Myths in Today's Choppy Markets

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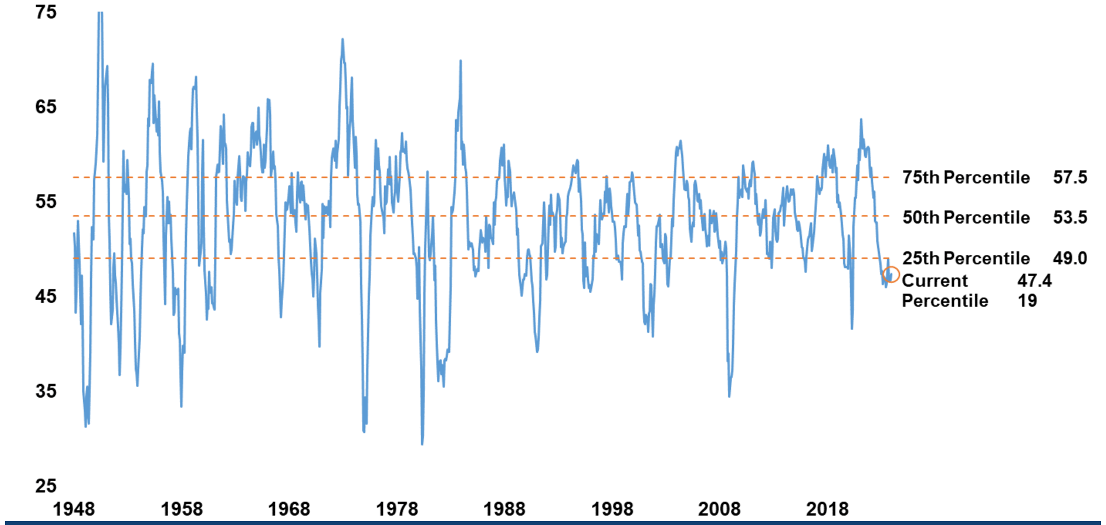
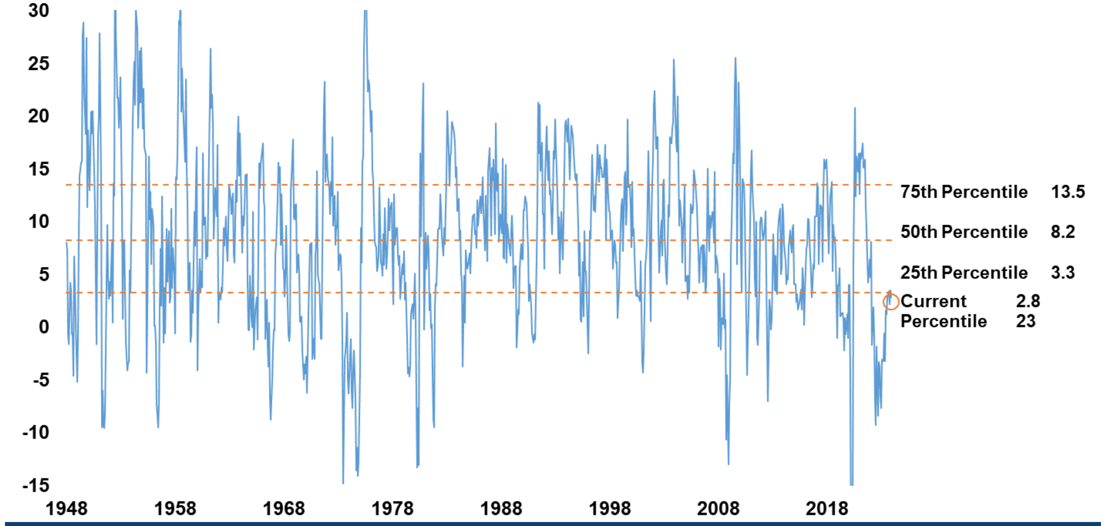
GDP Growth Appears Poised for Short-term Headwinds

In the last year various leading indicators have substantially deteriorated (falling blue lines)

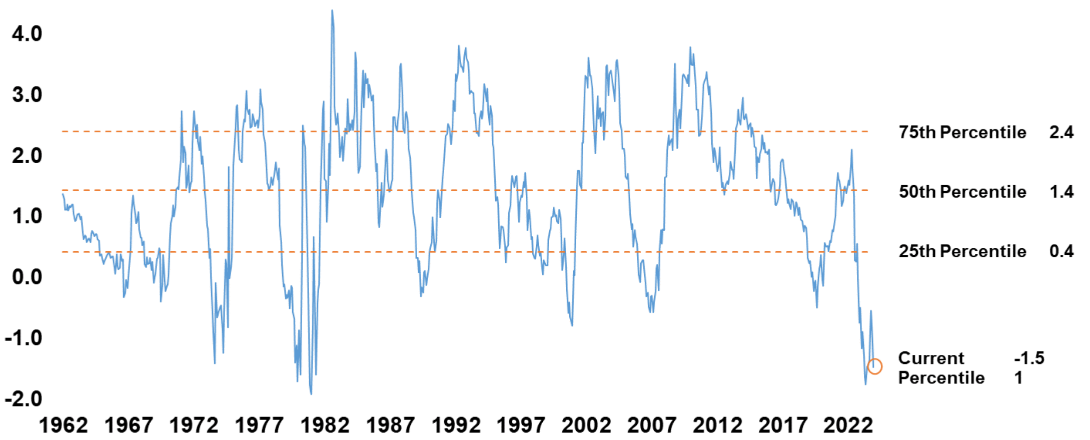
Purchasing Managers' Index (PMI): Jan 1948 – Dec 2023



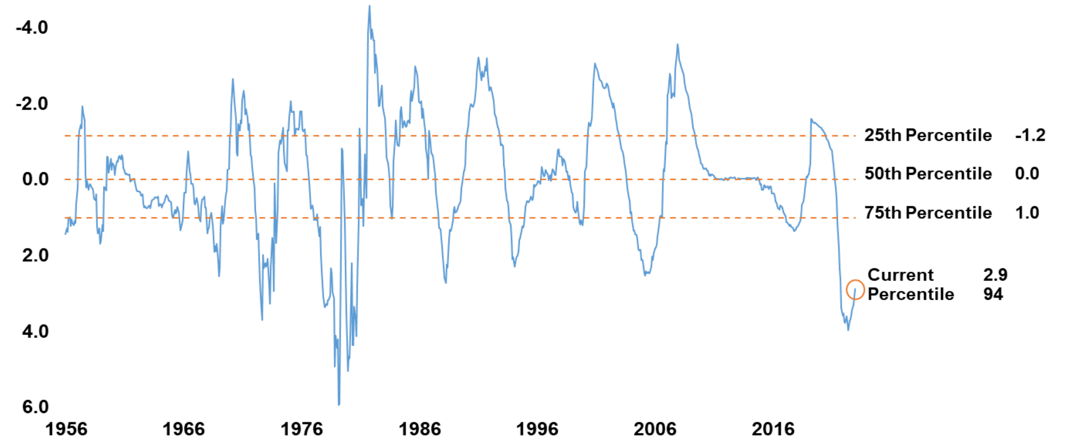
New Orders Minus Inventories: Jan 1948 – Dec 2023



Yield Curve Spread (10 Year vs. 3 Month): Jan 1962 – Dec 2023



Path of Cash Rates (Inverted): Dec 1956 – Dec 2023

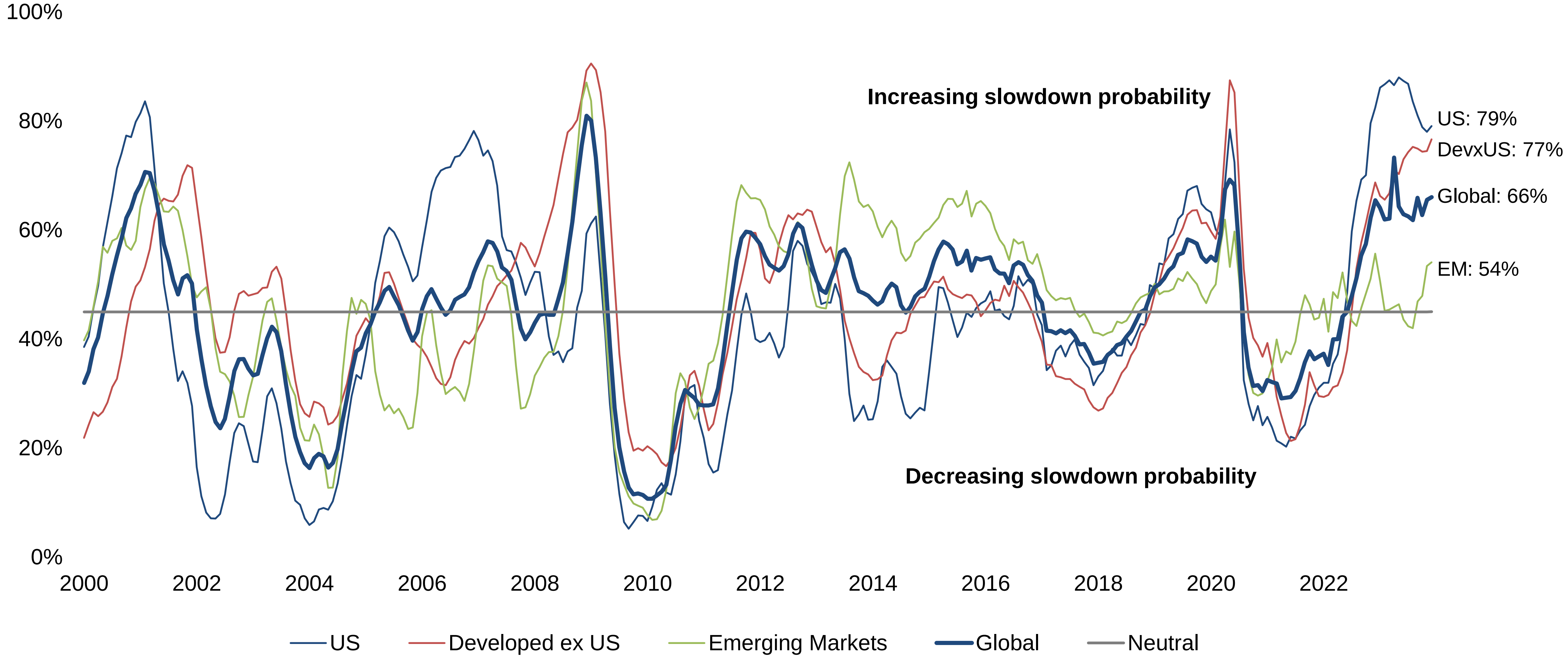


Source: Research Affiliates, based on data from using Bloomberg and ISM (Institute of Supply Management) as of Dec 31, 2023. The path of cash rates is defined as a trailing three-year average of the 3-month US Treasury yield minus today's three-month US Treasury yield.

Regional Slowdown Probabilities Have Risen Substantially

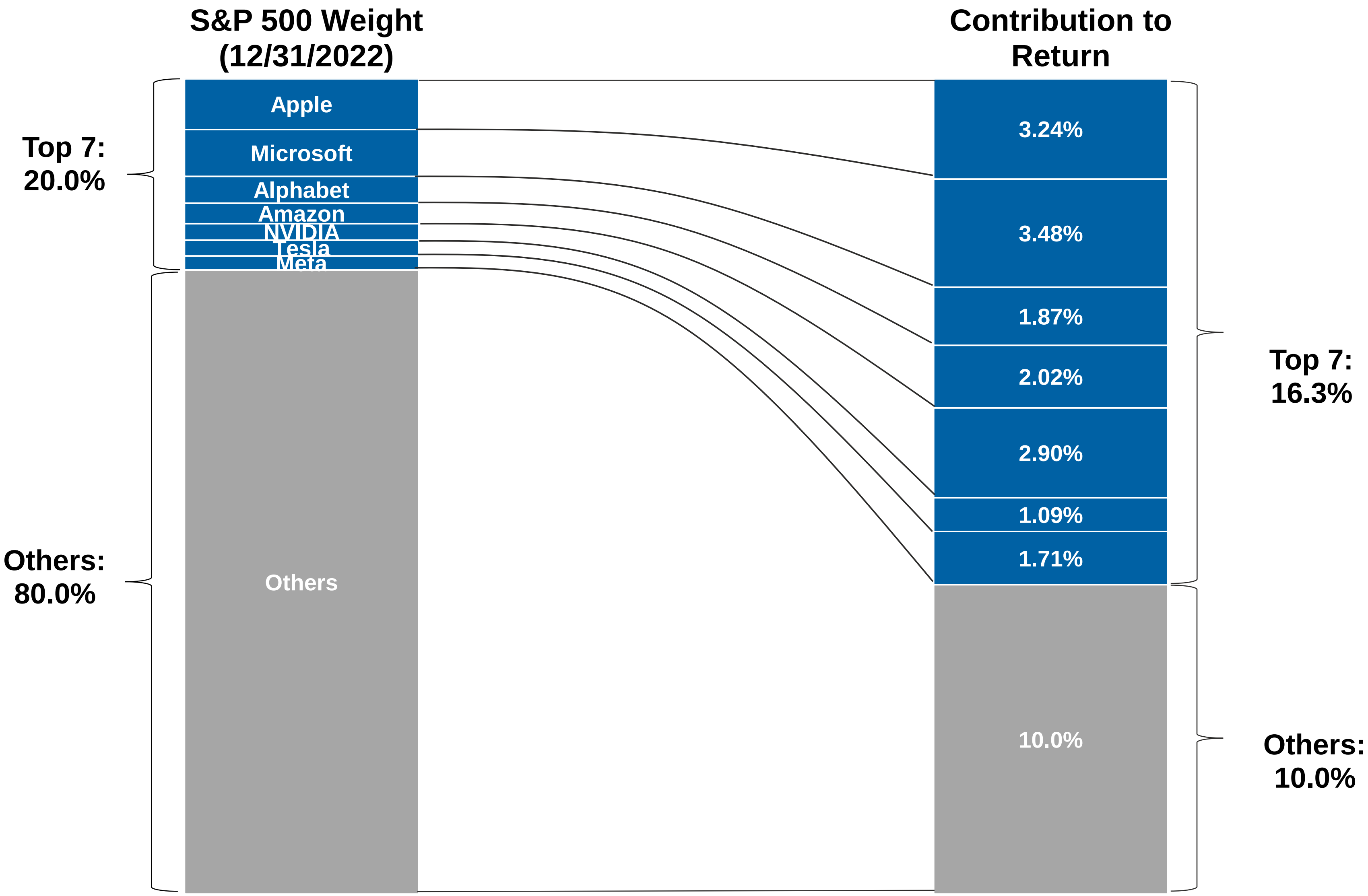
Leading economic indicators have deteriorated globally (rising lines)

Probability of Economic Slowdown: Jan 2000 – Dec 2023



Source: Research Affiliates, using data from Bloomberg.

Market Performance Concentrated Among Top Names

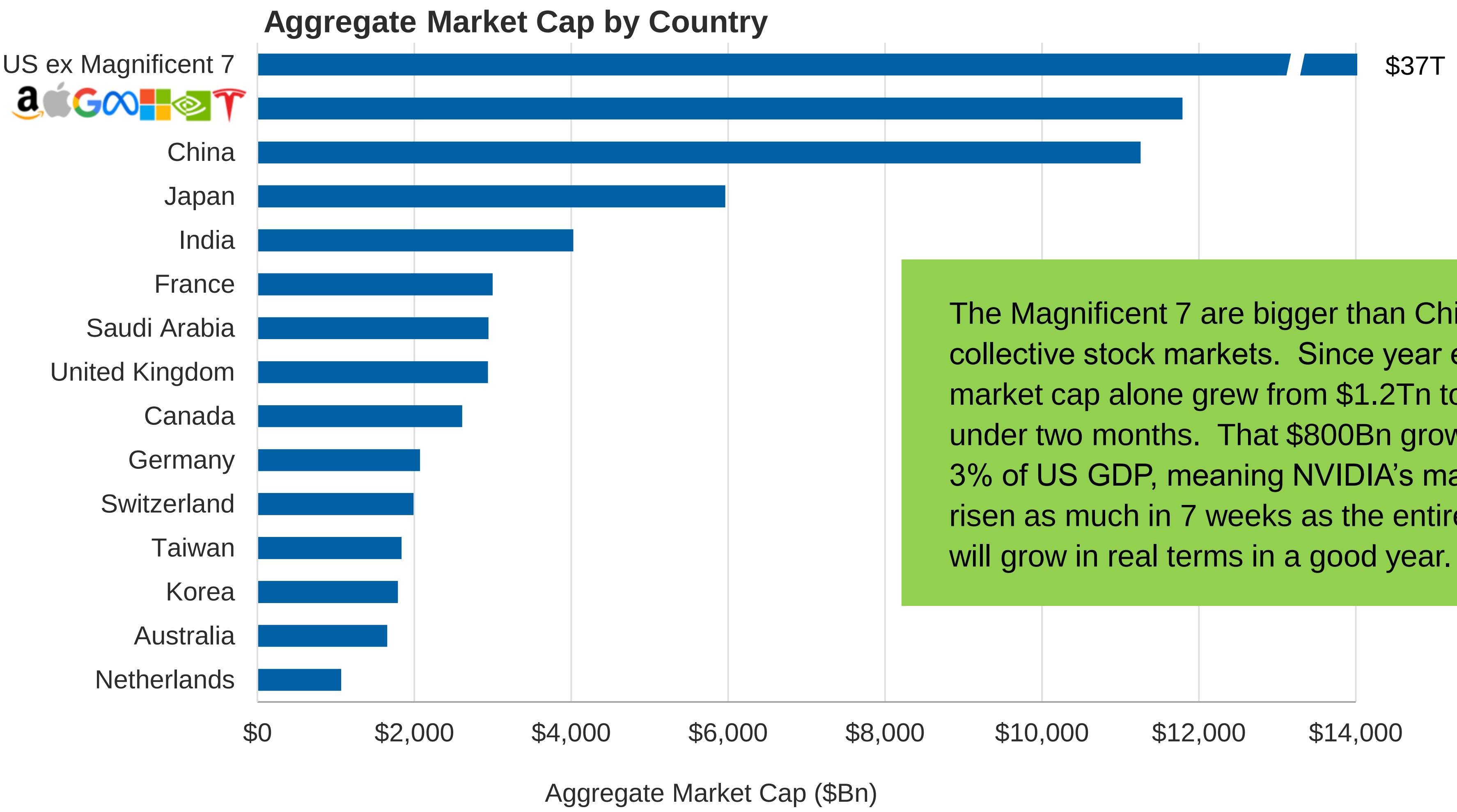


The Magnificent 7
(Apple, Microsoft, Alphabet, Amazon, Nvidia, Tesla and Meta) returned on average 111% in 2023. Their share of the S&P 500 grew from 20% to 27.9% during the year.

Note: Magnificent 7 consist of Apple, Microsoft, Alphabet, Amazon, Nvidia, Tesla and Meta Platforms. Average return is a simple average of all 7 securities.
Source: Research Affiliates, LLC. based on data from Factset. Performance is YTD through 12/31/2023. The SPDR S&P 500 ETF (SPY) is used to approximate market performance and holdings.

How Expensive are the Magnificent 7 as of year-end 2023?

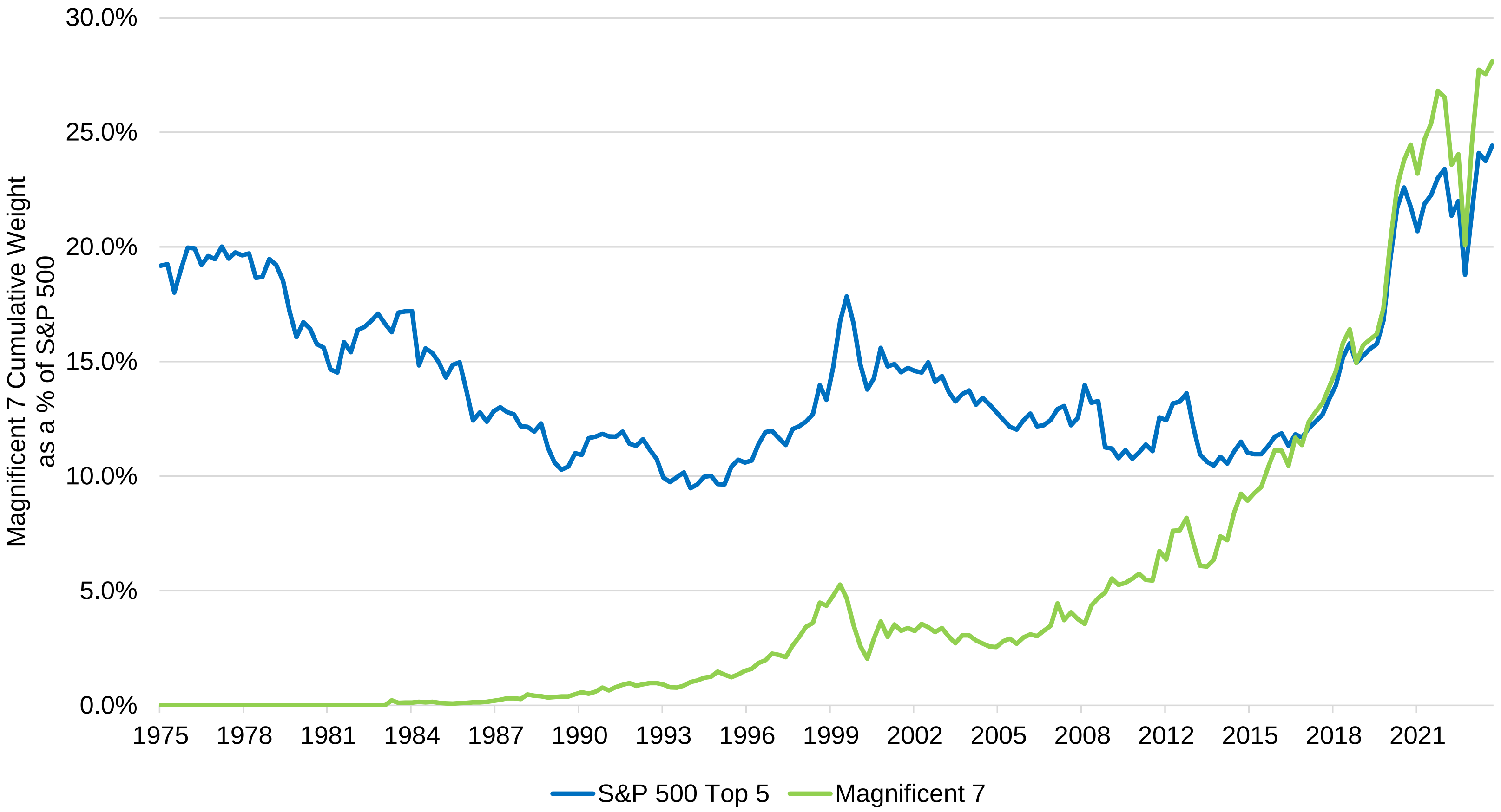
(Amazon, Apple, Google, Meta, Microsoft, Nvidia and Tesla)



The Magnificent 7 are bigger than China or EU collective stock markets. Since year end, NVIDIA's market cap alone grew from $1.2Tn to $2Tn in well under two months. That $800Bn growth is equal to 3% of US GDP, meaning NVIDIA's market value has risen as much in 7 weeks as the entire US economy will grow in real terms in a good year.

Research Affiliates, LLC, based on data from FactSet as of 12/31/2023. Market cap for countries represents the sum of the market caps for their constituents in the Solactive GBS Global Markets All Cap Index. The Magnificent 7 is composed of Amazon, Apple, Google (Alphabet), Microsoft, Meta Platforms, Nvidia and Tesla.

The S&P 500 Is Highly Concentrated in the Top 5 Names!



- This is the most concentrated the S&P 500 has been in 5 names since 1975!
- Top 5 names in 1975: *AT&T, IBM, Exxon, Kodak, and General Motors.*
- Magnificent 7 names: *Facebook, Apple, NVIDIA, Microsoft, Amazon, Tesla, and Google.*

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The index data presented is simulated. The S&P 500 is represented by a simulated Market Cap top 500 index through 8/31/2000 and live data from that point using iShares Core S&P500 ETF. Please see important information at the end of this presentation regarding simulated data. S&P 500 Top 5 names include: Apple, Microsoft, Alphabet, Amazon and Nvidia. As of December 31, 2023. Source: Research Affiliates, LLC, based on Compustat.

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The “Top Dogs” Are Constantly Changing!

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

1980	1990	2000	2010	2020	Q4 2023
IBM	Nippon Tel and Tel	Microsoft	PetroChina	Apple	Apple
AT&T	Bank of Tokyo-Mitsubishi	General Electric	Exxon Mobil	Microsoft	Microsoft
Exxon Mobil	Industrial Bank of Japan	Cisco Systems	Microsoft	Alphabet	Alphabet
Standard Oil	Sumitomo Mitsui Banking	Intel Corporation	ICBC	Amazon	Amazon
Schlumberger	Toyota Motors	Lucent Technologies	Wal-Mart	Meta	Nvidia
Shell	Fuji Bank	Nokia	China Construction Bank	Alibaba Group	Meta
Mobil	Dai-Ichi Kangyo Bank	Nippon Tel and Tel	BHP Billiton	Berkshire Hathaway	Tesla
Atlantic Richfield	IBM	Royal Dutch Shell	HSBC	Tencent	Berkshire Hathaway
General Electric	UFJ Bank	Exxon Mobil	Petrobras	JPMorgan Chase	Eli Lilly
Eastman Kodak	Exxon Mobil	IBM	Apple	Visa	TSMC

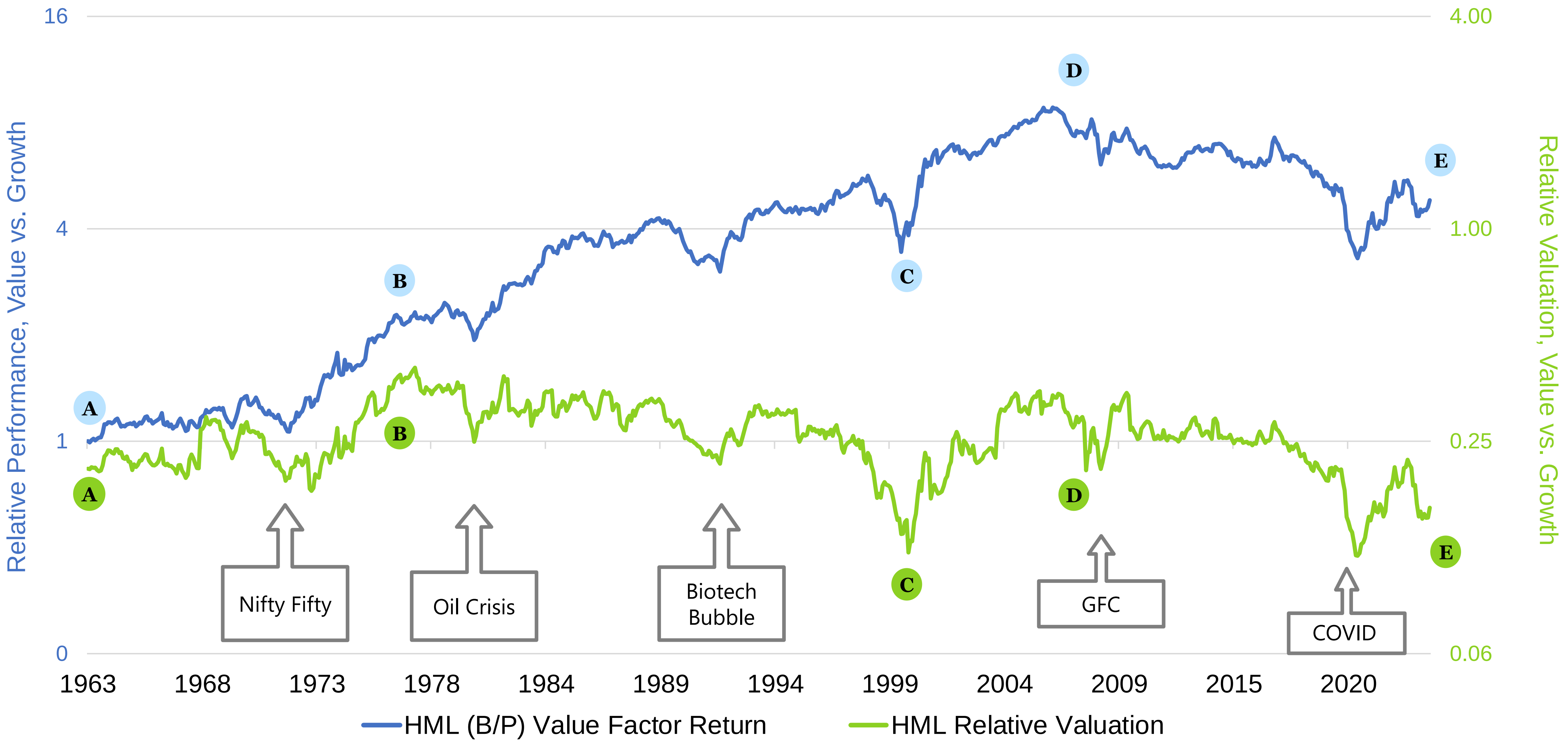
Legend: New Addition | Drops Next Period | Flip-Flop: New Then Drops

US | Europe | Emerging Markets | Japan & Australia

Three of 2020’s “Top Dogs” (Alibaba, JP Morgan Chase & Tencent) have already dropped off the list, and 5 (Amazon, Alibaba, JP Morgan Chase, Meta & Tencent) have underperformed the MSCI World Index by an average of over 14.2% in the last four years.

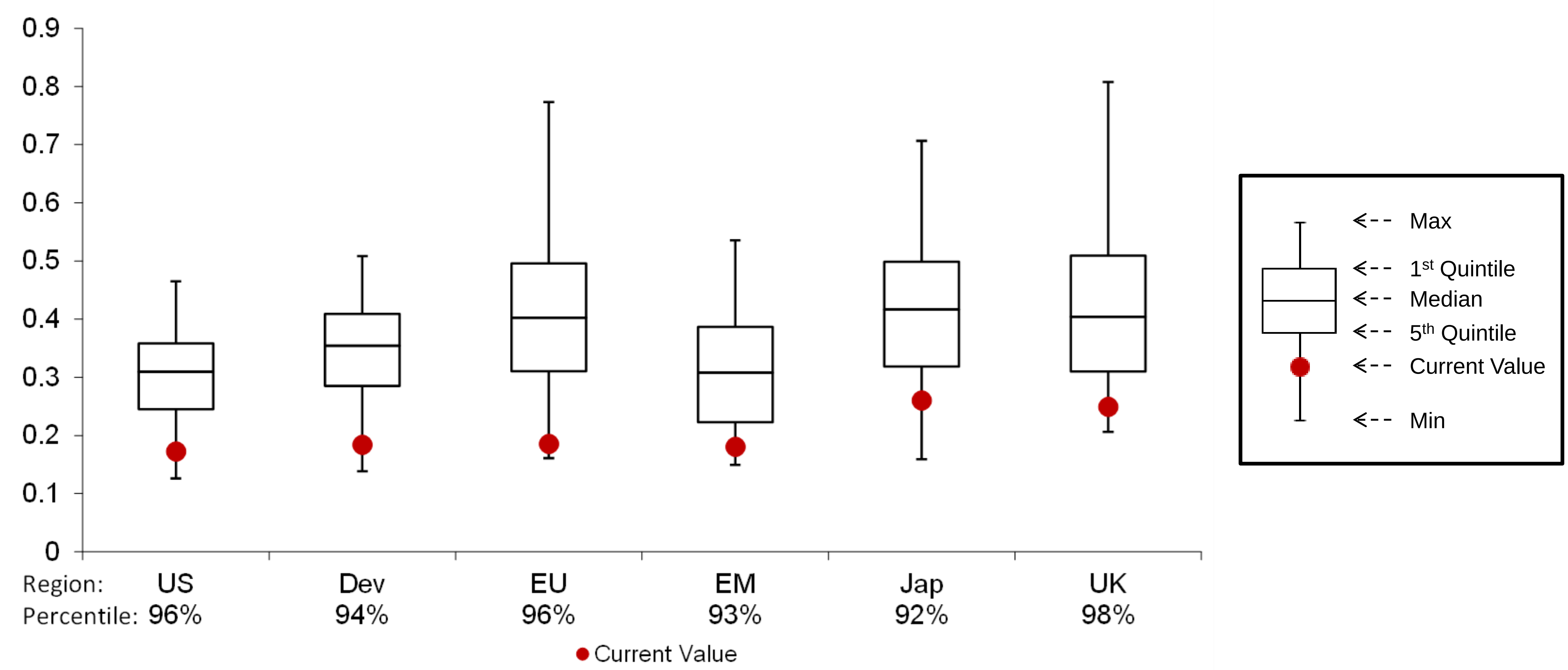
2023 Top dogs as of 12/31/2023.
Source: Research Affiliates, LLC, using data from *Financial Times*, Wikipedia, and Gavekal Research. Rankings shown represent beginning-of-year rankings.

Valuation Has Become Cheaper Since 2006



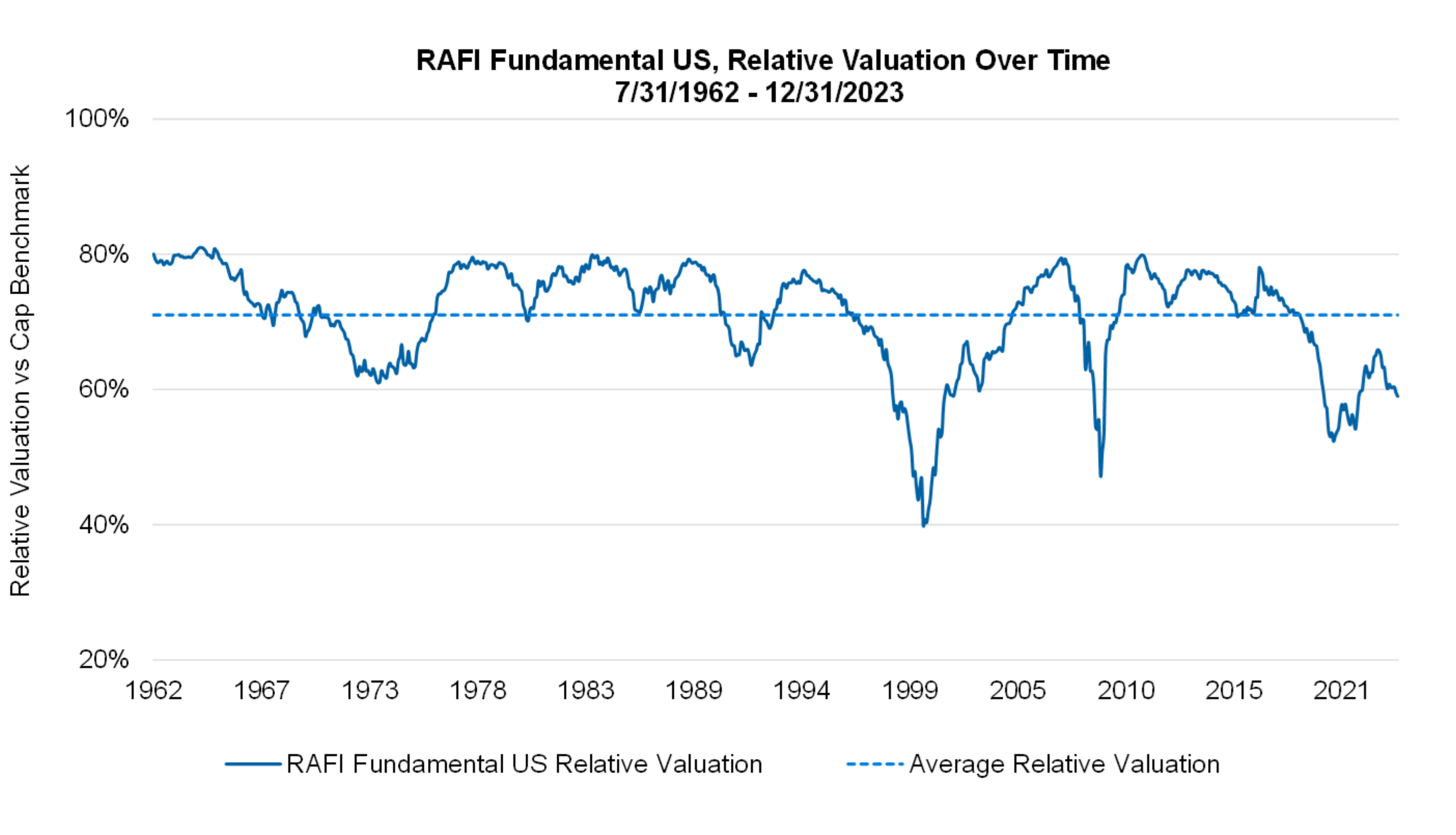
Point A represents the starting point of analysis. Point B represents the discovery of the value premium by Basu. Point C represents the crash of the tech bubble. Point D represents the Global Financial Crisis. Point E is the ending point.
Source: Research Affiliates, LLC, using CRSP and Compustat data. United States, July 1963–December 2023.

Value Is Still Remarkably Cheap Relative to Growth Based on Composite Fundamentals



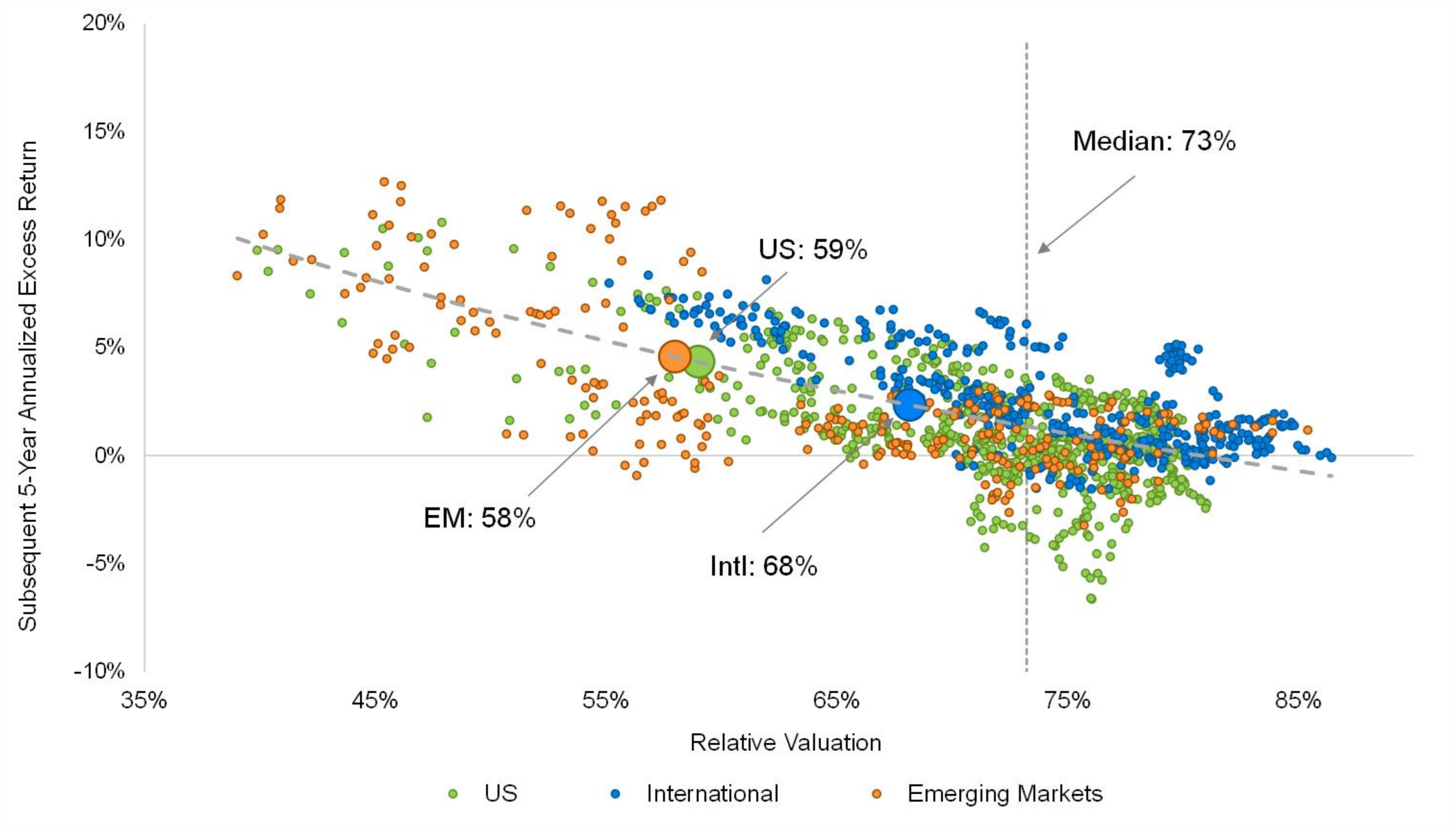
Note: The value-to-growth discount is calculated as the ratio of the price-to-fundamentals ratio of the value portfolio to the corresponding ratio of the growth portfolio. We simulated the value and growth cap-weighted portfolios by defining value as the top 50% of stocks, and growth as the bottom 50% of stocks (by count of the corresponding number of stocks for each region) by valuation composite of P/B, P/S, P/CF and dividend yield. The starting universe consists of the largest stocks by market-cap: 1,000 stocks in each of the United States, Developed Markets, Europe ex UK, and Emerging Markets; 400 stocks each in Australia and Japan; and 100 stocks in the United Kingdom. Value-to-growth discounts are based on year-end price-to-book ratio, year-end price-to-sales value ratio, year-end price-to-cash-flow ratio and year-end-dividend-yield relative to historical levels. Historical period for the United States is 1962–12/2023; for the Developed Markets, Europe, United Kingdom and Japan is 1982–12/2023; and for the EM markets is 1994–12/2023. The box plot shows the minimum and maximum values over the historical period as well as the first and fifth quintiles and the median.
Source: Research Affiliates, LLC, using data from CRSP/Compustat and Worldscope/Datastream.

US Value Tilt Increases When the Market Pays a Larger Premium for Growth



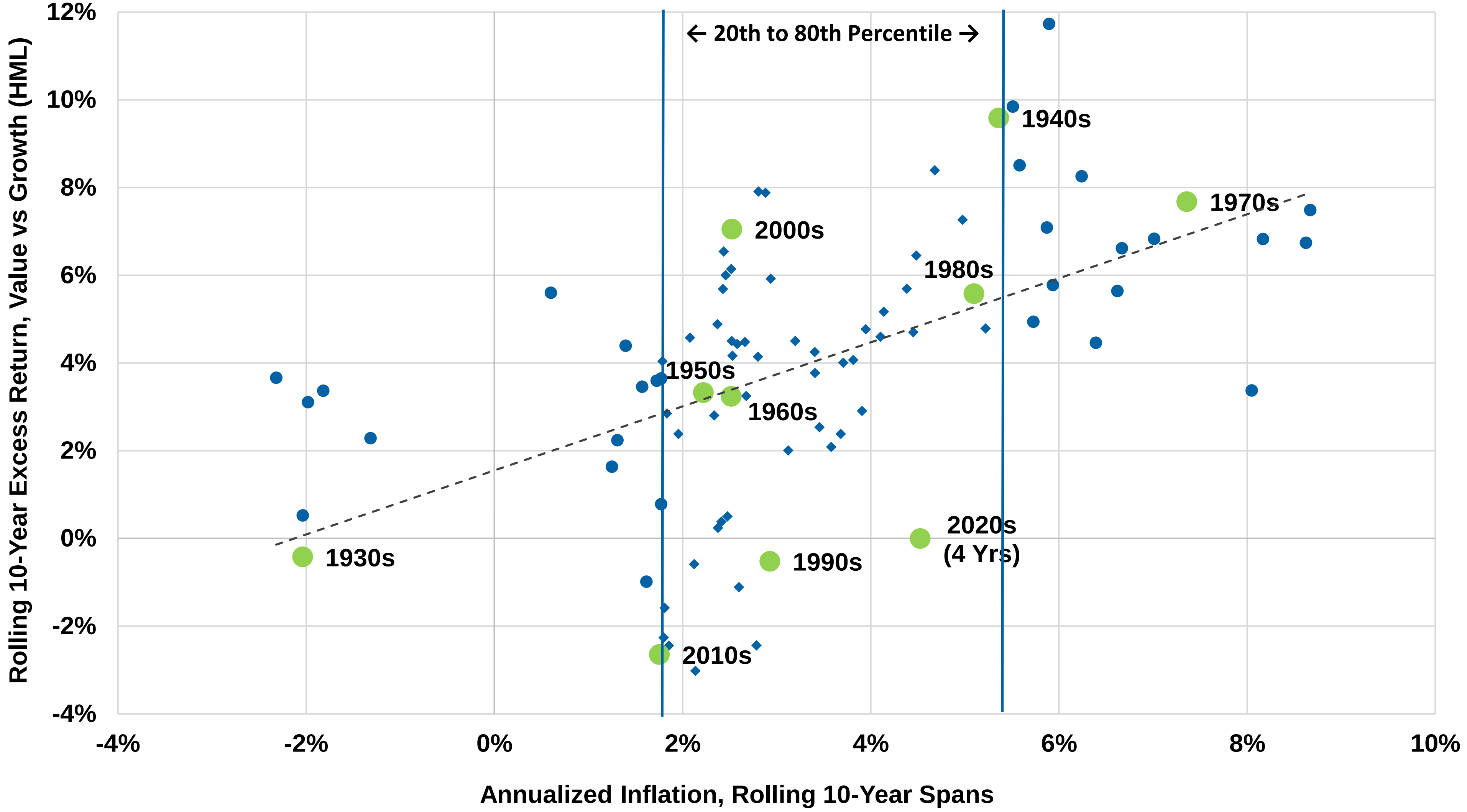
All holdings prior to 1/31/2017 are simulated. Please see important information at the end of this presentation regarding simulated data.
The “Relative Valuation” is the average discount across P/S, P/CF, P/Div, and P/B multiples.
Source: Research Affiliates, LLC, based on data from FactSet, CRSP/CompuStat, and WorldScope/DataStream.

Steep Discounts Suggest Higher Subsequent Returns



As of 12/31/2023. Index returns represent the subsequent five-year excess return for RAFI Fundamental vs Cap. Index returns and characteristics for both RAFI Fundamental and cap-weighted indices are simulated prior to 1/31/2017. Please see important information at the end of this presentation regarding simulated data. Source: Research Affiliates, LLC, based on data from CRSP/CompuStat and WorldScope/DataStream.

Value's Returns Have Increased During Periods of High Inflation



As of 12/31/2023.
SOURCE: Research Affiliates using data from U.S. Bureau of Labor Statistics and Kenneth French.

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