



ADVISOR 2019 SYMPOSIUM

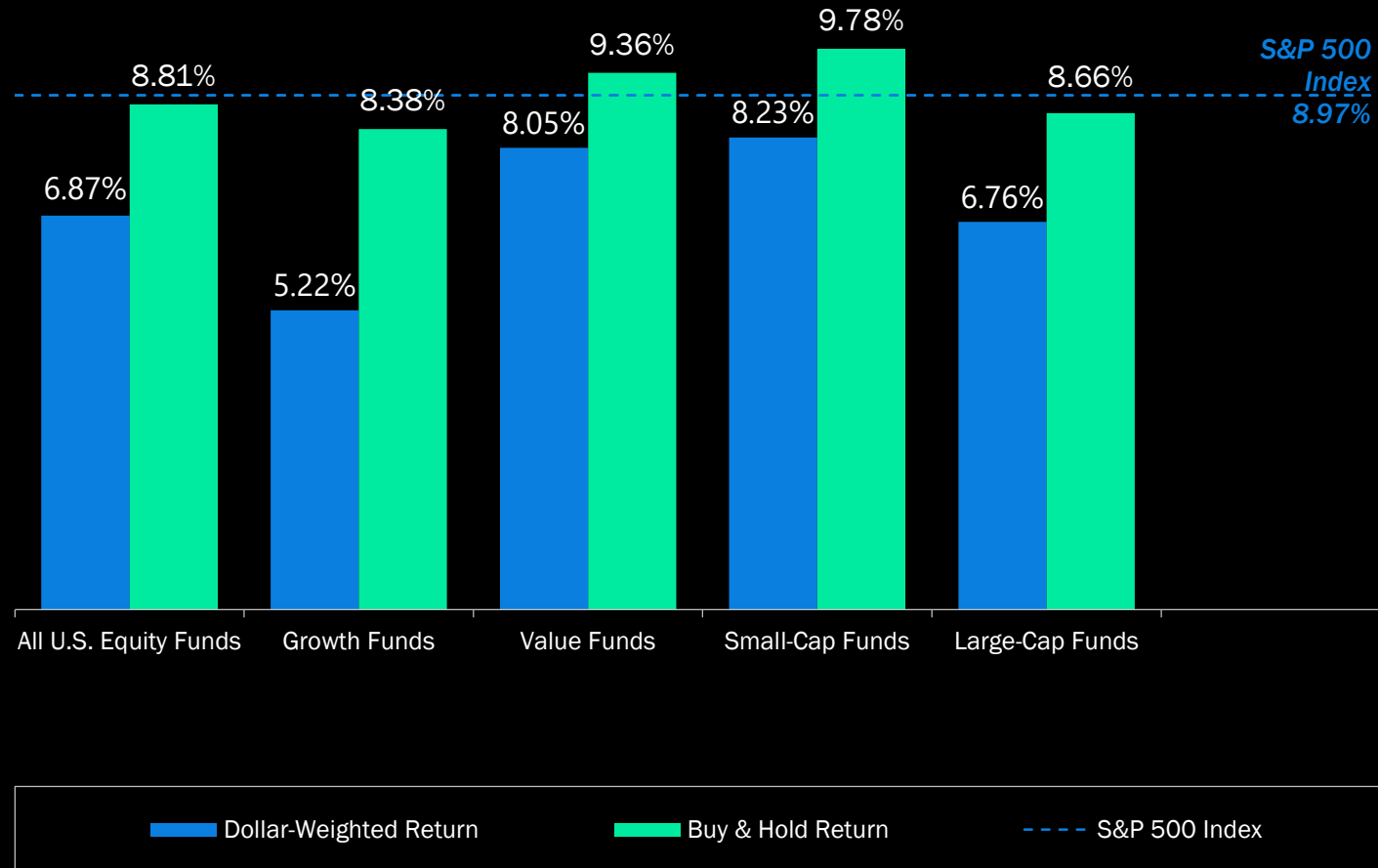
**Fashion Island Hotel
Newport Beach, California**

March 11-13 2019

Are Valuations Now Irrelevant?

Rob Arnott, Chairman

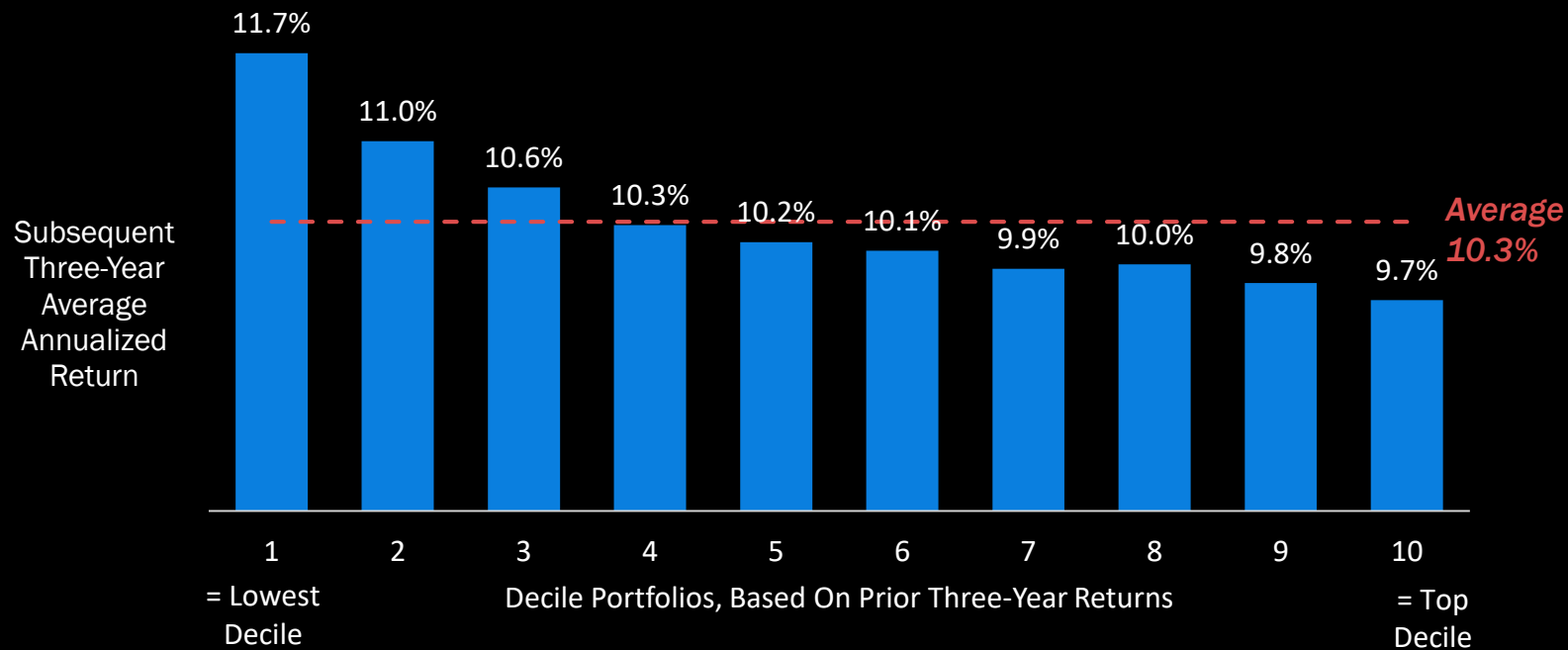
Most Investors Are Trend Chasers!



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

Actively Managed Mutual Funds ...A Naïve Contrarian Strategy Can Work

Average Mutual Fund Subsequent Three-Year Performance, Sorted by
Prior Three-Year Returns, US Long-Only Equity Funds (Jan 1990–Dec 2016)



This result is arguably created by our industry's favorite decision rule:
Three bad years and out!

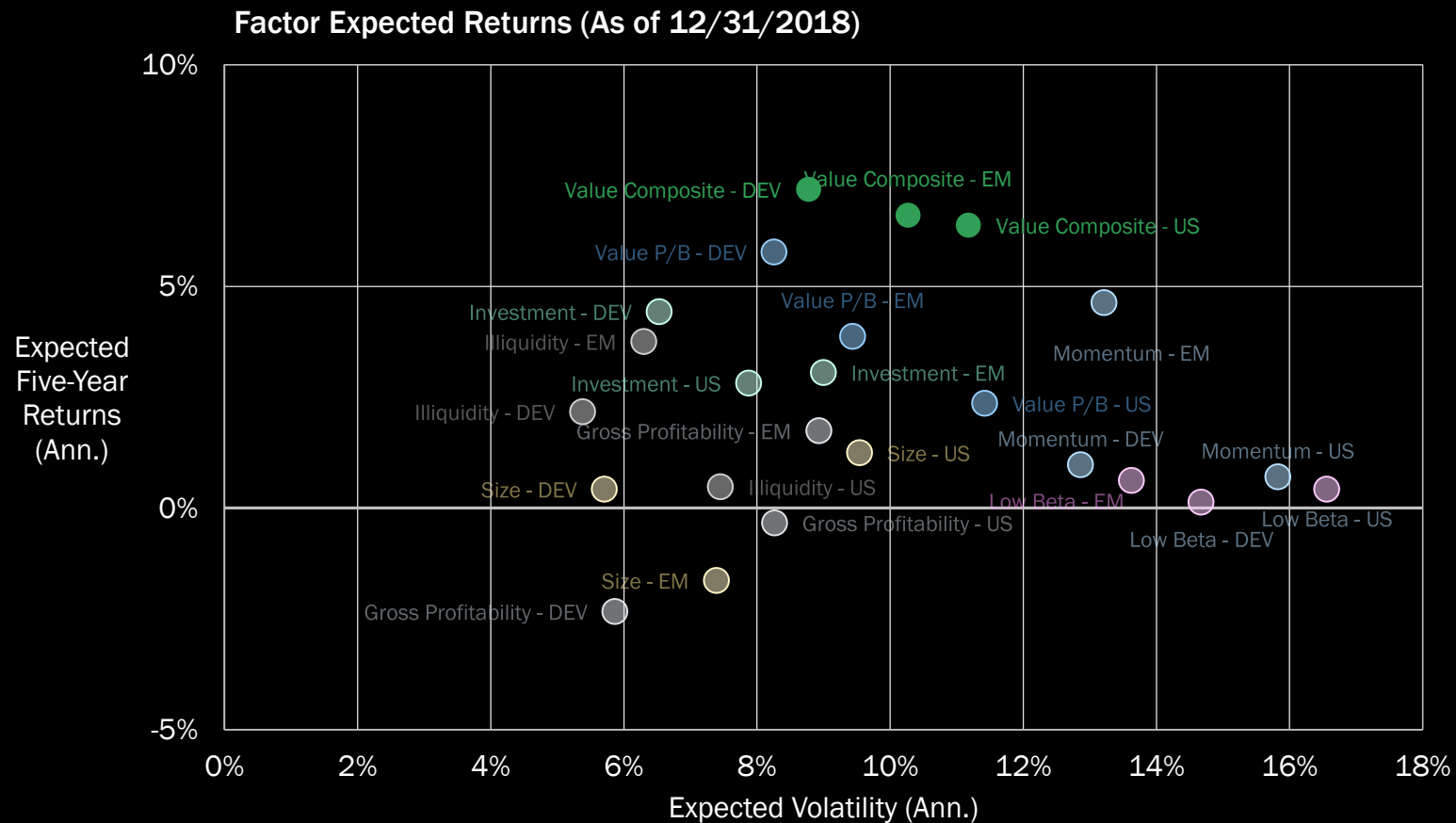
Source: Research Affiliates, LLC, based on data from Morningstar Direct.

What Style Are Investors Chasing Today? Growth!



Source: Research Affiliates, LLC, using data from FactSet. Data as of 12/31/2018.

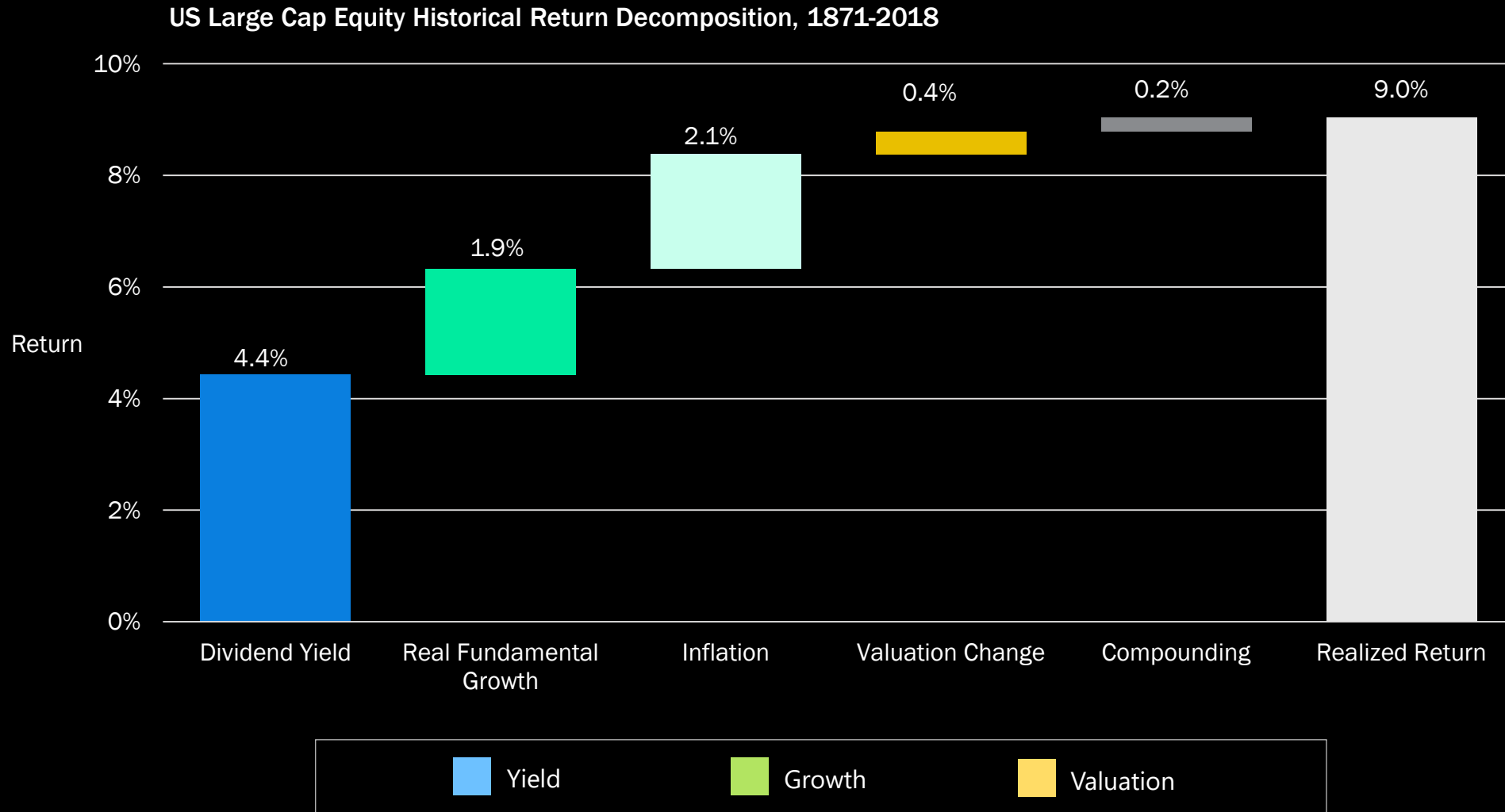
Current Equity Factor Return Forecasts: The Highest Return Potential Is Available from the Value Factor



Source: Research Affiliates, LLC, using data from CRSP/Compustat and Datascope/Worldstream. Please see important information at the end of this presentation regarding simulated data. Return expectations as of December 31, 2018.

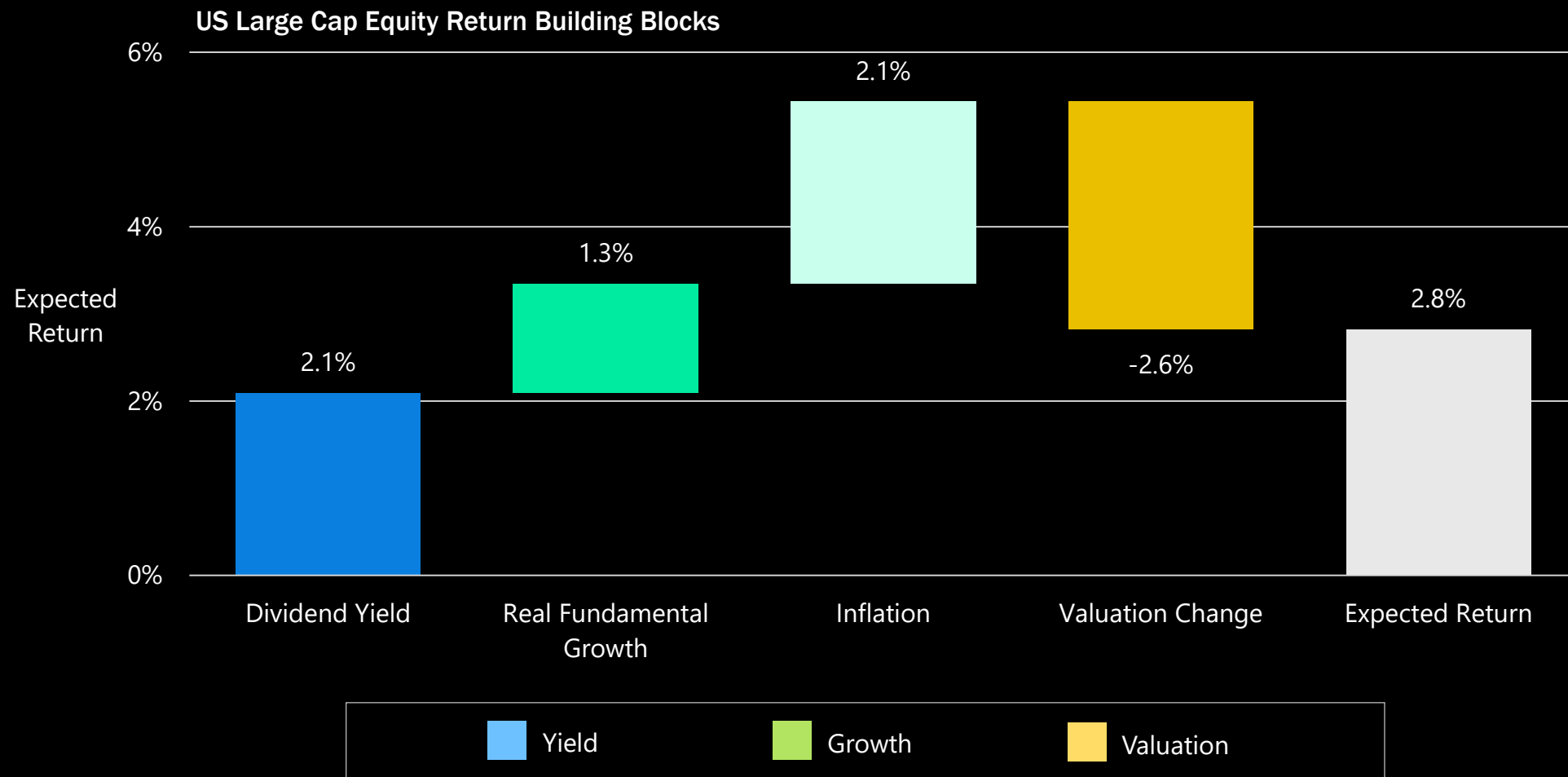
Equity Forecasts: Past Is Not Prologue... Again

What Were the Sources of Historical Returns?



Source: Research Affiliates, LLC, based on data from the Robert Shiller database.

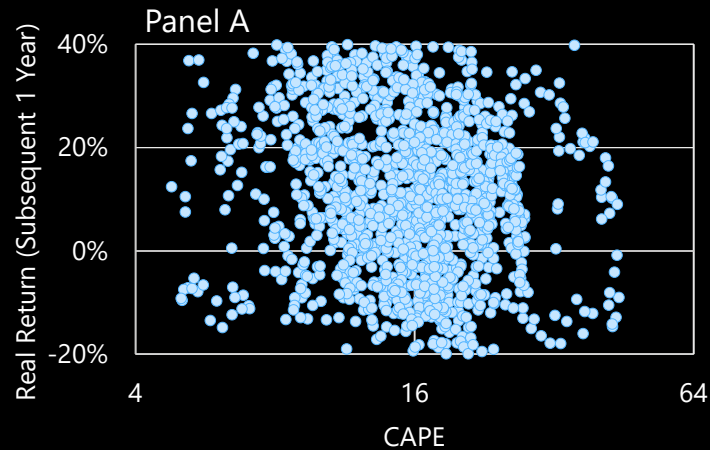
Equity Forecasts: A Function of Dividend Yield, Earnings Growth, and Valuation Changes



Source: Research Affiliates, LLC, based on data from the Robert Shiller database.

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

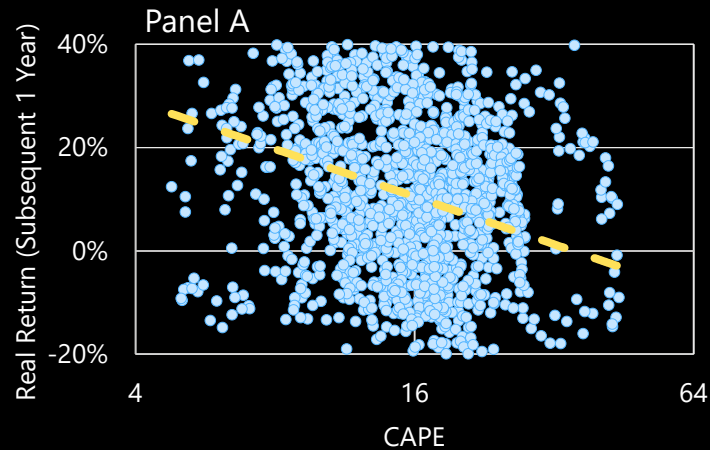
Correlation of CAPE Ratio with S&P 500 Index Real Return at 1-Year Horizons, 1881–Oct 2017



Source: Research Affiliates, LLC, based on data from the Robert Shiller database.

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

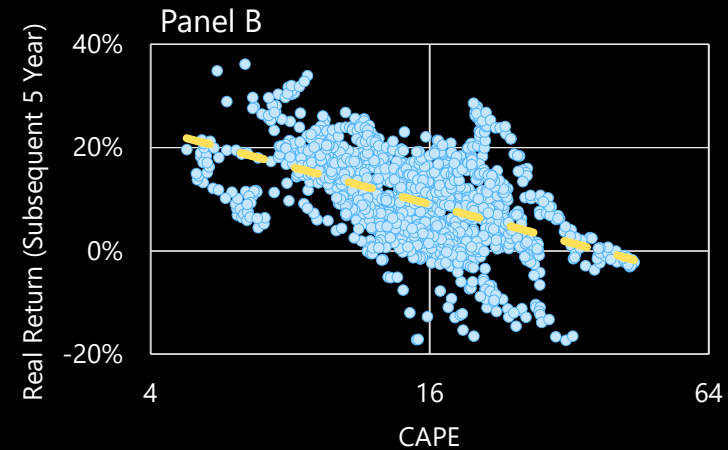
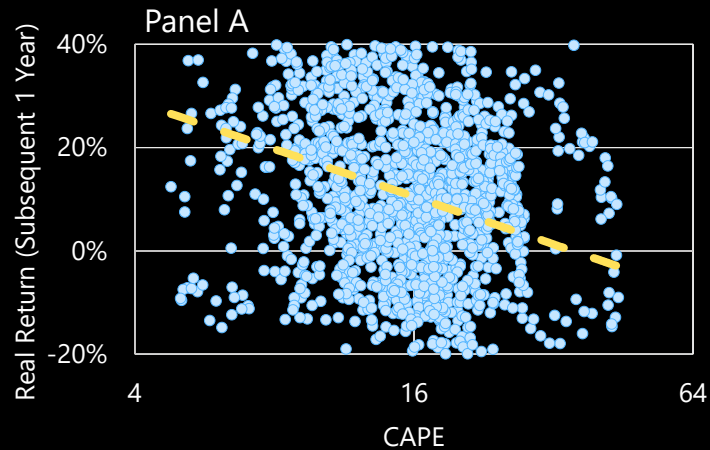
Correlation of CAPE Ratio with S&P 500 Index Real Return at 1-Year Horizons, 1881–Oct 2017



Source: Research Affiliates, LLC, based on data from the Robert Shiller database.

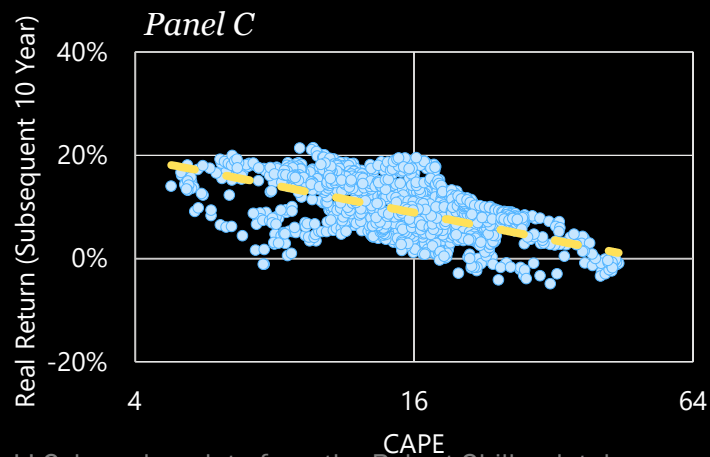
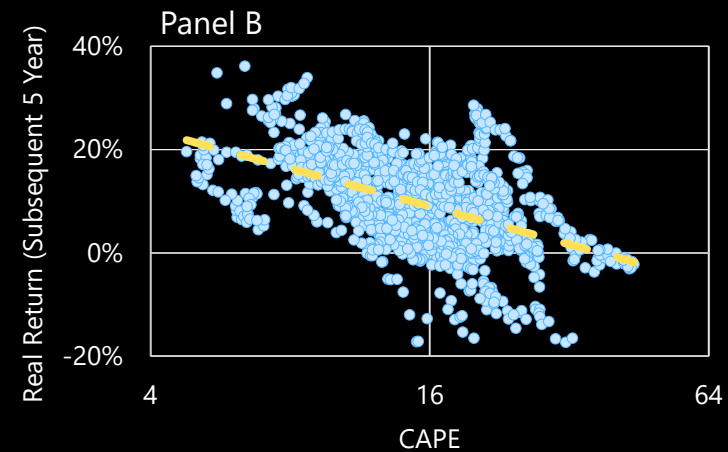
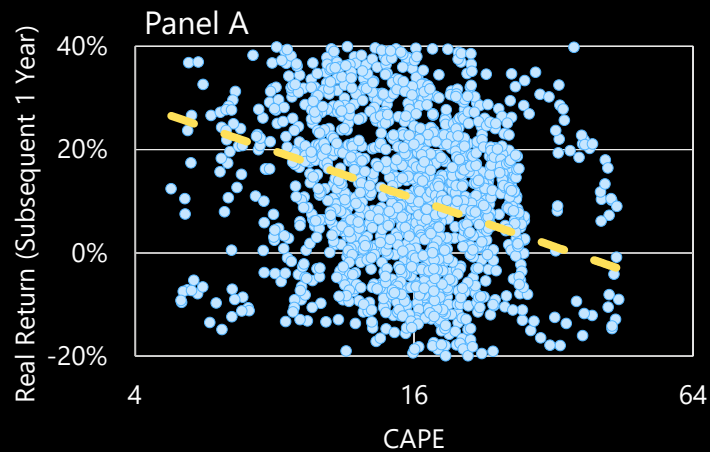
CAPE Is Powerful at Forecasting Long-Horizon Returns, but Almost Useless for Market Timing

Correlation of CAPE Ratio with S&P 500 Index Real Return at 1-, and 5-Year Horizons, 1881–Oct 2017



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

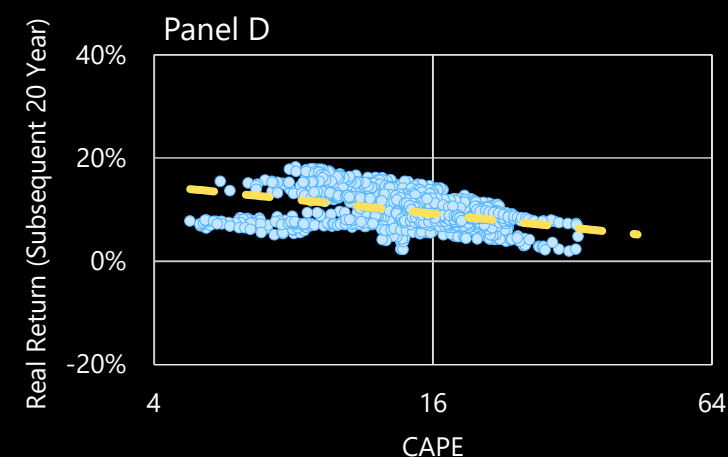
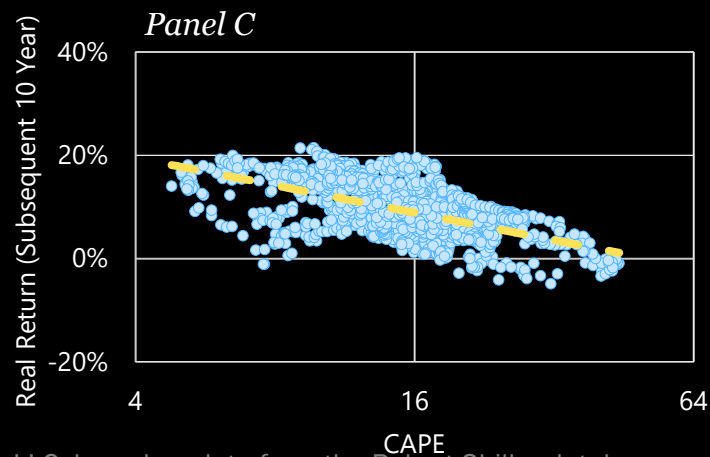
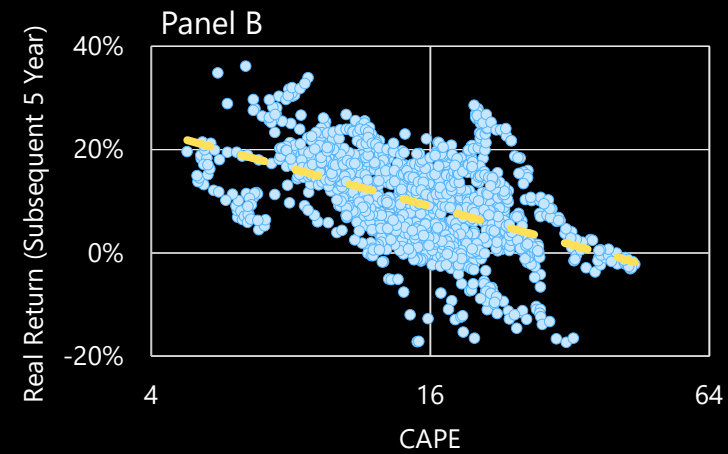
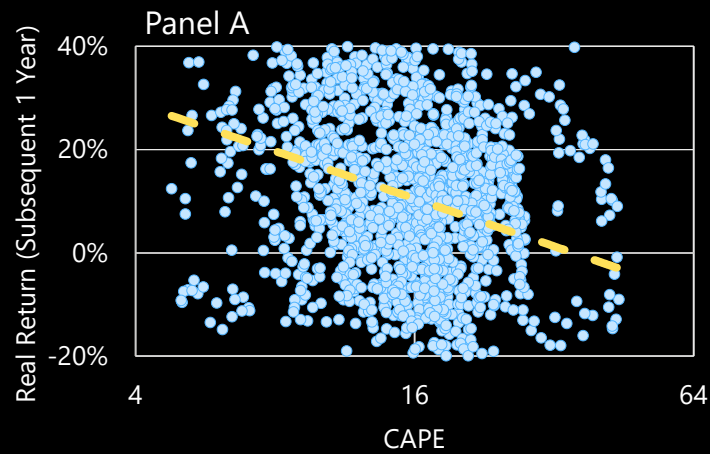
Correlation of CAPE Ratio with S&P 500 Index Real Return at 1-, 5-, and 10-Year Horizons, 1881–Oct 2017



Source: Research Affiliates, LLC, based on data from the Robert Shiller database.

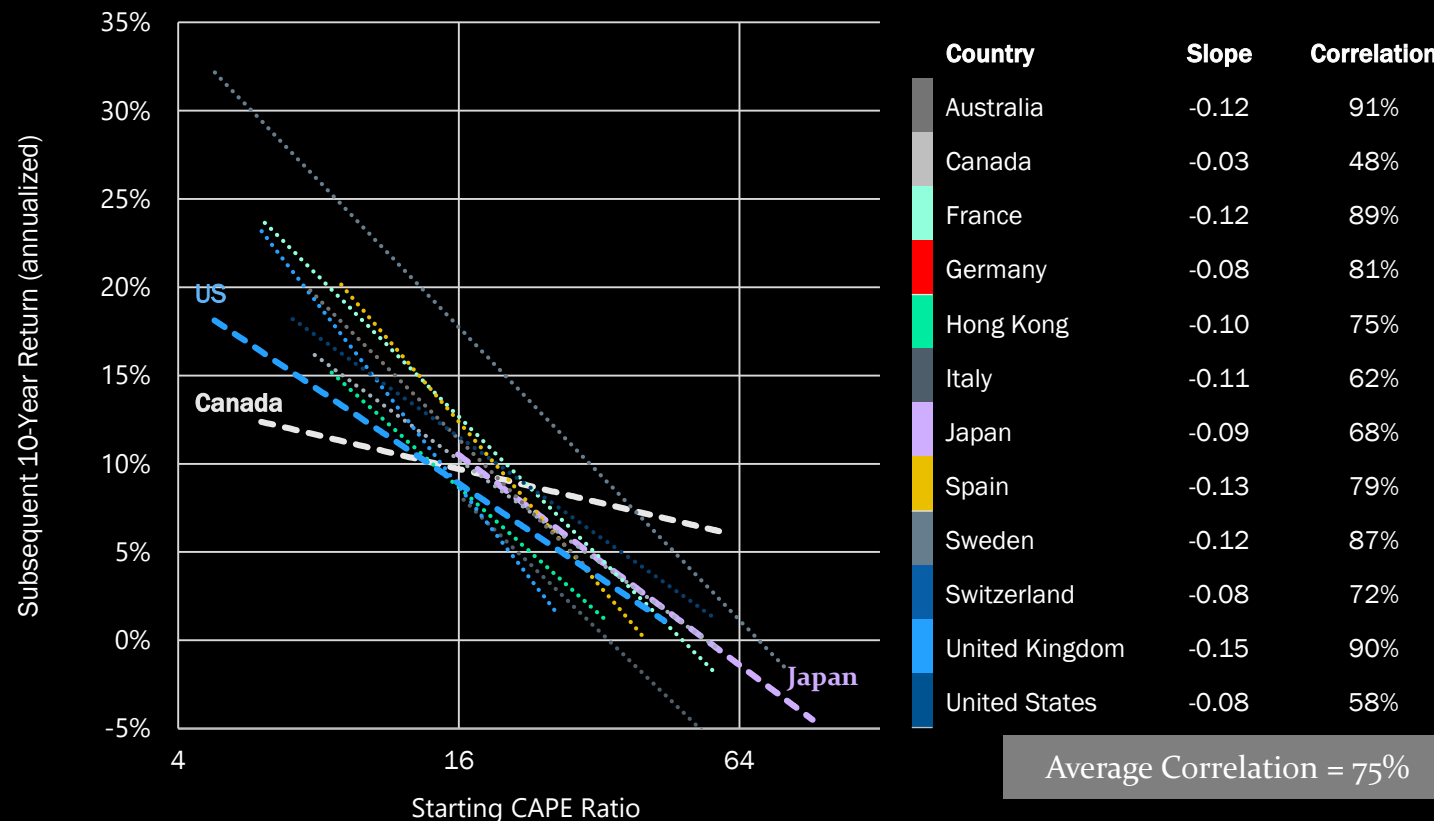
CAPE Is Powerful at Forecasting Long-Horizon Returns, but Almost Useless for Market Timing

Correlation of CAPE Ratio with S&P 500 Index Real Return at 1-, 5-, 10-, and 20-Year Horizons, 1881–Oct 2017



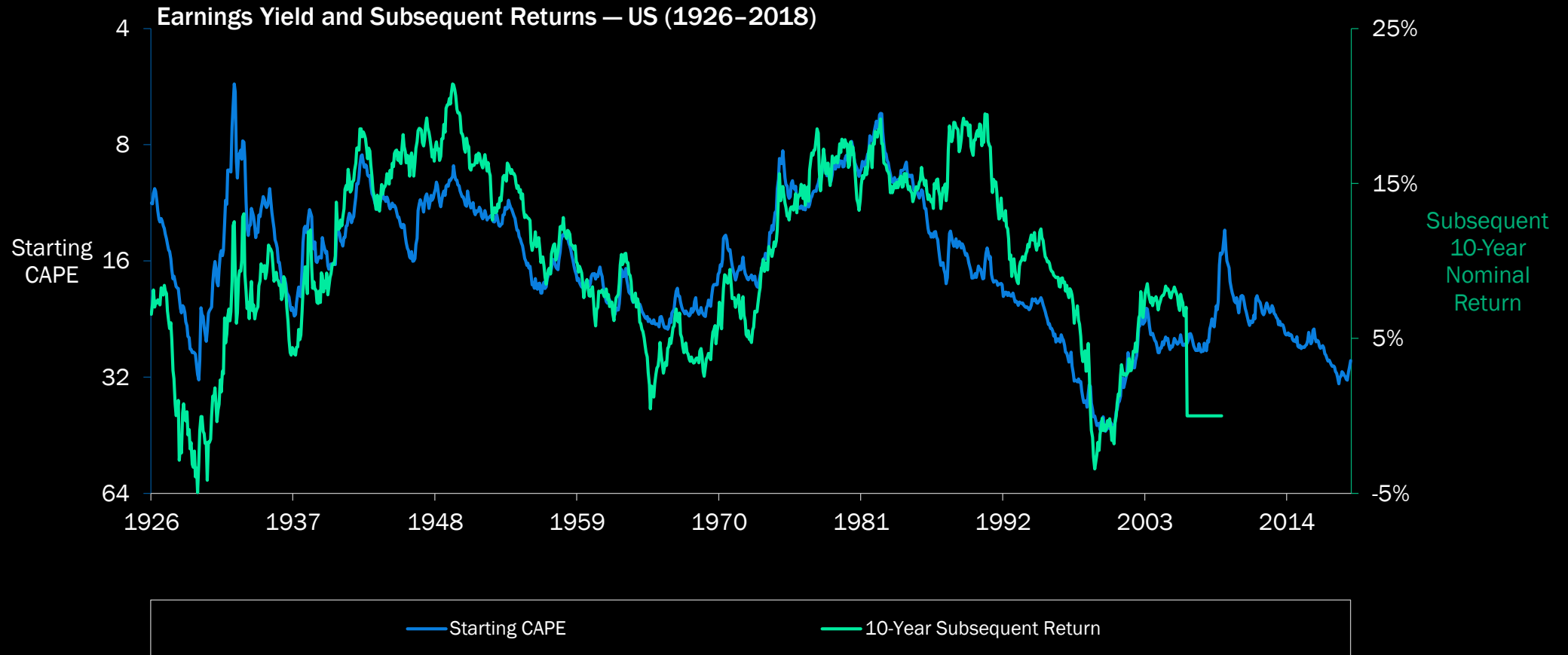
Source: Research Affiliates, LLC, based on data from the Robert Shiller database.

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



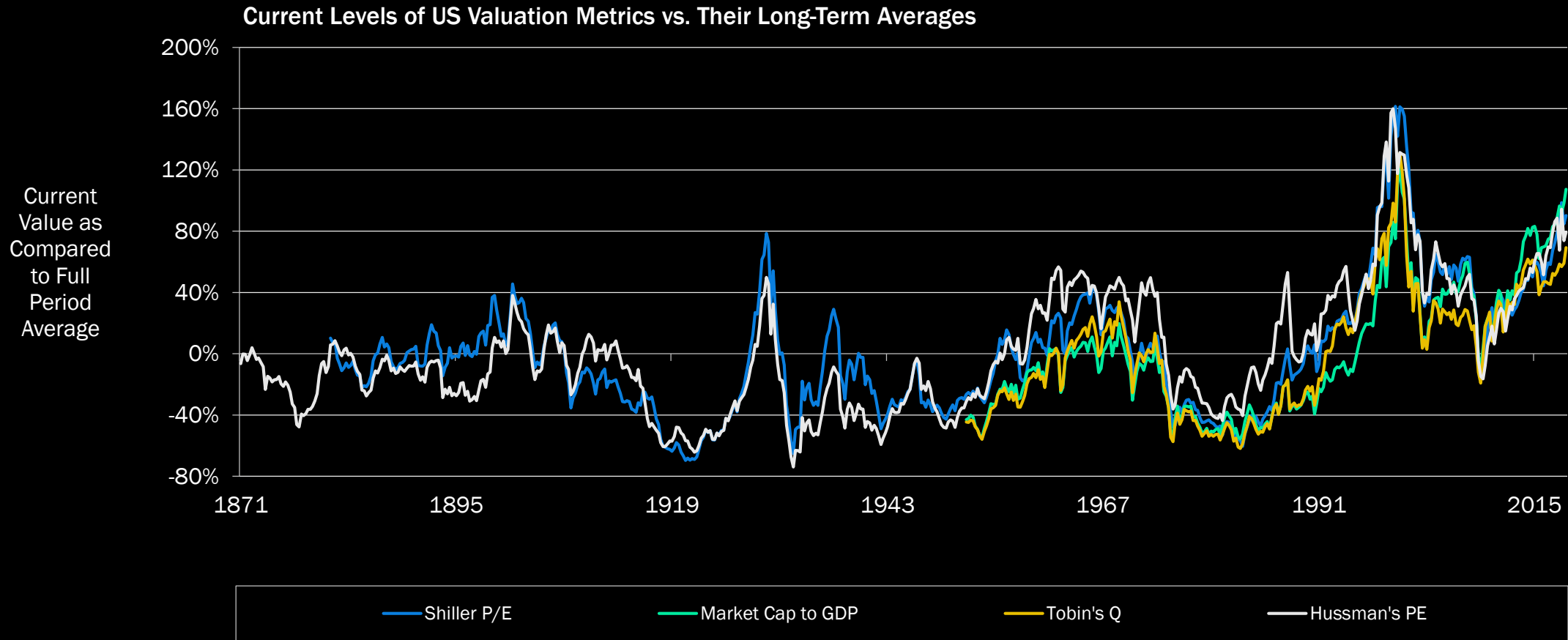
Source: Research Affiliates, LLC, using data from Robert Shiller database, Bloomberg, and MSCI. Note: Each country is measured over the time span for which earnings data are available through October 2007 in order to calculate 10-year returns ending in 2017. The start date for earnings data in the United 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. Using a beginning date of 1969 in the United States yields results consistent with the results when the start date is 1871.

US Equities Are Poised for Lackluster Future Returns



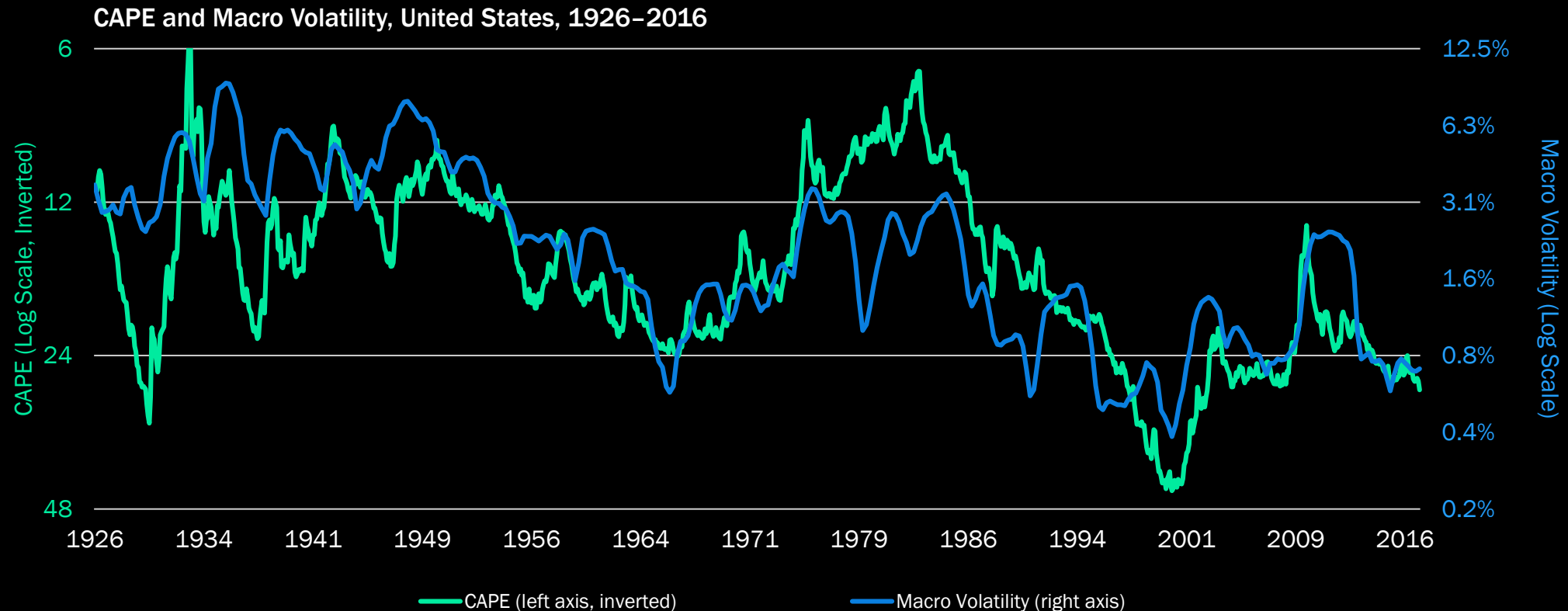
Source: Research Affiliates, LLC, based on data from Bloomberg and Robert Shiller database. The index and inception date is the S&P 500 Index (January 1926). Earnings yield is computed as the inverse of the CAPE ratio. For more information, please visit http://www.researchaffiliates.com/en_us/asset-allocation.html. As of December 31, 2018.

Other Useful Metrics Corroborate High US Valuations



Source: Research Affiliates, LLC, based on data from Robert Shiller database and the Federal Reserve Economic Data (FRED). US Valuation Metrics referenced above are presented as of the first date that data is available. As of December 31, 2018.

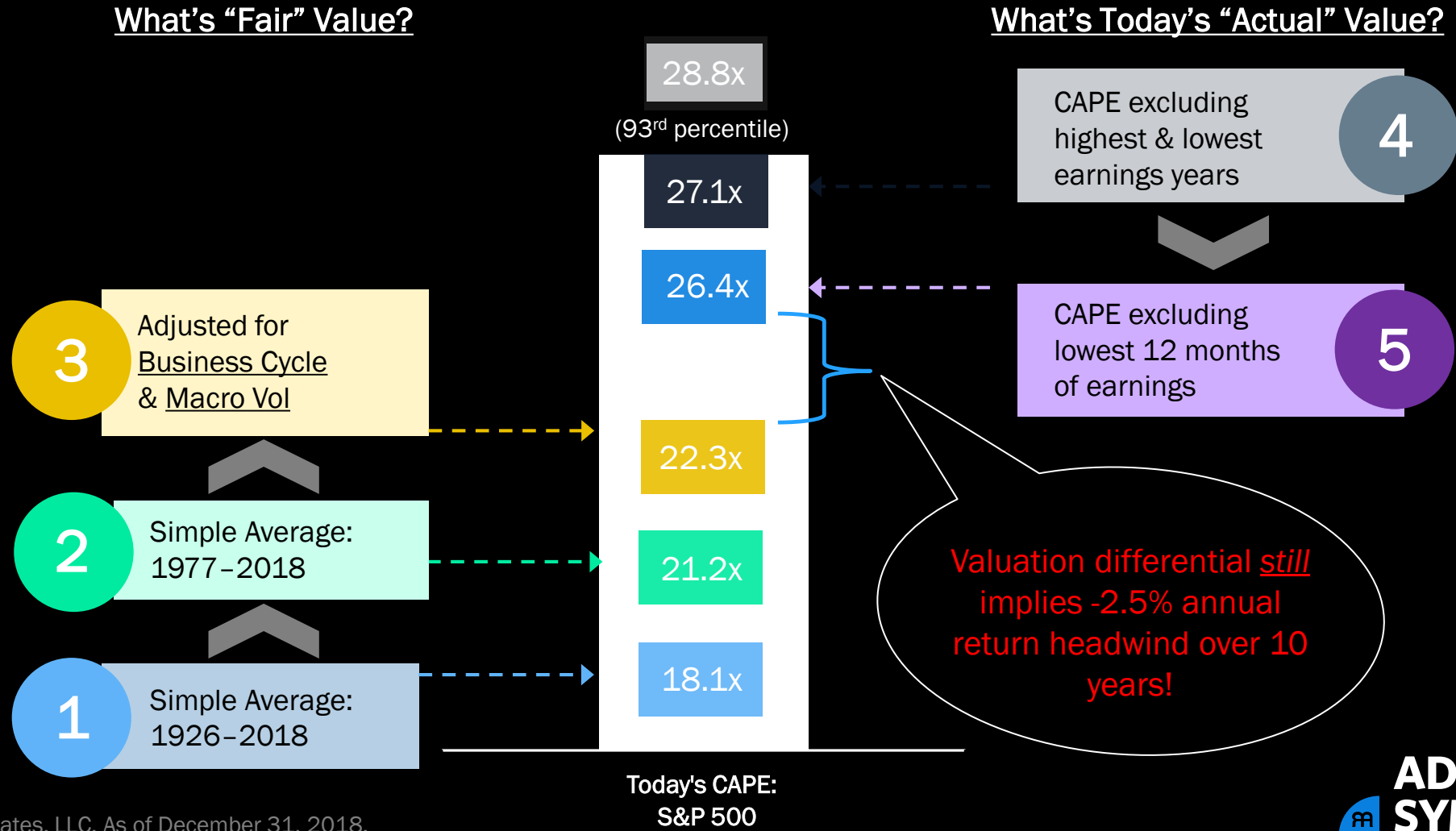
Low Macro Volatility Helps Explain High CAPE Ratios



Aked, Mazzoleni, and Shakernia (2017) find that today's low volatility levels support an equilibrium CAPE of 23, nearly 30% below the current level of 32.

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

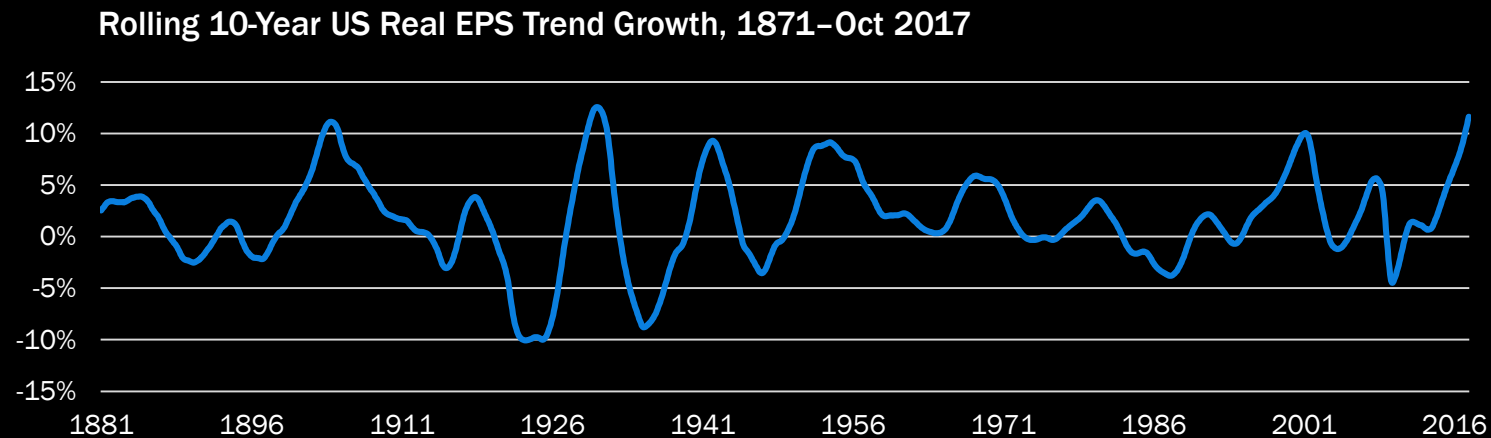


Source: Research Affiliates, LLC. As of December 31, 2018.

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.

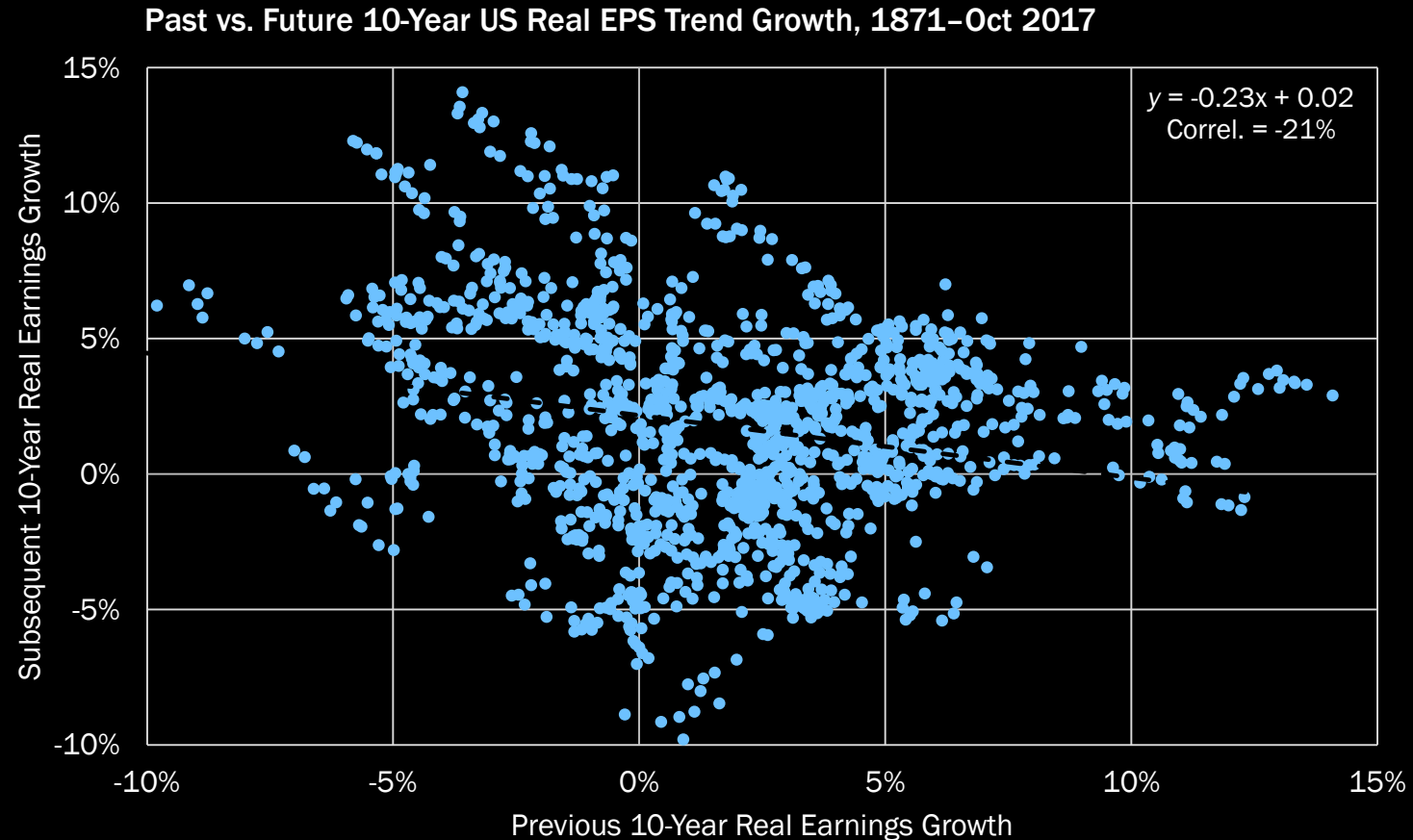


- Indeed, real earnings of the S&P 500 crested in 2014. We are skeptical that earnings can grow much, relative to GDP, in the years ahead.

Source: Research Affiliates, LLC, using data from Robert Shiller database.

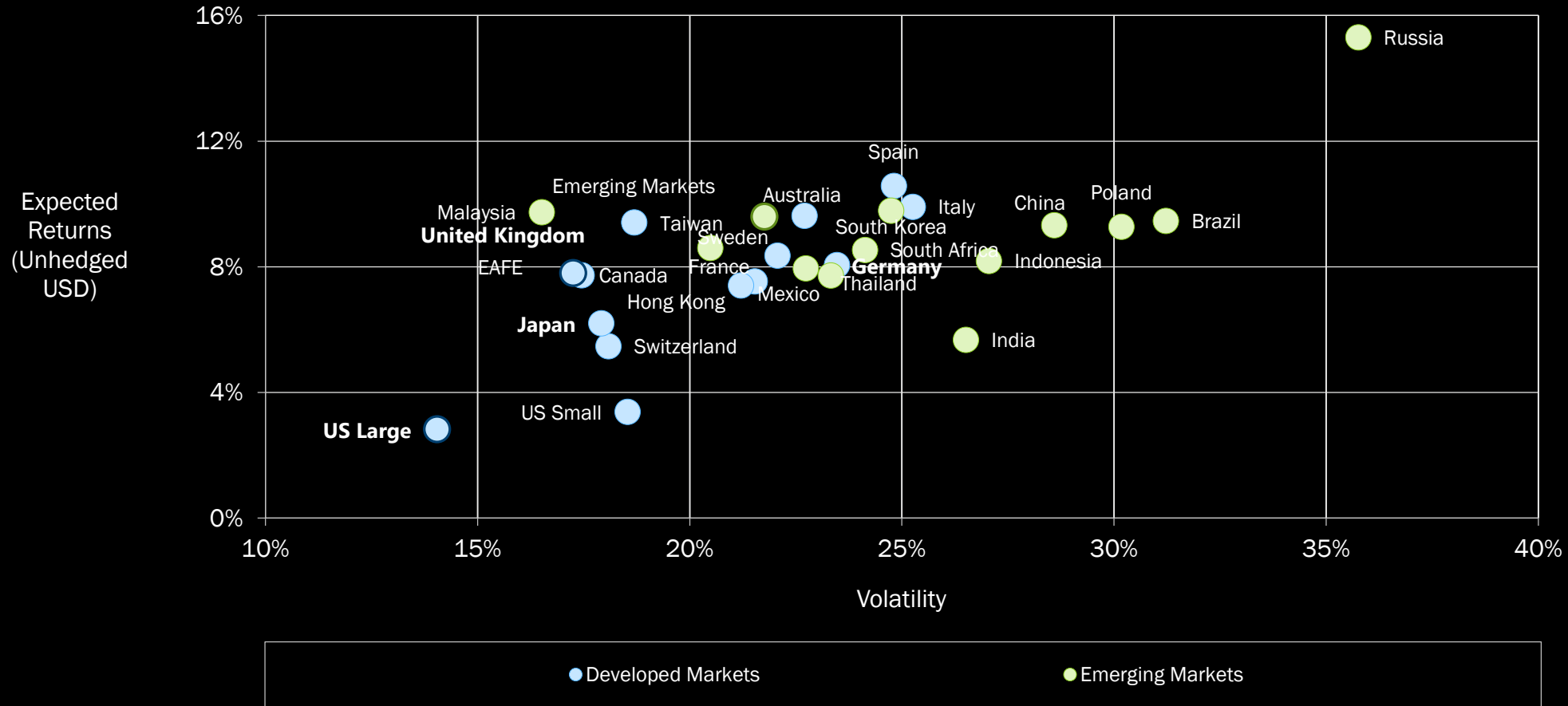
¹ Grantham, Jeremy. 2017. "This Time Seems Very, Very Different." *Advisor Perspectives*, GMO Quarterly Letter (May 2).

High EPS Growth Often Precedes Low EPS Growth



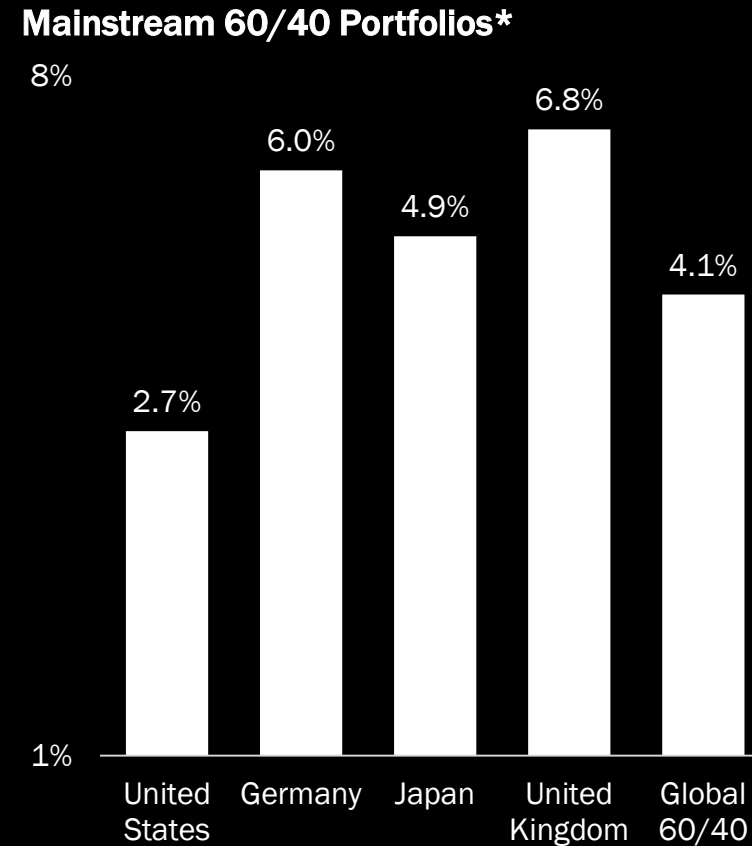
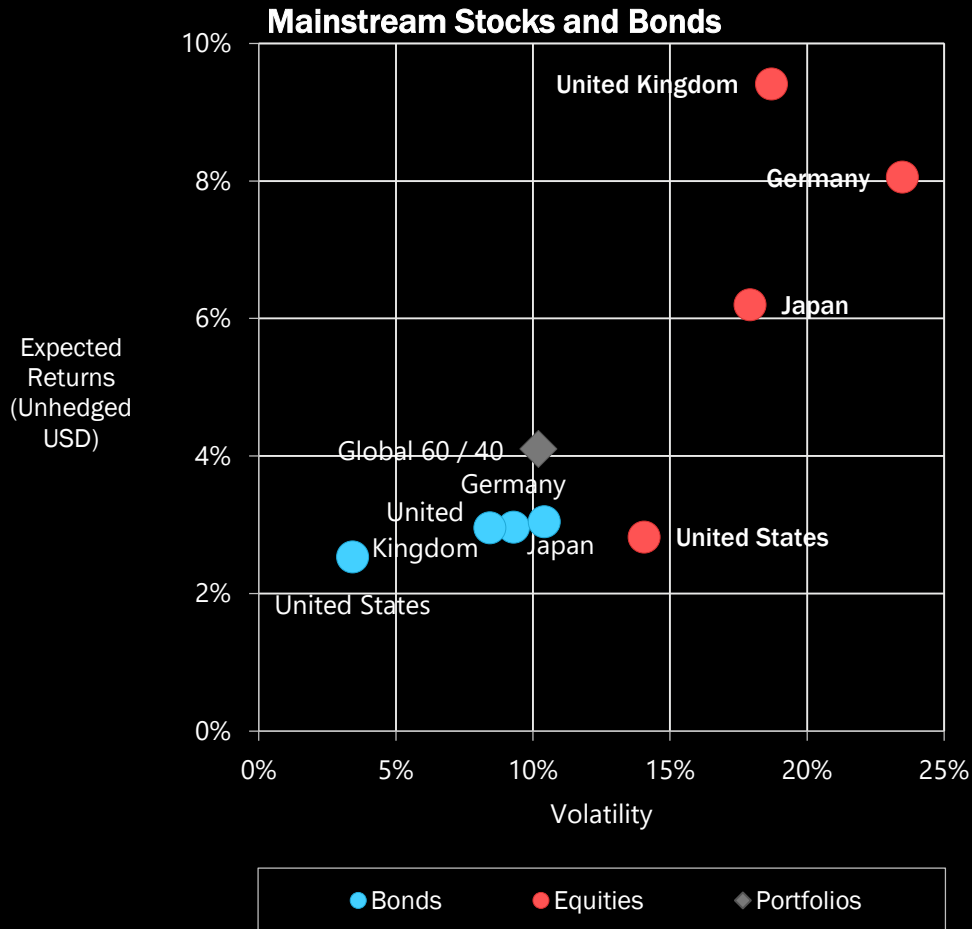
Source: Research Affiliates, LLC, using data from Robert Shiller database.

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. As of December 31, 2018.

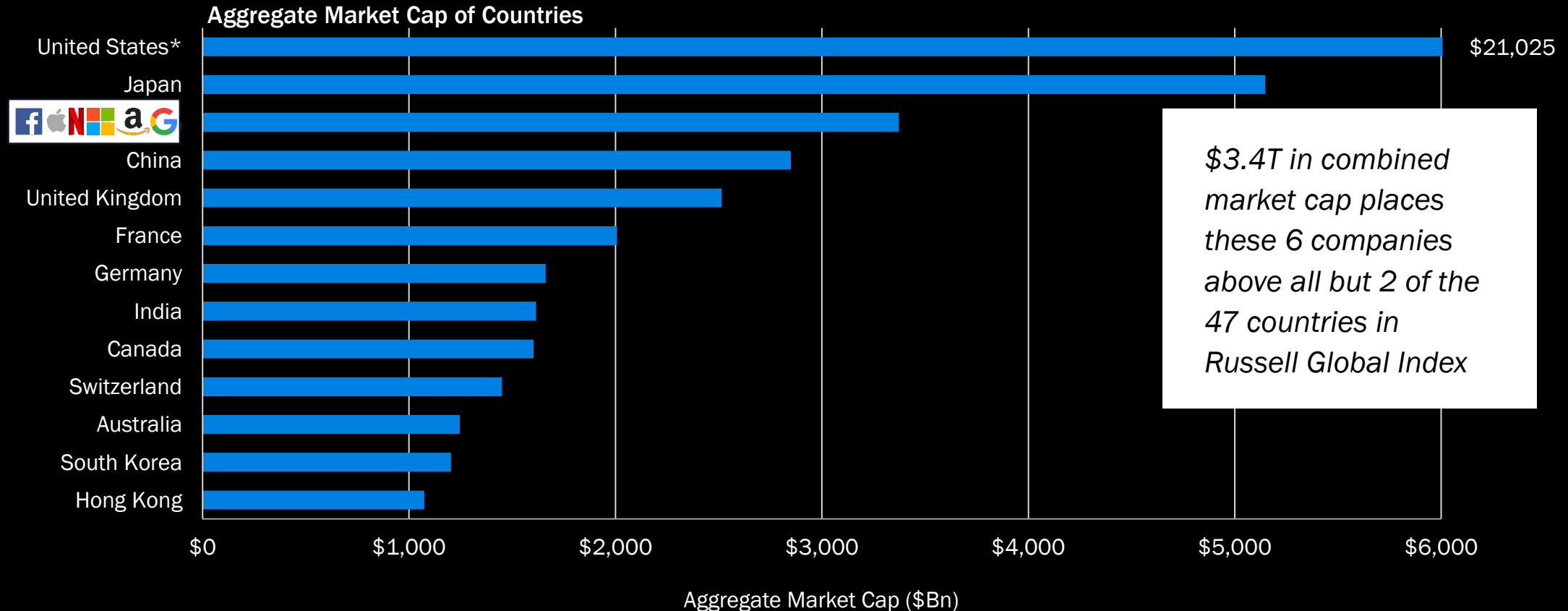
Equities: Long-Term Return Expectations



*60/40 portfolios are represented as 60% core equity index and 40% Treasury 5-7 Year bond index for each specific country. For the United States, 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, and Barclays. Please see important information at the end of this presentation regarding simulated data. As of December 31, 2018.

How Do the Largest Holdings of Index Funds Impact Performance?

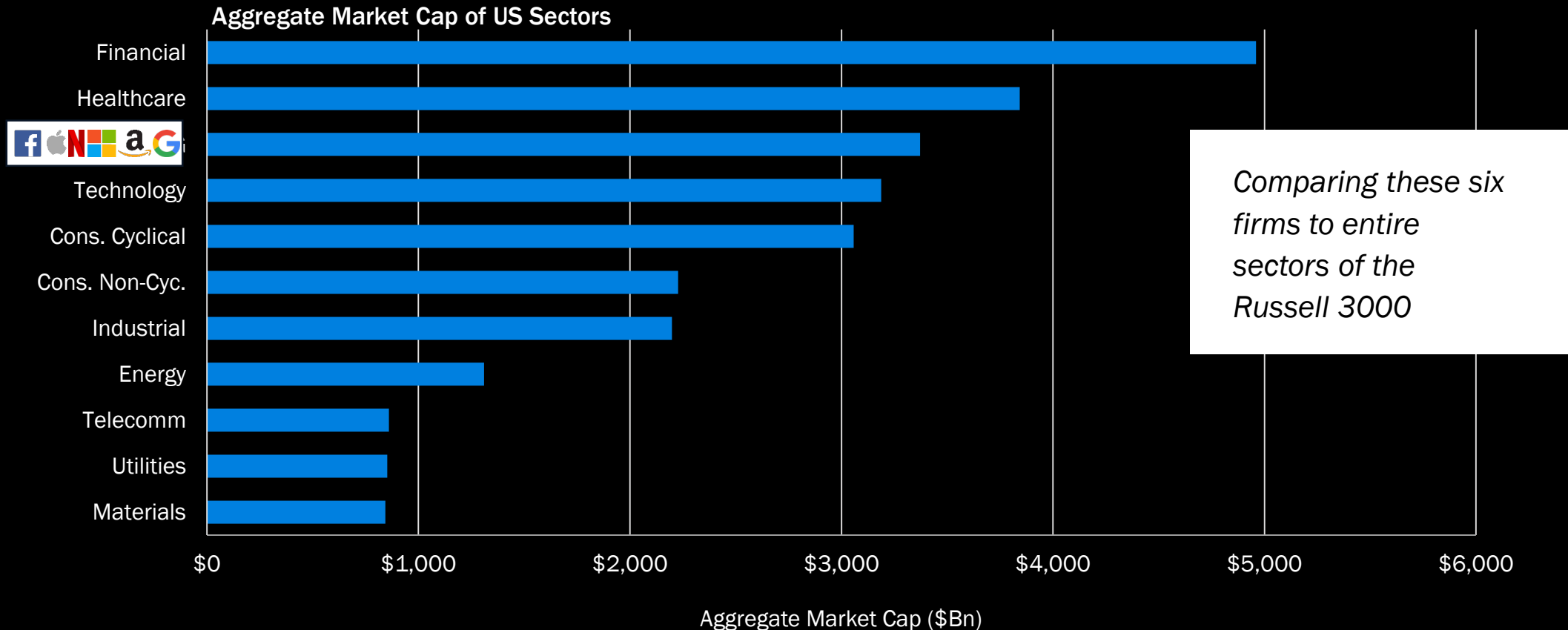
How Expensive Are FANMAG (Facebook, Apple, Netflix, Microsoft, Amazon, & Google)?



*US Market Cap extends beyond the scale of the graph.

Source: Research Affiliates, LLC, based on data from FactSet as of 12/31/2018. Market cap for countries represents the sum of the market caps for their constituents in the 10,000+ security Russell Global Index. Market caps for Facebook, Apple, Netflix, Microsoft, Amazon, & Google are excluded from the US category.

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



Source: Research Affiliates, LLC, based on data from FactSet as of 12/31/2018. Market cap for sectors represents the sum of the market caps for their constituents in the Russell US 3000 Index. Market caps for Facebook, Apple, Netflix, Microsoft, Amazon, & Google are excluded from the technology sector.

The “Top Dogs” in an All-World Cap-Weighted Portfolio are Remarkably Inconsistent!

Since 1980, a decade-by-decade analysis shows that typically only 2 of the top 10 companies in the market remain among the largest companies 10 years later.

2019	2018	2017	2016	2015	2014	2013
Microsoft	Apple Inc.	Apple Inc.	Apple Inc.	Apple Inc.	Apple Inc.	Apple Inc.
Apple Inc.	Alphabet Inc.	Alphabet Inc.	Google	Exxon Mobil	Exxon Mobil	Exxon Mobil
Amazon.com	Microsoft	Microsoft	Microsoft	Microsoft	Berkshire Hathaway	PetroChina
Alphabet Inc.	Amazon.com	Berkshire Hathaway	Berkshire Hathaway	Berkshire Hathaway	Microsoft	BHP Billiton
Berkshire Hathaway	Facebook	ExxonMobil	Exxon Mobil	Google	Johnson & Johnson	ICBC
Facebook	Tencent	Amazon.com	Johnson & Johnson	PetroChina	General Electric	China Mobile
Tencent	Berkshire Hathaway	Johnson & Johnson	General Electric	Johnson & Johnson	Wal-Mart	Wal-Mart
Alibaba Group	Alibaba Group	JPMorgan Chase	China Mobile	Wells Fargo	Google	Samsung Electronics
Johnson & Johnson	Johnson & Johnson	General Electric	Novartis	Wal-Mart	Chevron Corporation	Microsoft
JPMorgan Chase	JPMorgan Chase	Wells Fargo	Nestlé	ICBC	Hoffmann-La Roche	Royal Dutch Shell
2012	2011	2010	2009	2000	1990	1980
Apple Inc.	Exxon Mobil	PetroChina	Exxon Mobil	Microsoft	NTT	IBM
Exxon Mobil	PetroChina	Exxon Mobil	PetroChina	General Electric	Bank of Tokyo-Mitsubishi	AT&T
PetroChina	Apple Inc.	Microsoft	Wal-Mart	NTT DoCoMo	Industrial Bank of Japan	Exxon
IBM	BHP Billiton	ICBC	China Mobile	Cisco Systems	Sumitomo Mitsui Banking	Standard Oil
Microsoft	Microsoft	Wal-Mart	Procter & Gamble	Wal-Mart	Toyota Motors	Schlumberger
ICBC	ICBC	China Construction Bank	ICBC	Intel	Fuji Bank	Shell
China Mobile	Petrobras	BHP Billiton	Microsoft	NTT	Dai-ichi Kangyo Bank	Mobil
Royal Dutch Shell	China Construction Bank	HSBC	AT&T	Exxon Mobil	IBM	Atlantic Richfield
Nestlé	Royal Dutch Shell	Petrobras	Johnson & Johnson	Lucent Technologies	UFJ Bank	General Electric
Chevron Corporation	Nestlé	Apple Inc.	General Electric	Deutsche Telekom	Exxon	Eastman Kodak
Legend:	New Addition to List		Drops Off List Next Year		Flip-Flop: New then Drops	
Black = US Company	Red Bold Text = Emerging Markets Company		Blue Bold Text = European Company		Brown Bold Text = Japan / Australia	

Source: Research Affiliates, LLC, using data from *Financial Times* and Wikipedia. Rankings shown represent start-of-year rankings.

“Top Dogs” Vanish Because They Underperform!

- The global top dog outpaced the global cap-weighted stock market only 5% of the time in the last 30 years.
- It delivered an annual shortfall of 10.5% per year, roughly equivalent to losing 2/3 of its value!

Performance of Largest Market Cap Stocks, 1982–2011

Type of Top Dog	Horizon	Relative Return vs. Sector, Avg Across Countries	Frequency of Win vs. Sector, Avg Across Countries
Average, Largest stocks in each sector across G-8 countries	1yr	-5.3%	44%
	5yrs	-4.8%	39%
	10yrs	-5.1%	34%
		Relative Return vs. Developed World	Frequency of Win vs. Developed World
Largest market cap stock in Developed World	1yr	-12.5%	33%
	5yrs	-11.2%	15%
	10yrs	-10.5%	5%

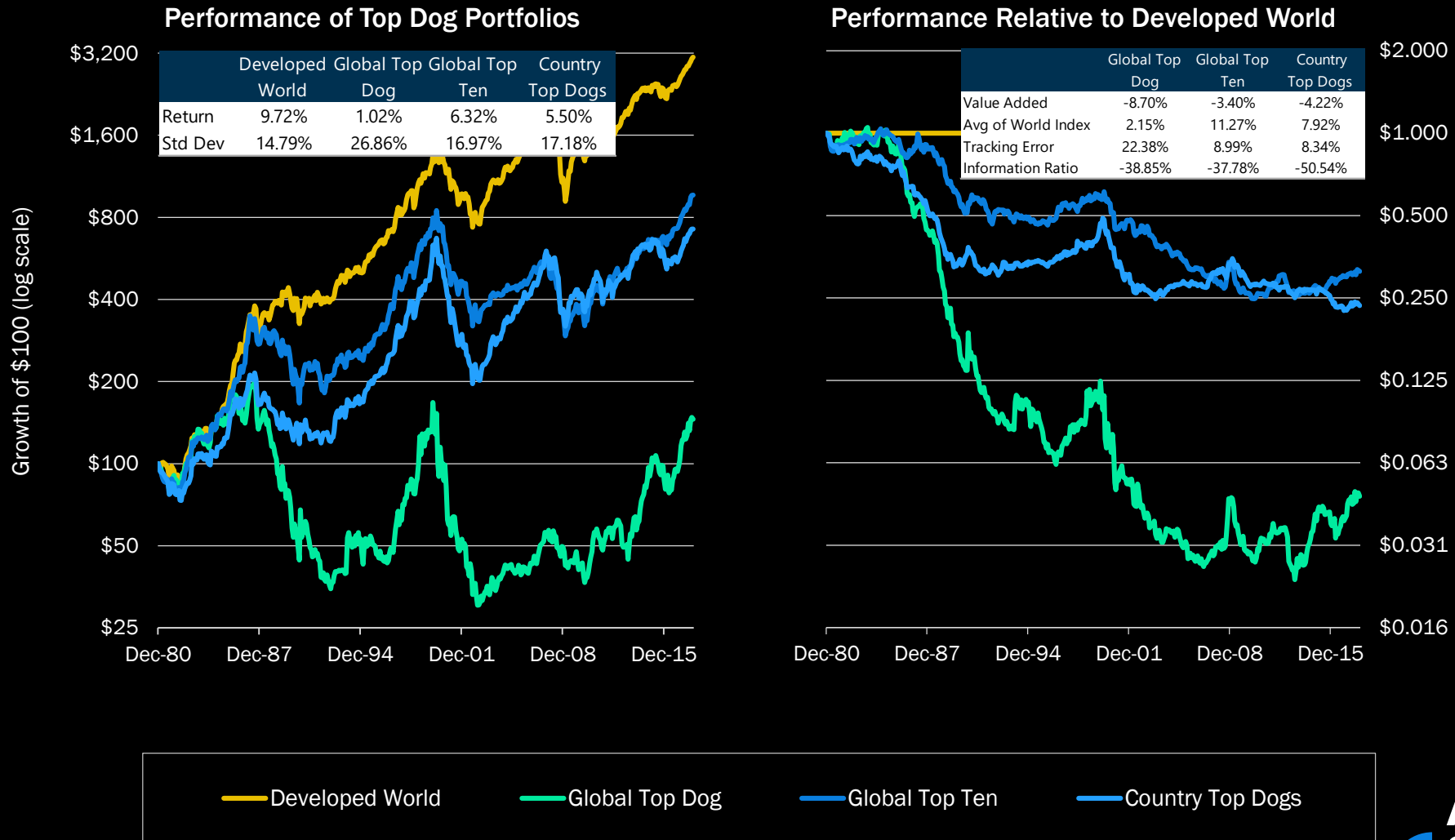
How Do “Top Dogs” Impact Index Performance?

Do I want to own a portfolio in which my largest holding has a 95% likelihood of underperforming over the next 10 years? No!

We compared the performance of five different portfolios

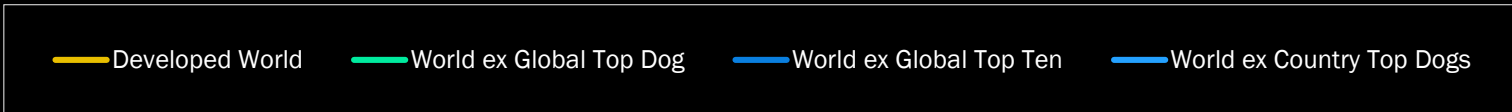
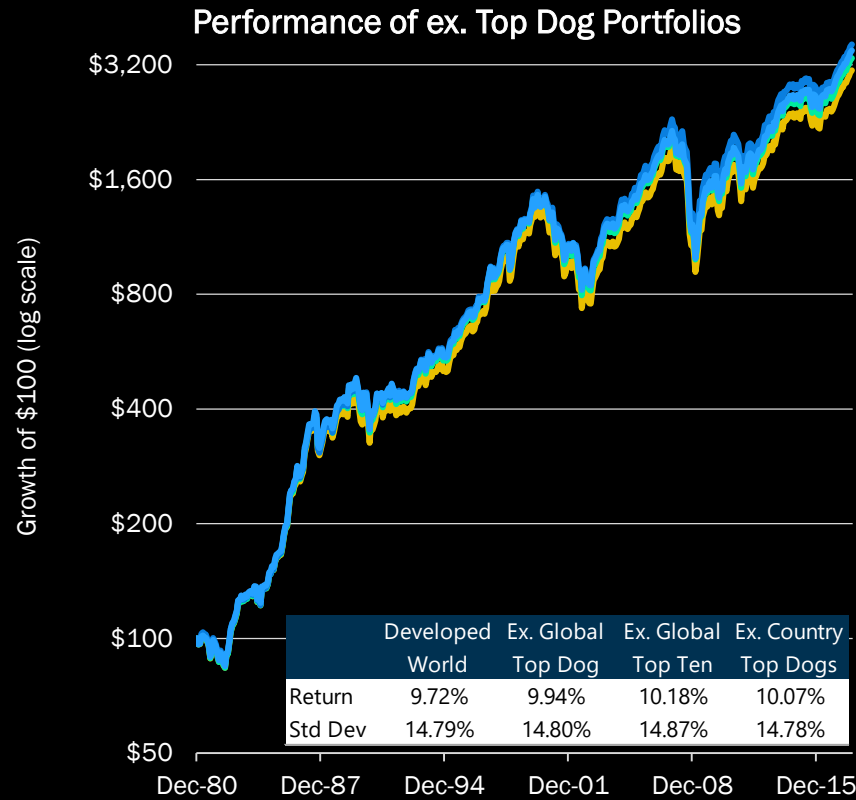
- Developed World Portfolio, Cap-Weighted (“World”)
- World, excluding the single largest market-cap stock in the world
- World, excluding the ten largest market-cap stocks in the world
- World, excluding the largest market-cap stock in each country

Portfolios of “Top Dogs” Underperform the Market



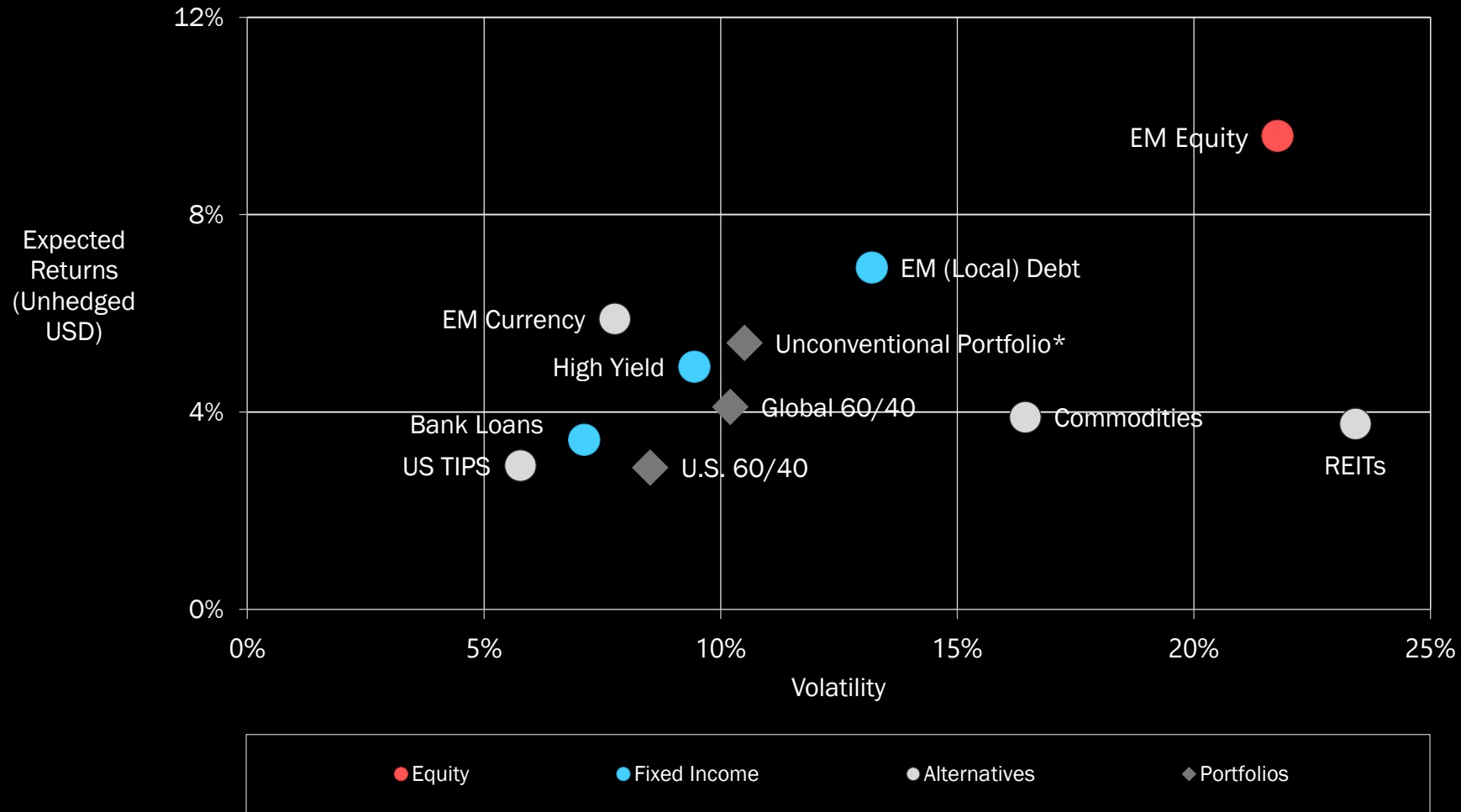
Source: Research Affiliates, LLC, based on data from Worldscope and Datastream. Data from 1980–2017.

Performance Improves With Each Exclusion... But Investors Must Be Willing To Accept Higher TE



Source: Research Affiliates, LLC, based on data from Worldscope and Datastream. Data from 1980-2017.

Unconventional Assets Mostly Priced to Offer Better Returns



Source: Research Affiliates, LLC, based on data from Ibbotson, Shiller, Bloomberg, FactSet, MSCI, and Barclays. Please see important information at the end of this presentation regarding simulated data. As of December 31, 2018.

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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