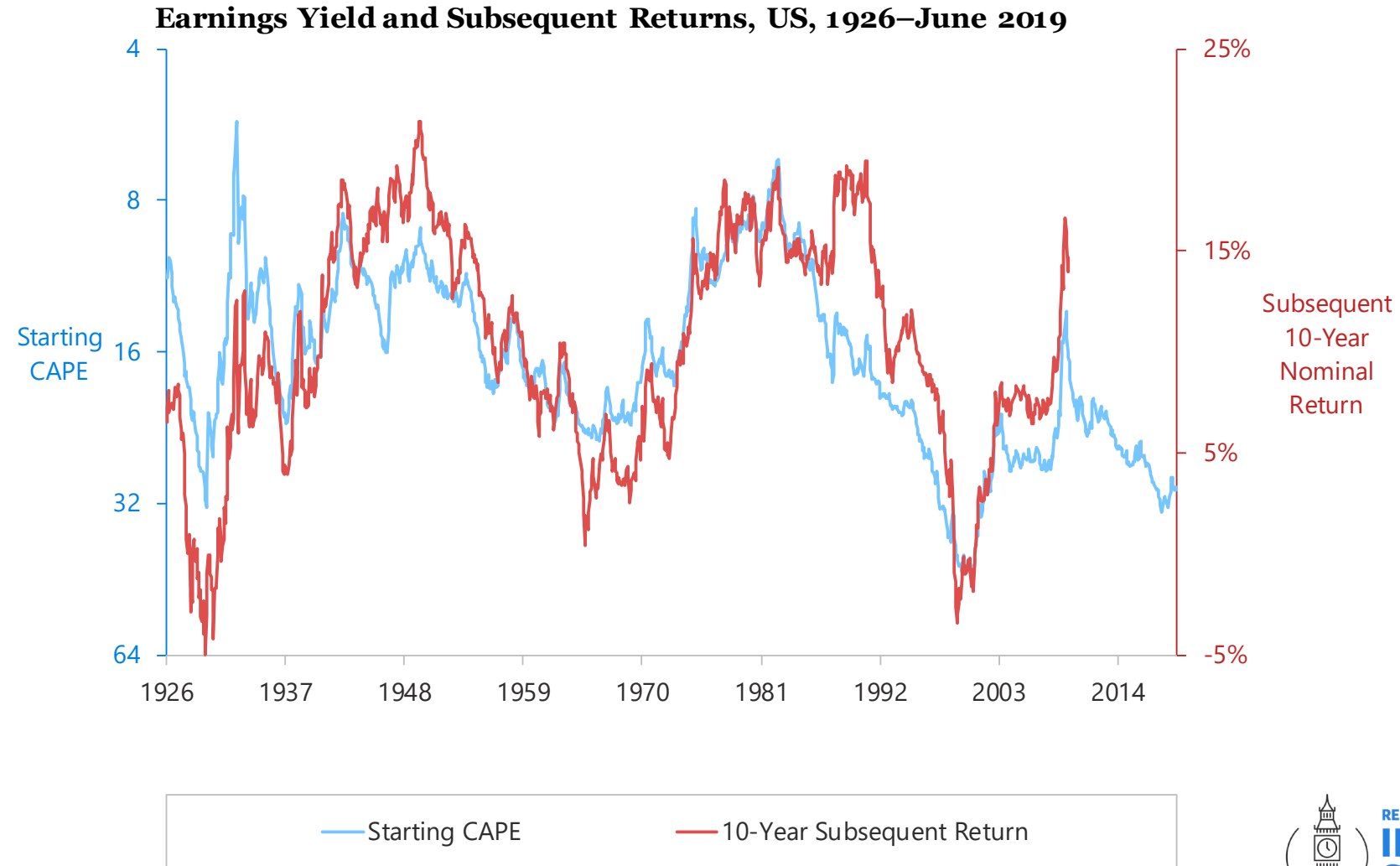
The Link Between Starting Valuations and Subsequent Returns Is Robust Across Equity Markets

Regression of ln(CAPE) vs. Subsequent 10-Year Stock Market Returns, 12 Countries

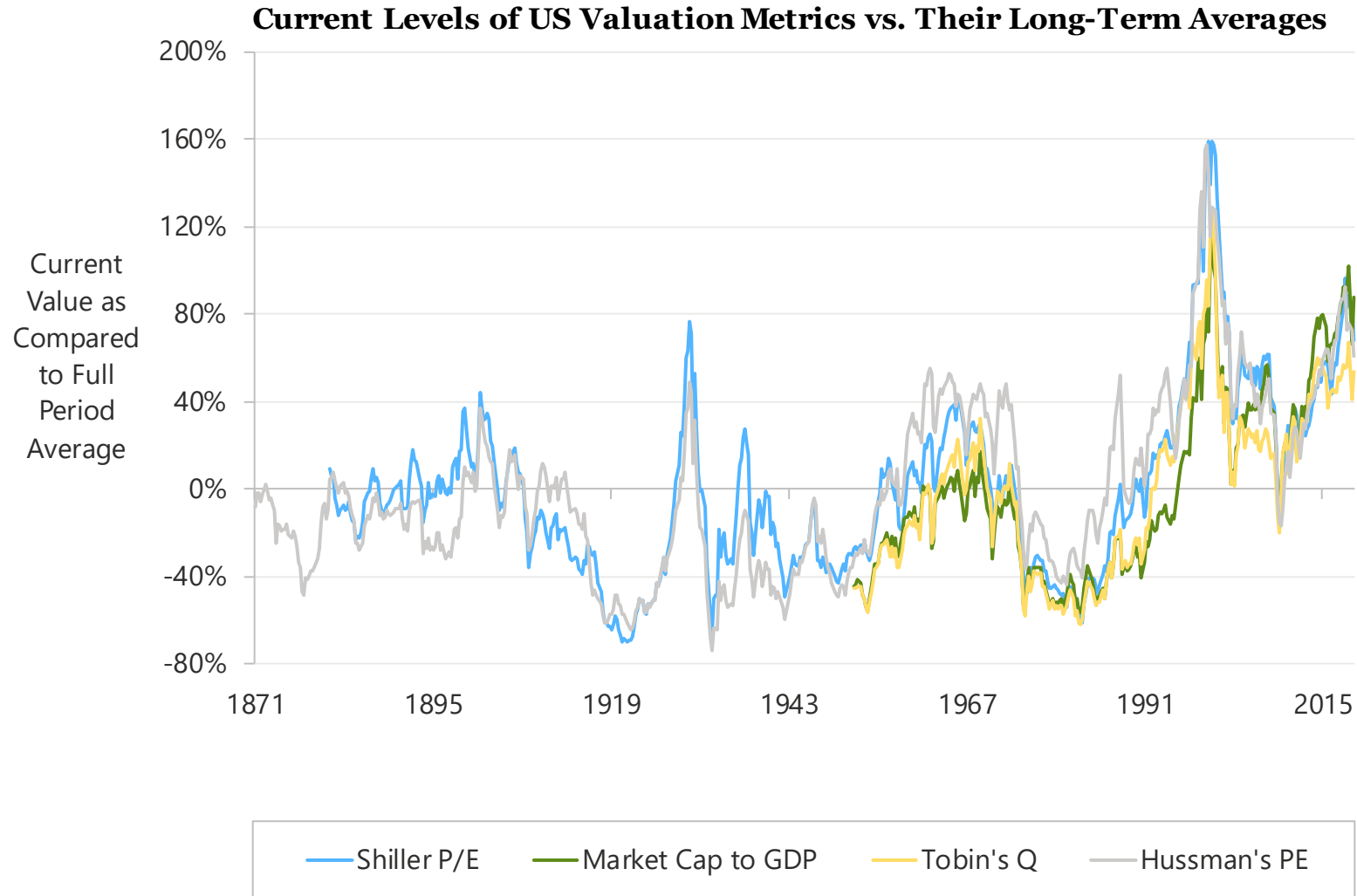


Source: Research Affiliates, LLC, using data from Robert Shiller database, Bloomberg, and MSCI. Note: Each country is measured over the time span for which earnings data are available through October 2007 in order to calculate 10-year returns ending in 2017. The start date for earnings data in the United States is 1871; in Australia, Canada, Germany, Sweden, Switzerland, and the United Kingdom is 1969; in France is 1971; in Hong Kong and Spain is 1980; and in Italy is 1984.

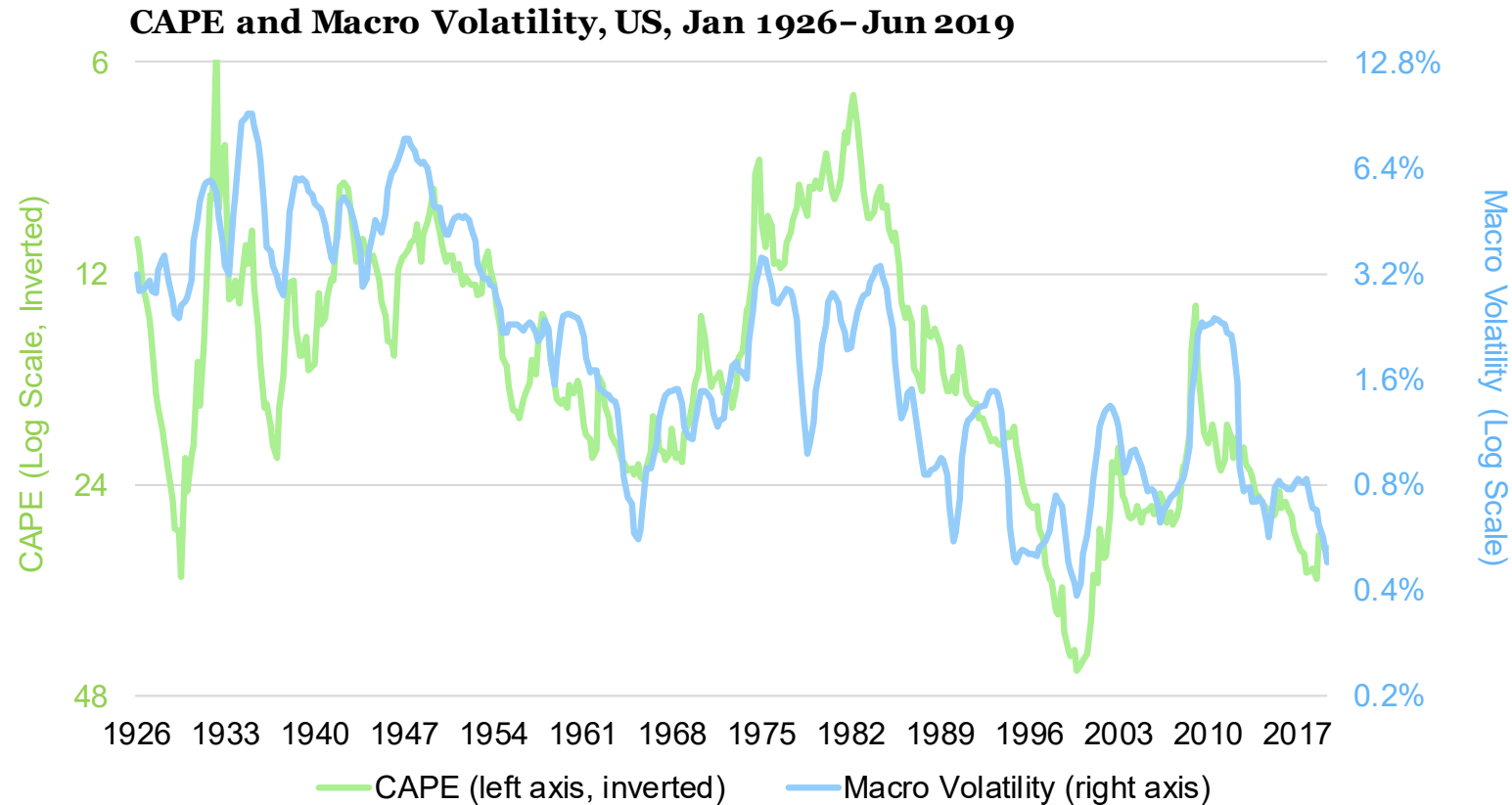
US Equities Are Poised for Lackluster Future Returns



Common Valuation Metrics Imply Overvaluation



Low Macro Volatility Helps Explain High CAPE Ratios



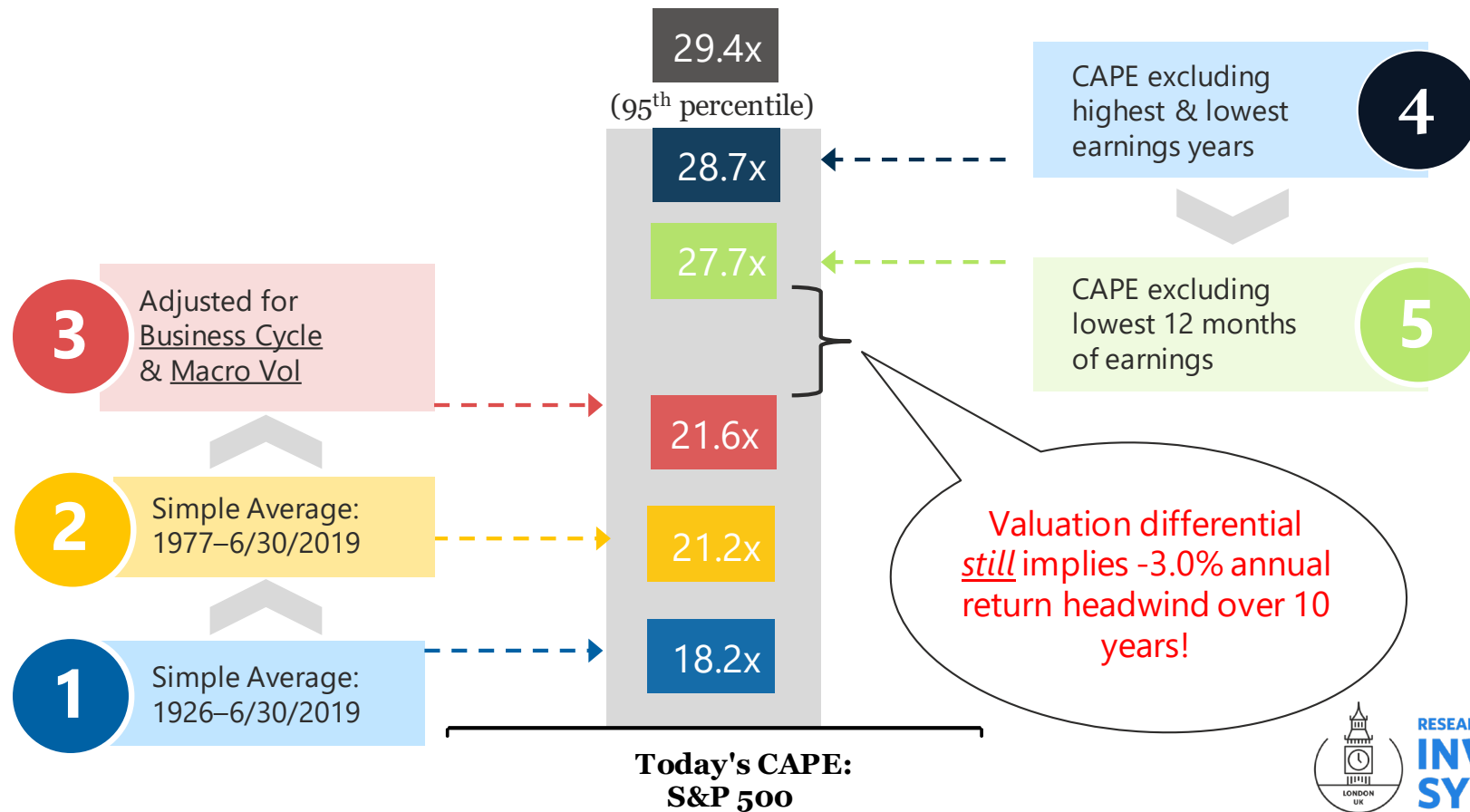
Aked, Mazzoleni, and Shakernia (2017) find that today’s low volatility levels support an equilibrium CAPE of 26, about 10% below the current level of 29 as of June 30, 2019.

Source: Research Affiliates, LLC, using data from FRED at the Federal Reserve Bank of St. Louis, Robert Shiller’s database, and Ray C. Fair’s quarterly historical GDP Data (<https://fairmodel.econ.yale.edu/rayfair/pdf/2002dtbl.htm>). For quarterly real GDP growth, we use FRED data from 1947 to present, backfilled with data from Ray Fair’s website. Macro volatility is defined as the arithmetic average of the rolling three-year volatility of real GDP growth and the rolling three-year volatility of inflation.

Even After Making Multiple Adjustments, US Equities Face Headwinds from Valuation Contraction

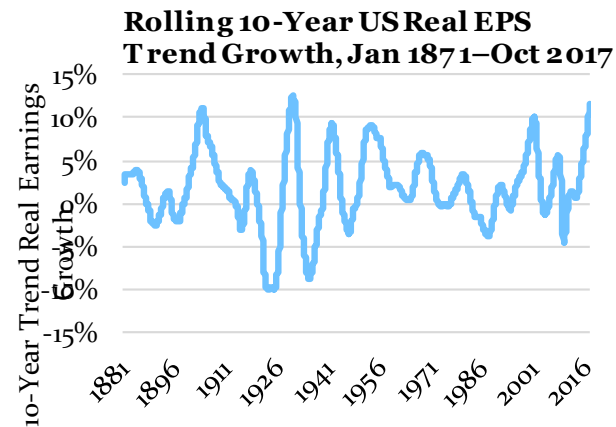
What's "Fair" Value?

What's Today's "Actual" Value?



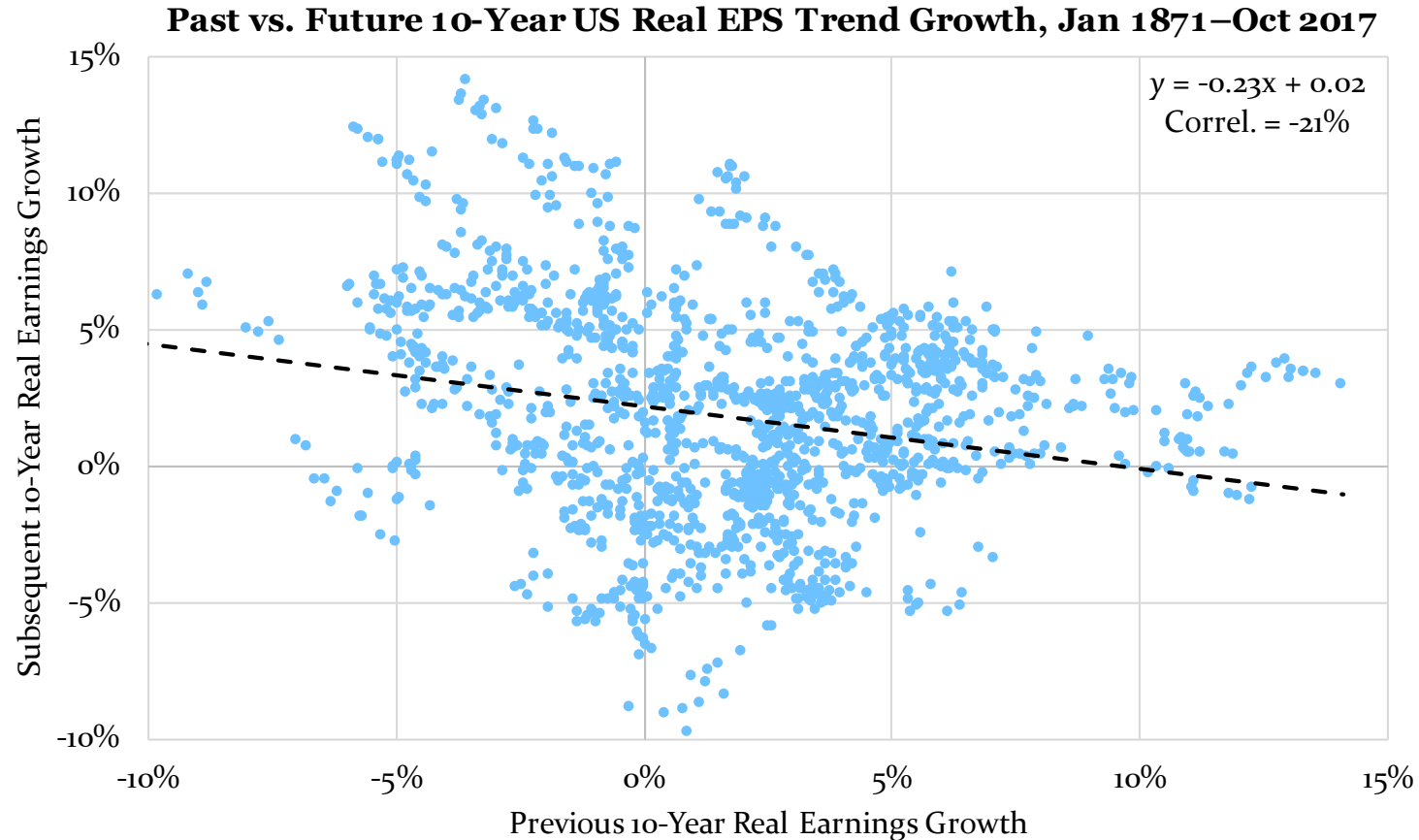
High Earnings Are Not Enough to Portend a High CAPE Ratio!

- For returns to remain elevated with a high CAPE, EPS growth must be high as well
 - EPS growth arguments¹ for elevated CAPE explain high **past** EPS growth, not high future EPS growth.
 - EPS growth rates are cyclical.

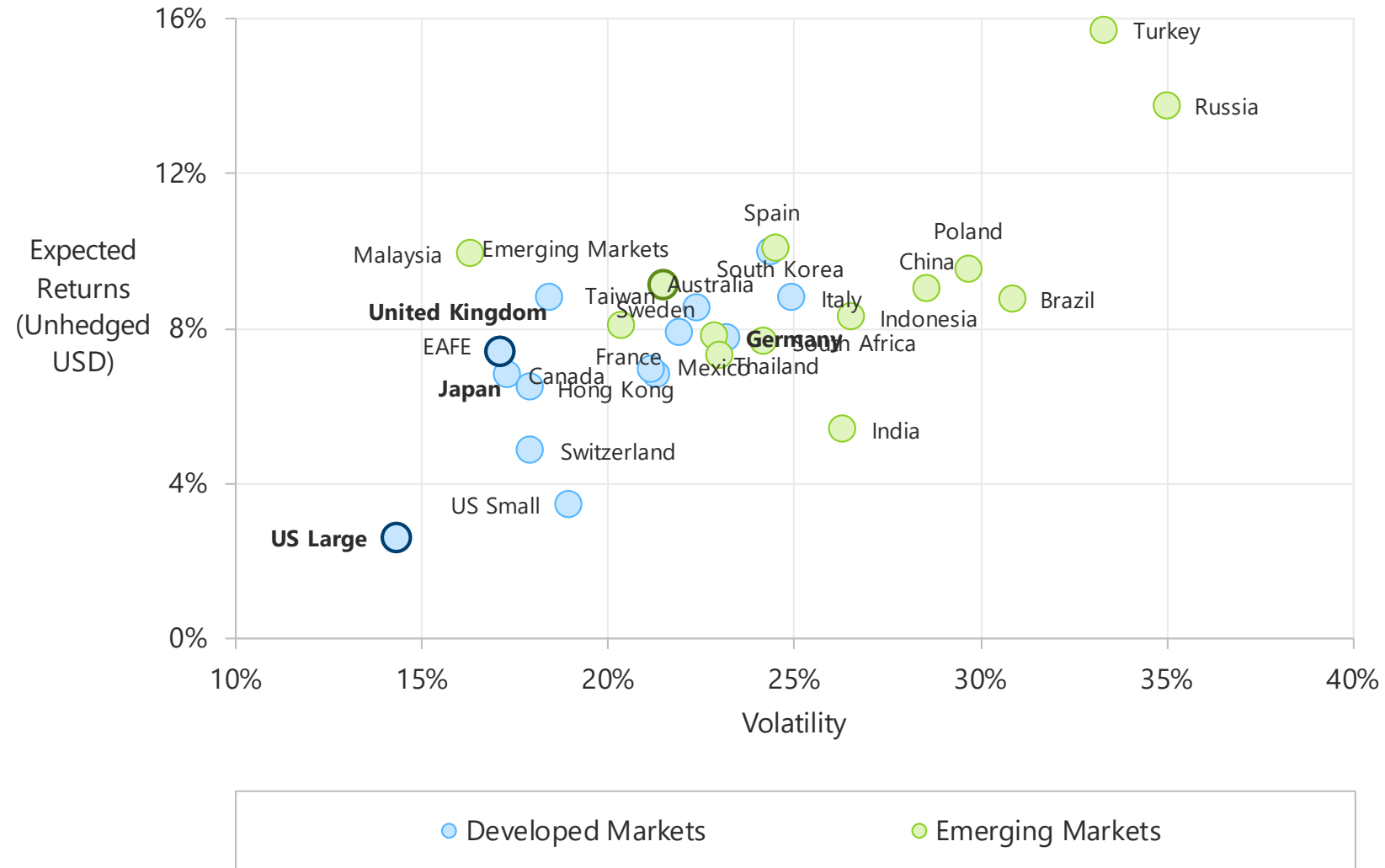


- Indeed, real earnings of the S&P 500 are only barely above 2014 peak. We are skeptical that earnings can grow much, relative to GDP, in the years ahead.

High EPS Growth Often Precedes Low EPS Growth

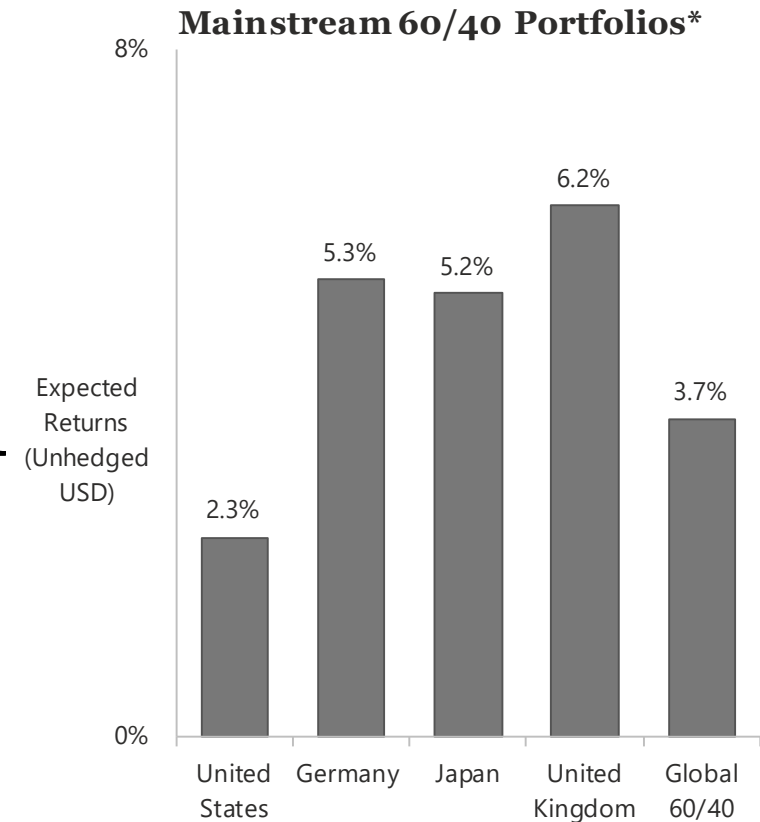
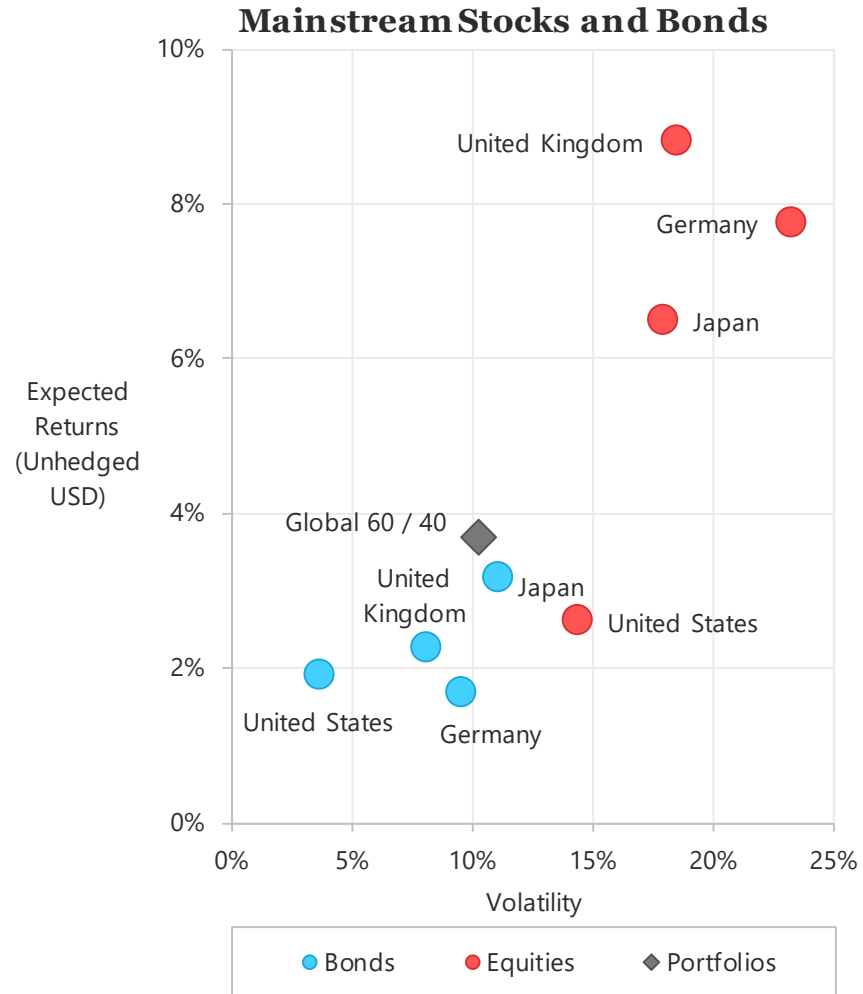


Equities: Long-Term Return Expectations



Source: Research Affiliates, LLC, based on data from Ibbotson, Shiller, Bloomberg, MSCI, and FactSet. The bolded country indices are represented by the S&P 500, MSCI Germany, MSCI Japan, and MSCI UK. For more information, please visit http://www.researchaffiliates.com/en_us/asset-allocation.html. Please see important information at the end of this presentation regarding simulated data. The 10-year return expectations are as of June 30, 2019.

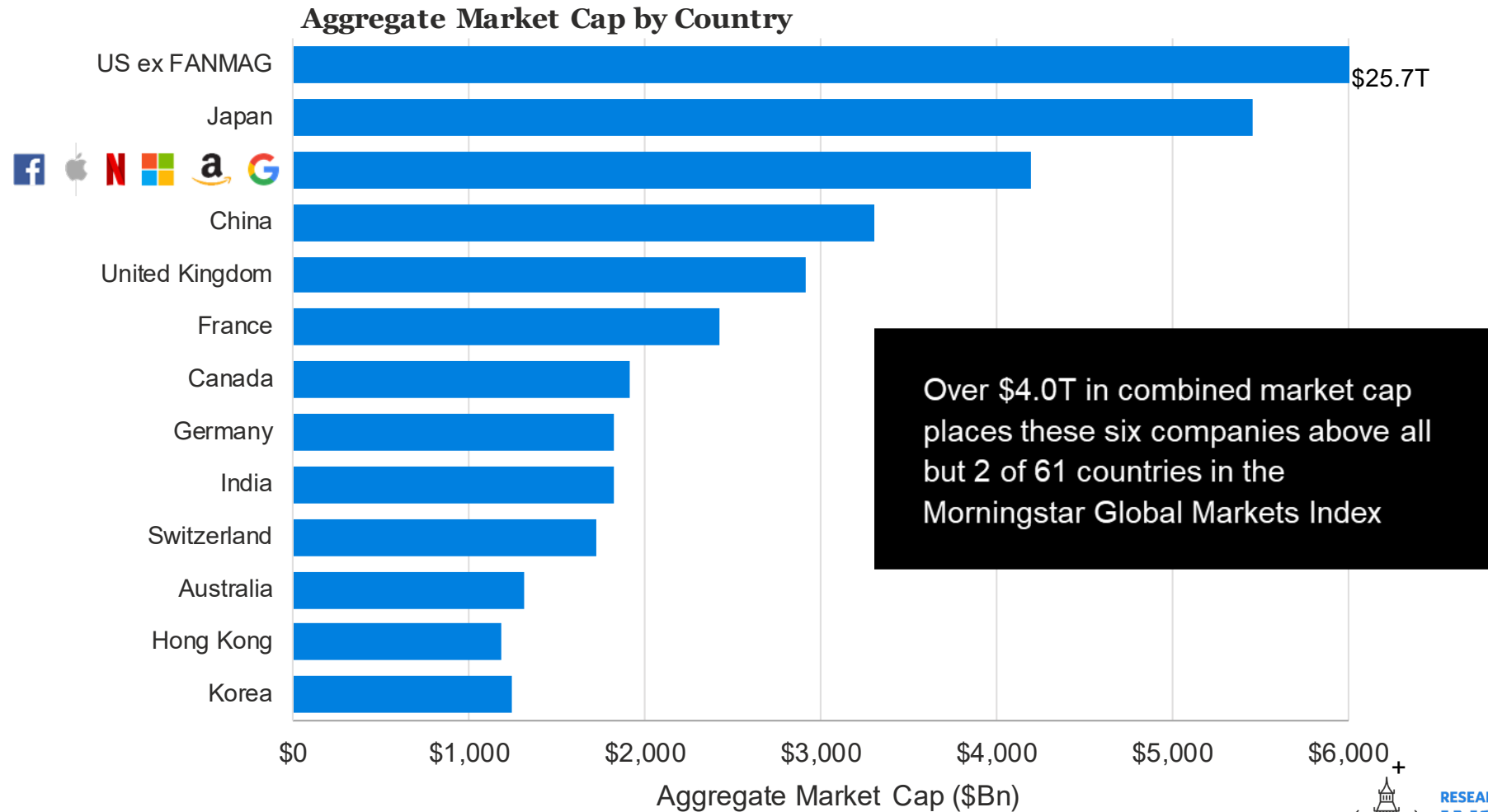
Mainstream Asset Classes Offer Less Than Most Investors Expect



*60/40 portfolios are represented as 60% core equity index and 40% Treasury 5-7 Year bond index for each specific country. For the US, the Barclays Aggregate is used in lieu of the 5-7 Year Treasury. Source: Research Affiliates, LLC, based on data from Ibbotson, Shiller, Bloomberg, FactSet, MSCI Inc., and Barclays. Please see important information at the end of this presentation regarding simulated data. The 10-year return expectations are as of June 30, 2019.

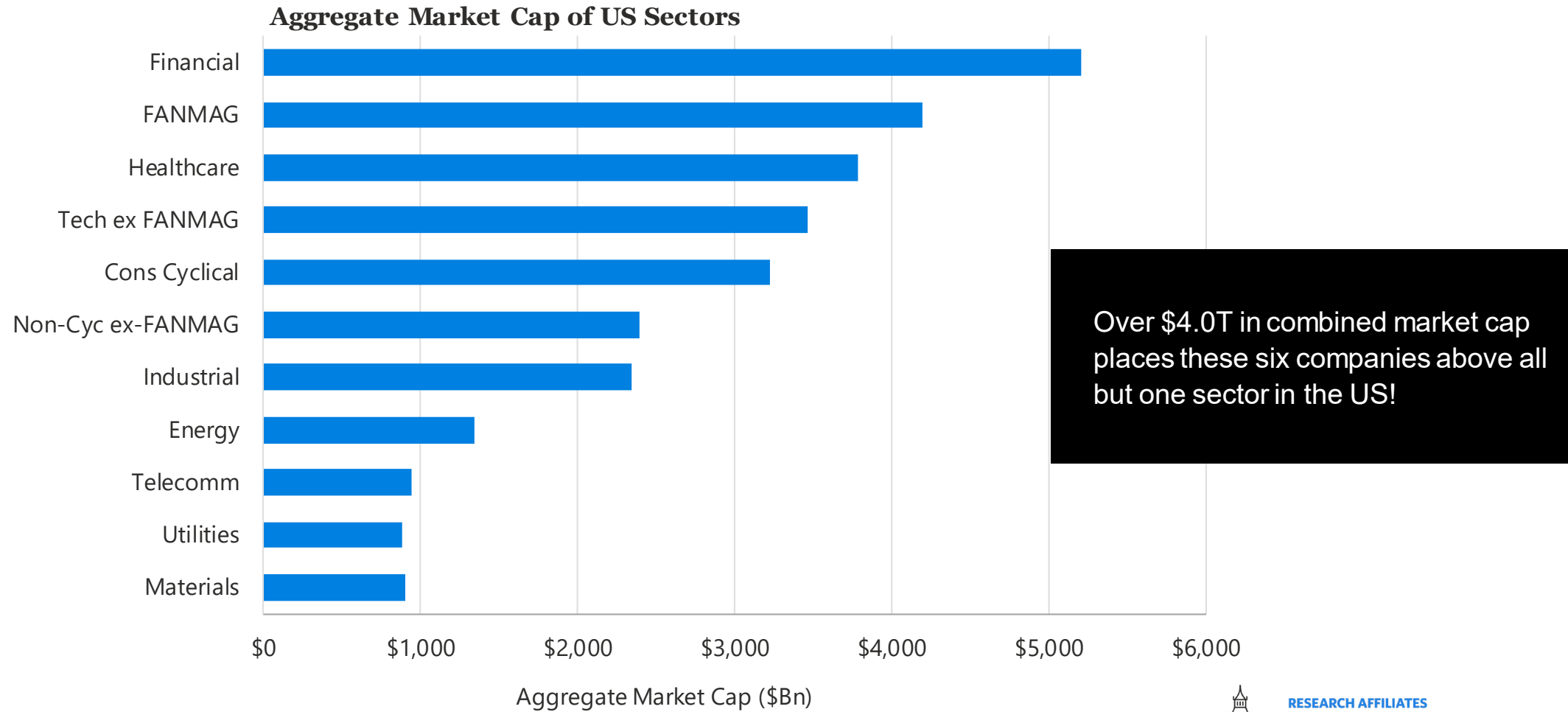
How Do the Largest Holdings of Index Funds Impact Performance?

How Expensive Are FANMAG (Facebook, Apple, Netflix, Microsoft, Amazon, & Google)?



Source: Research Affiliates, LLC, based on data from FactSet as of 6/30/2019. Market cap for countries represents the sum of the market caps for their constituents in the Morningstar Global Markets Index. Market caps for Facebook, Apple, Netflix, Microsoft, Amazon, & Google are excluded from the United States. The total market capitalization for the United States is \$25.7 trillion, which is cut off at \$6.0 trillion in this graph for scaling purposes.

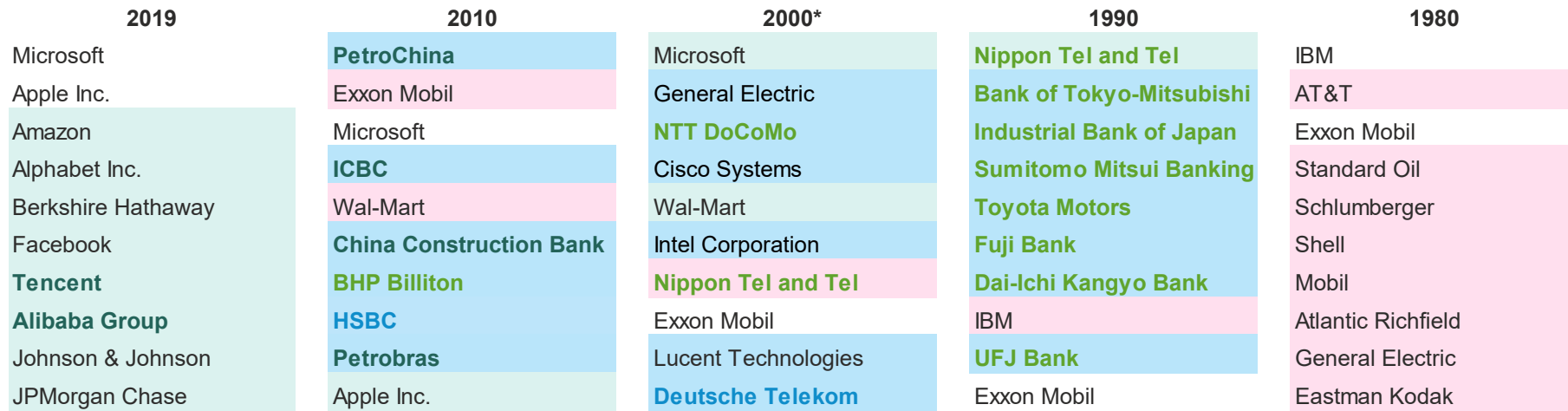
How Expensive Are FANMAG (Facebook, Apple, Netflix, Microsoft, Amazon, & Google)?



The “Top Dogs” Are Constantly Changing!

Since 1980, typically only 2 of the top 10 companies in the market remain among the largest companies 10 years later.

Ten Largest Market Capitalization Stocks in the World, at the Beginning of Each Year



Legend:

Black = US Company

New Addition to List

Teal = Emerging Markets

Drops off List Next Period

Blue = European Company

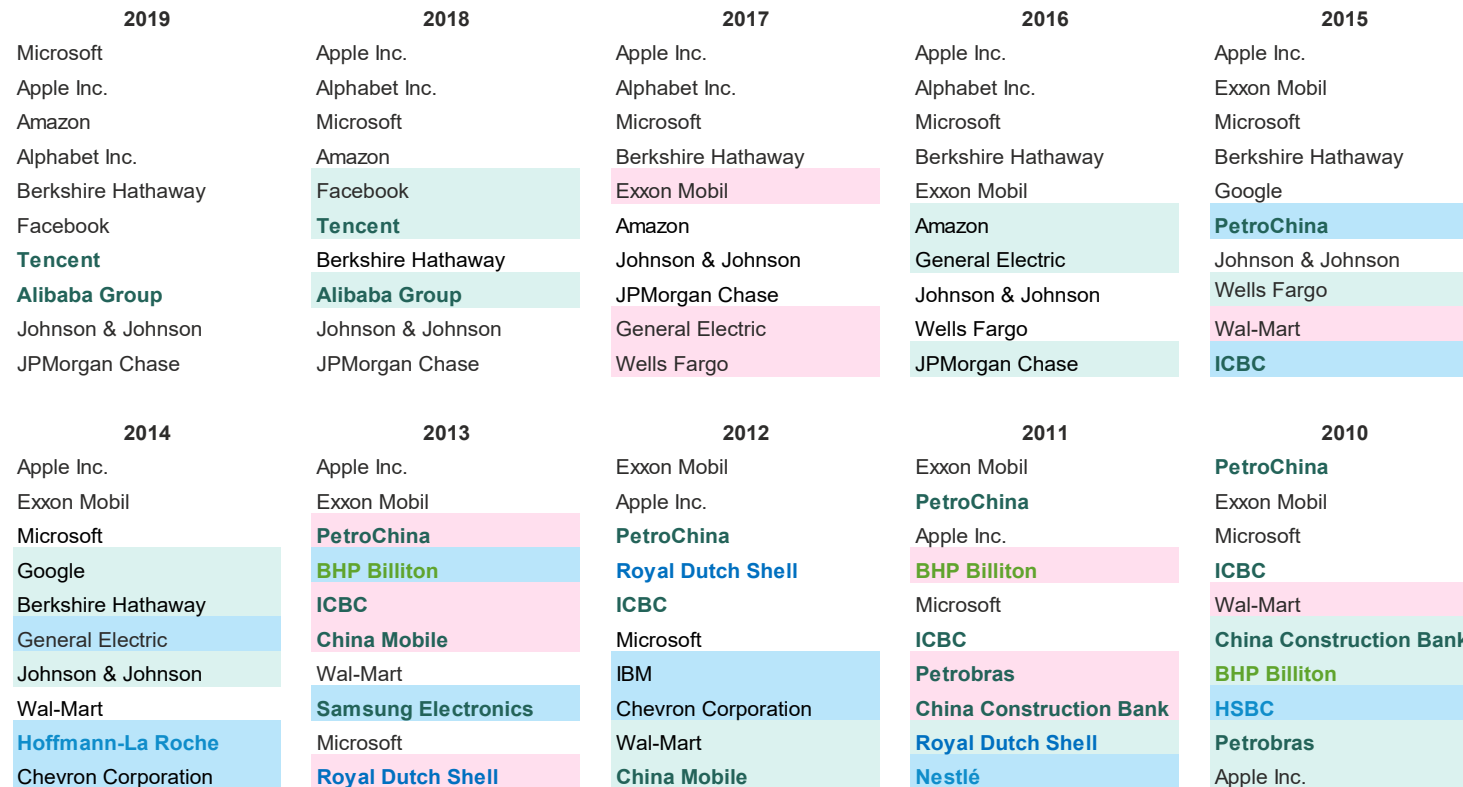
Flip-Flop: New Then Drops

Green = Japan/Australia

“Top Dogs” by Year Over the Past Decade

Top Dogs have been unusually steady since 2018. This will change!

Ten Largest Market Capitalization Stocks in the World, at the Beginning of Each Year



Legend:

Black = US Company

New Addition to List

Teal = Emerging Markets

Drops off List Next Period

Blue = European Company

Flip-Flop: New Then Drops

Green = Japan/Australia



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2019

“Top Dogs” Vanish Because They Underperform!

The global top dog outpaced the global cap-weighted stock market only once in the last 36 years!

Performance of Largest Market Cap Stocks, 1982–2018

Type of Top Dog	Subsequent Horizon	Relative Return vs. Sector, Average Across Sectors	Frequency of Win vs. Sector, Average Across Sectors
Top Dog by Sector (Average, Developed World)	1yr	-10.1%	38%
	5yrs	-9.5%	25%
	10yrs	-9.7%	21%
Top Dog, Developed World	Subsequent Horizon	Relative Return vs. Developed World	Frequency of Win vs. Developed World
	1yr	-7.2%	38%
	5yrs	-8.4%	21%
	10yrs	-9.2%	4%



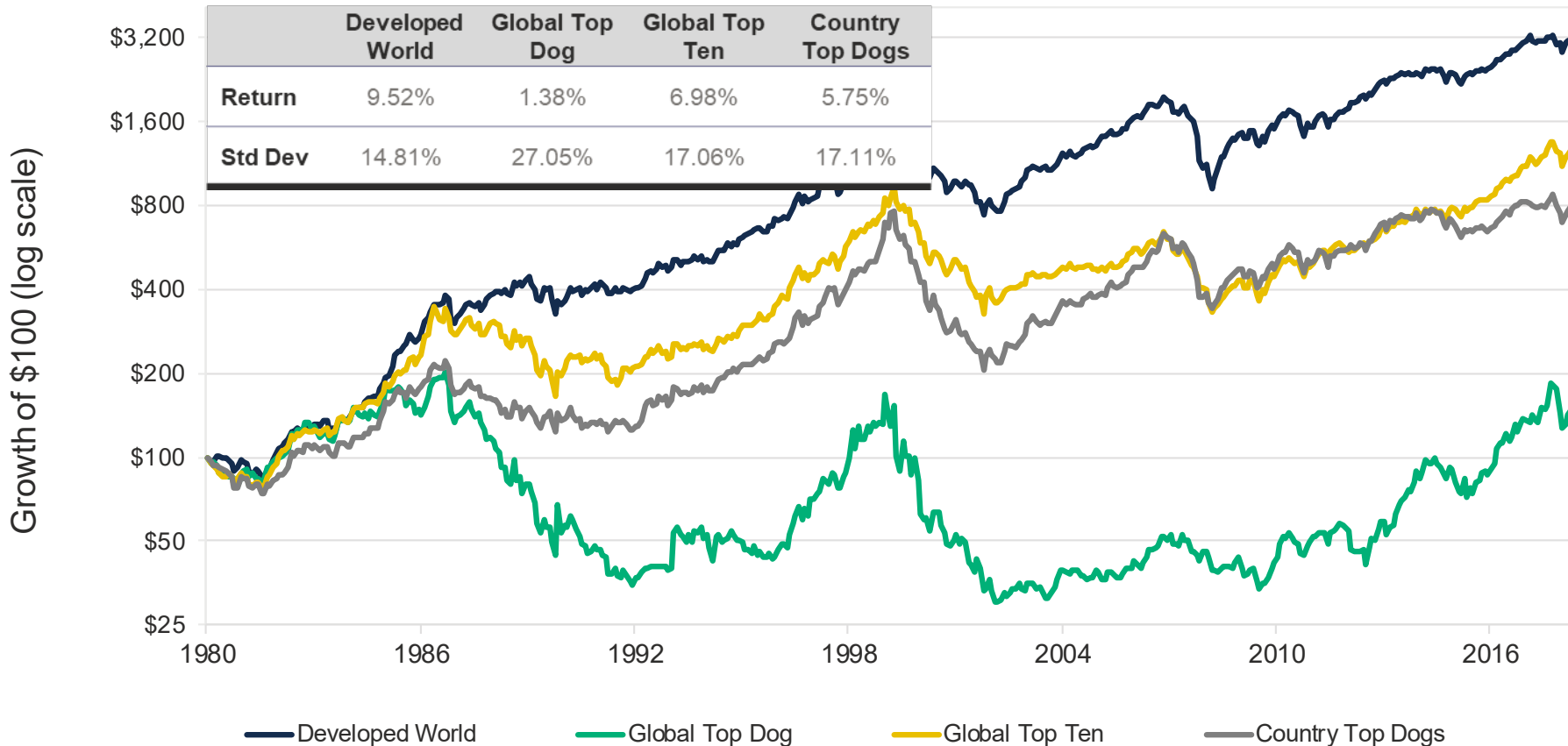
How Do “Top Dogs” Impact Index Performance?

We compared the performance of four different portfolios:

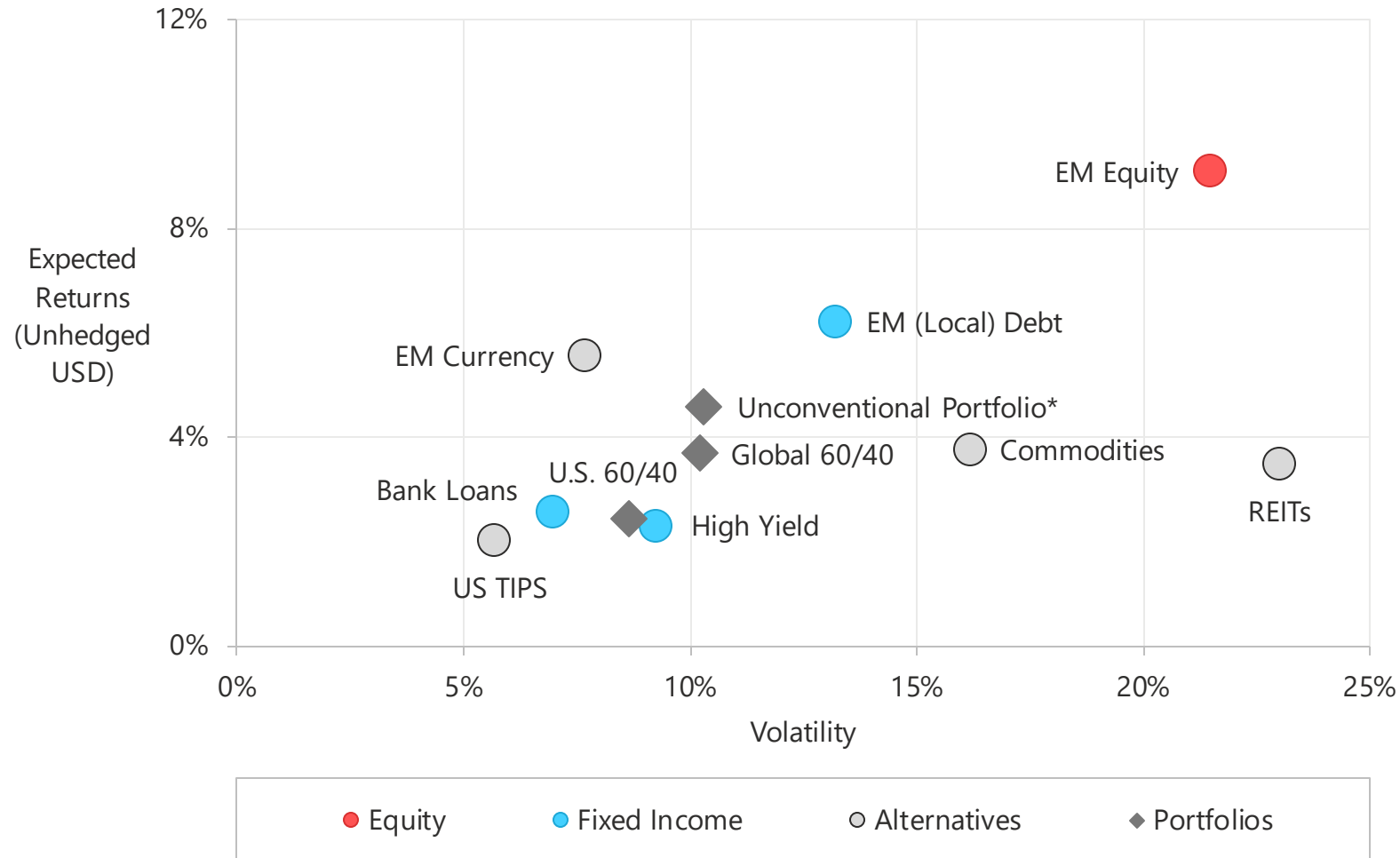


“Top Dog” Portfolios Underperform the Market

Performance of Top Dog Portfolios



Unconventional Assets Mostly Priced to Offer Better Returns



*Unconventional Portfolio is an equal-weighted portfolio of the following asset classes: EM Equity, EM Currency, EM Local Debt, Bank Loans, US TIPS, High Yield, REITs, and Commodities. US 60/40 is represented as 60% in S&P 500 and 40% in Barclays U.S. Aggregate. Global 60/40 is represented as 60% in MSCI World and 40% in Citigroup WGBI. Source: Research Affiliates, LLC, based on data from Shiller, Bloomberg, and FactSet. Please see important information at the end of this presentation regarding simulated data. As of June 30, 2019.



Key Takeaways

- The link between starting valuations and subsequent returns is powerful.
 - » Valuation levels are not useful for timing market tops and bottoms.
 - » Chasing returns can be very costly. High valuations can go higher, but not indefinitely.
 - » “Over-rebalance” into laggards – averaging in – as a long-term performance-enhancing strategy.
- Across asset classes higher return potential exists in international and diversifying markets.
 - » Investors should balance return maximization goals with risk relative to peer groups or conventional benchmarks.
- Within equities the value factor offers the highest return potential today.
 - » A dynamic multi-factor approach may also balance alpha and tracking-error goals.
- » The largest stocks in the market are often expensive and have historically underperformed after reaching the top 10.

Thank You



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