

AI Equity Impact: Already Irrational?

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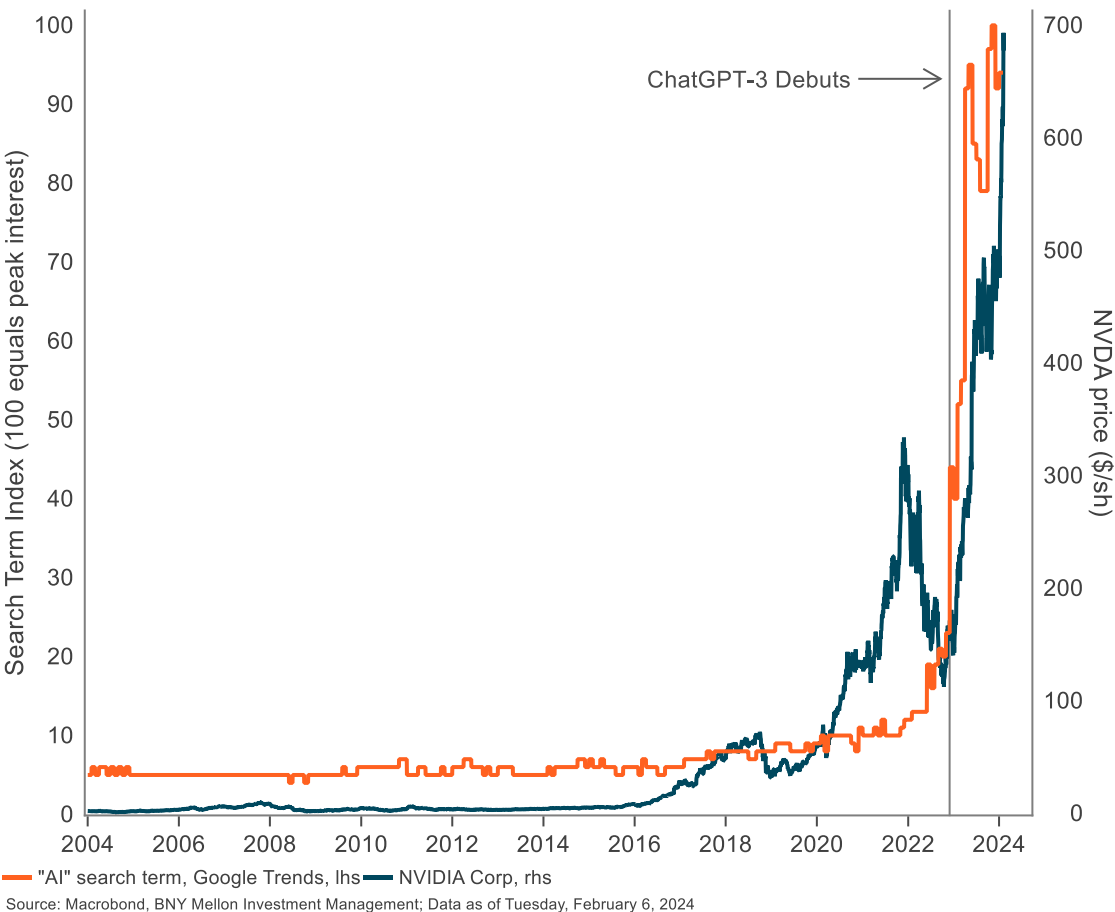
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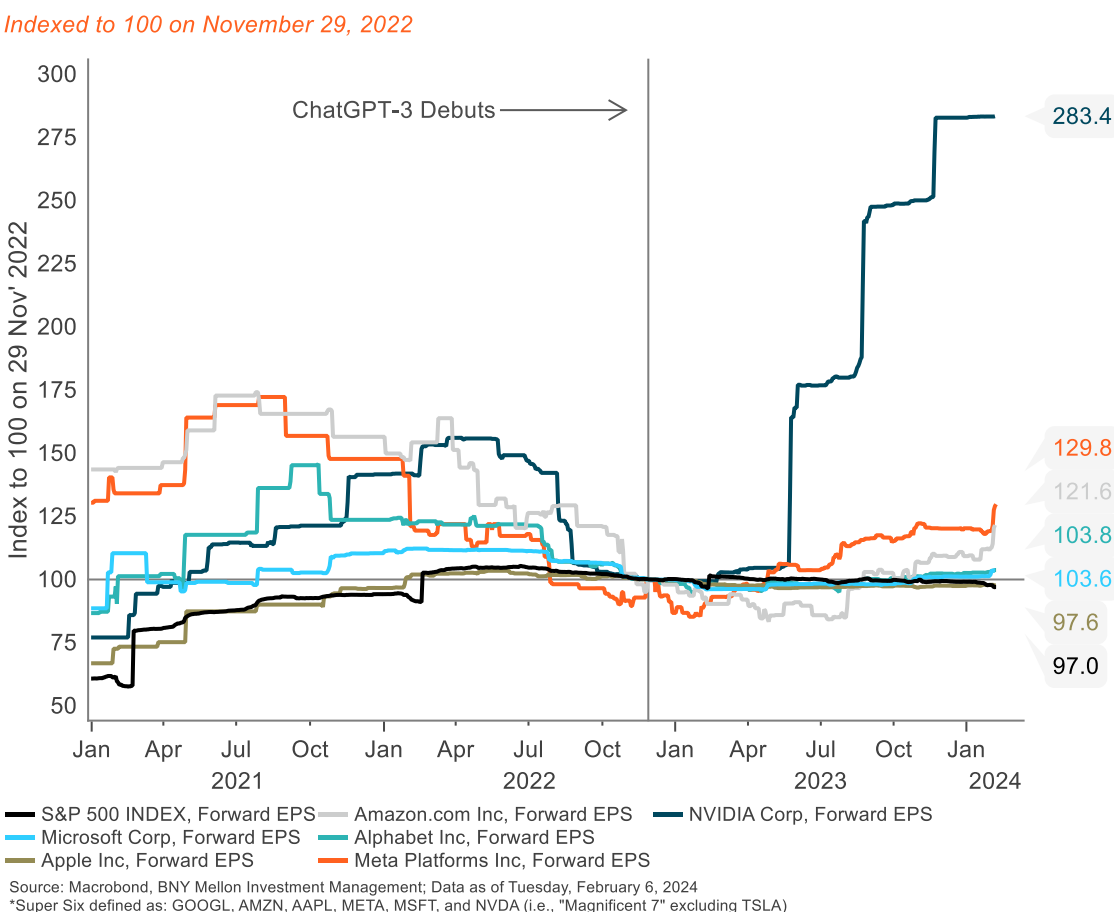
Why does the market care now?

Our Vantage Point: Artificial Intelligence (AI) is not new, but the market’s recognition of the impact is. While some isolated moves might at first blush suggest over-enthusiasm; we think the wider impact of AI is far from being fully reflected in market prices.

Interest in "AI" and NVIDIA's stock price



Super Six* and S&P 500 Forward Earnings before/after Nov' 2022



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Takeaways

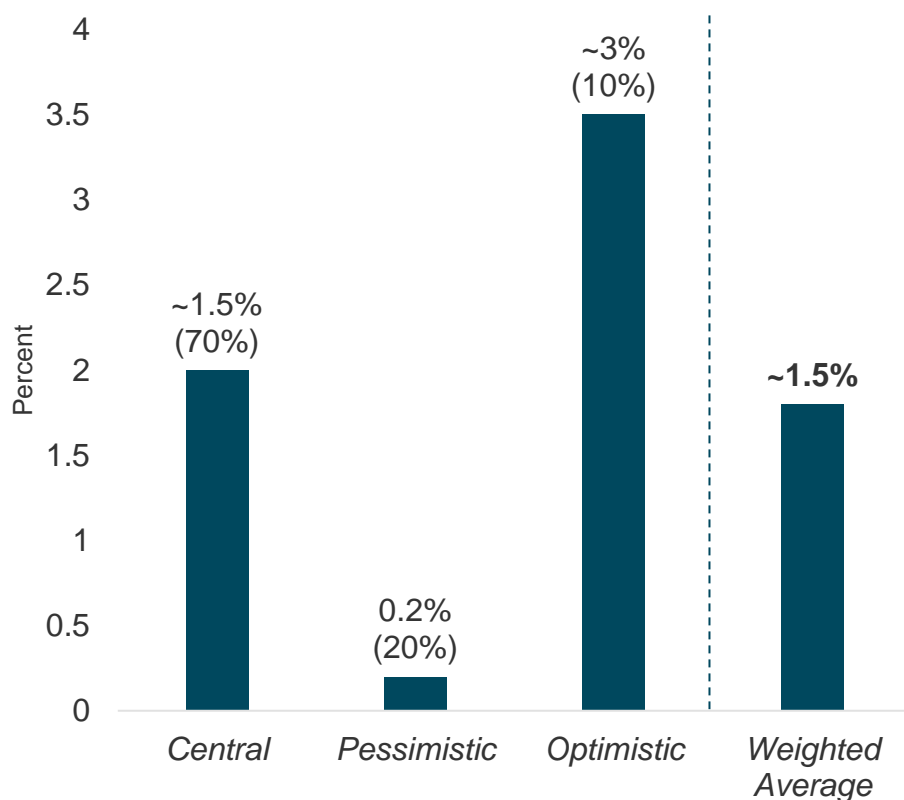
Our Vantage Point: There are six major takeaways from our macro research into AI's impact on equity markets.

- 1 We think that productivity growth will rise (~1.5 percentage points) in the next decade on the back of widespread AI adoption
- 2 The S&P 500 may surge well over 6,500 in the next few years as AI benefits become clearer and the market prices more of the impact
- 3 AI explains less than half of the surge in the S&P 500 since November '22 and not all the strong returns in the Mag7* are AI driven (only ~60%)
- 4 Rally since Nov '22 is significant, but not yet unsustainable; realized returns are strong, but not extreme, suggesting favorable forward returns
- 5 Longer-term multiples do not indicate extreme valuations and EPS expectations aren't particularly high compared to history
- 6 *Every major innovation since the 17th century led to the formation of a market bubble. We think the probability of a bubble is quite elevated.*

Background Research

Our Vantage Point: We think that productivity growth will rise (~1.5 percentage points) in the next decade on the back of widespread AI adoption.

Impact of Artificial Intelligence (AI) on Productivity growth - Scenarios (Probability)



Source: BNY Mellon Investment Management. Data as of September 2023.

1

Global productivity growth was low in recent decades, leading many to conclude that future productivity growth will also be disappointing. However, historically past weakness in productivity growth tells us little about the future.

2

Generative AI could spur a new industrial revolution as it can automate and augment many non-routine tasks less impacted by previous innovations. Like the steam engine, electrification, and computers, AI could fundamentally reshape industrial organization and work.

3

AI is advancing quickly, and in many tasks its performance is already either close or above that of the 'average' human. Generative AI has the potential to produce inaccurate results, but model advancement and complementary technology can help.

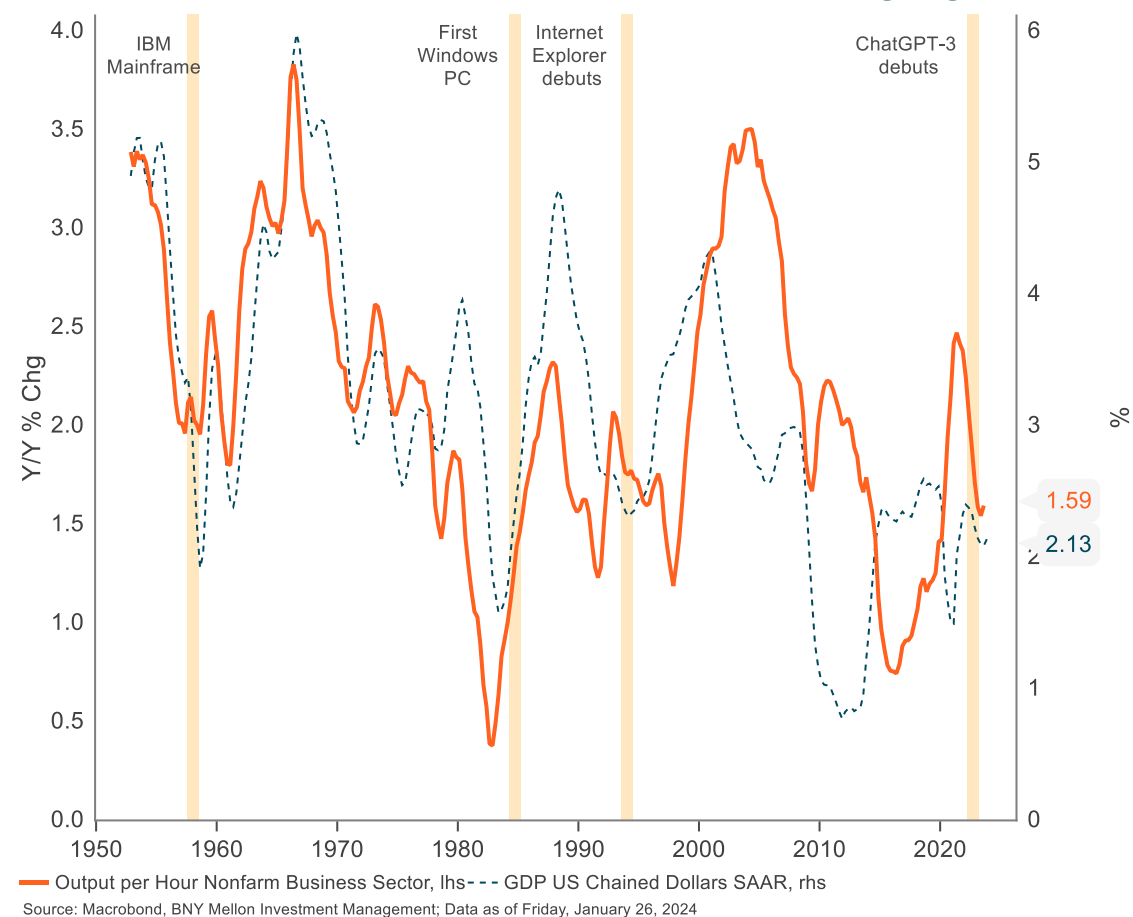
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We estimate the impact of AI on productivity growth is likely to be substantial. There are also other reasons to be optimistic about productivity growth, namely the impact of a structurally tighter labor market and higher interest rates.

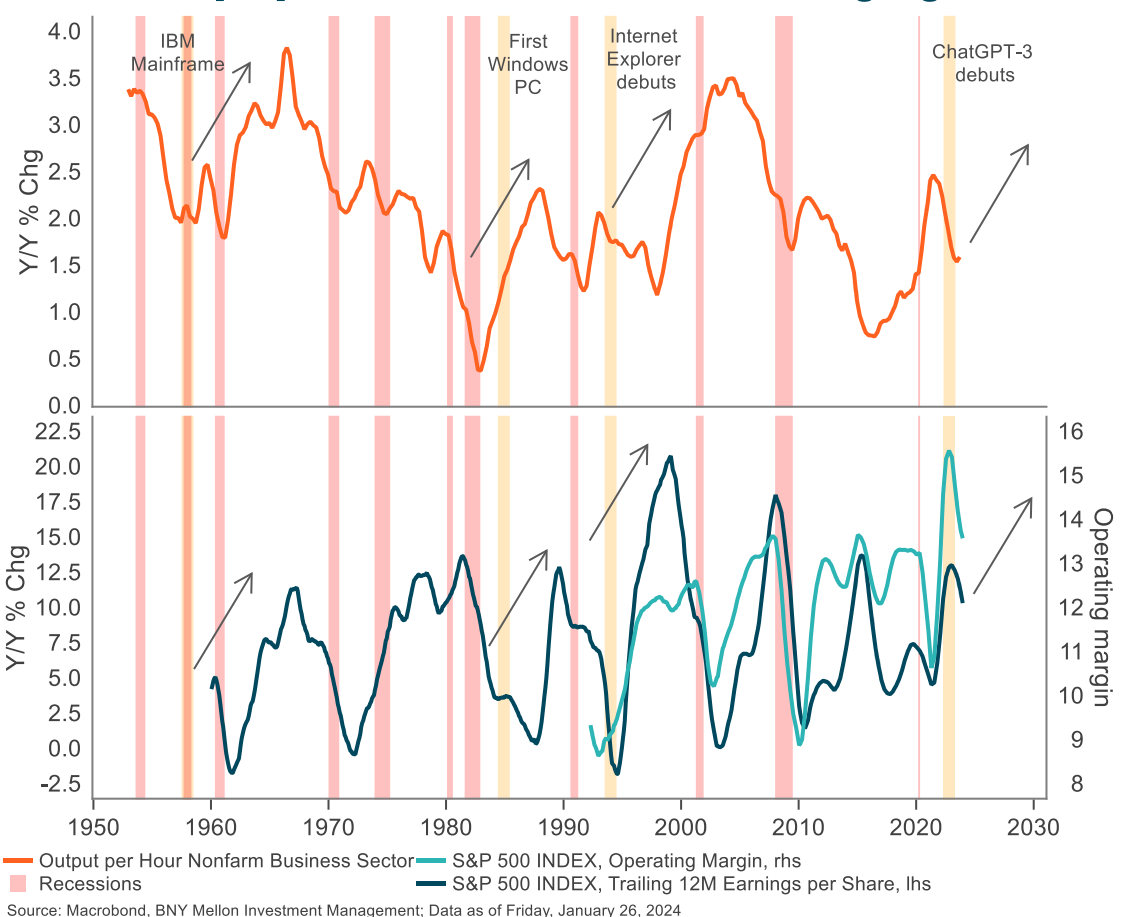
Earnings and productivity are positively related, albeit noisily

Our Vantage Point: Earnings growth and operating margins are positively correlated to productivity growth (a key driver of GDP growth), albeit noisily. Business cycles complicate seeing the clean intuitive relationship.

Business Output per Hour and GDP Growth (5Yr moving avg)



Business Output per Hour and EPS Growth (5Yr moving avg)



Market may surge as AI benefits become clearer

Our Vantage Point: Conditional on avoiding a near-term downturn, we estimate that the S&P 500 may surge well over 6,500 in the next few years, much sooner than many expect, as the market more fully price in the AI impact. We estimate this based on an intuitive risk premium-based valuation model, which we calibrate using three scenarios for how macro and markets will be impacted by AI adoption.

Annualized two-year return - Sensitivity Analysis

Assumes 4% risk-free rate **Box Average = 17%**

Long-term Expected Earnings Growth					
ERP	3.0%	3.5%	4.0%	4.5%	5.0%
2.5%	25%	38%	56%	82%	126%
3.0%	16%	25%	38%	56%	82%
3.5%	9%	16%	25%	38%	56%
4.0%	3%	9%	16%	25%	38%
4.5%	-2%	3%	9%	16%	25%
5.0%	-6%	-2%	3%	9%	16%
5.5%	-9%	-6%	-2%	3%	9%
6.0%	-12%	-9%	-6%	-2%	3%

Source: BNY Mellon Investment Management; Data as of February 15, 2024

Risk Premium-based Valuation Model across three scenarios

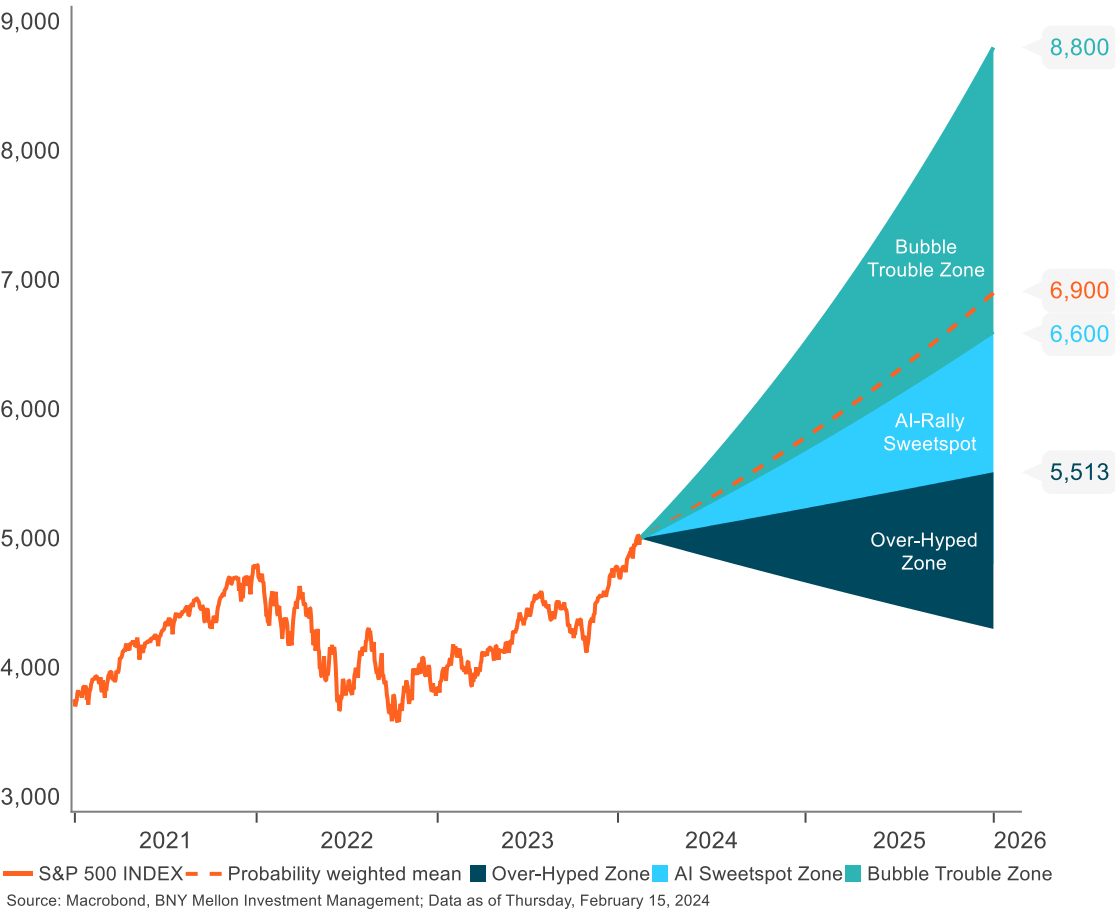
	Bubble Trouble	Most Likely	Over Hyped
Scenario Probability	30%	50%	20%
Expected "Risk-Free" Rate (Rf)	4.0%	4.0%	3.0%
Long-term Avg Earnings Growth (g)	4.5%	4.0%	3.5%
Equity Risk Premium (ERP)	3.5%	4.0%	6.0%
Earnings Yield (EY = E(Rf) - E(g) + ERP)	3.0%	4.0%	5.5%
Estimated PE = 1/EY	33x	25x	18x
'25 Year-End based on cons. EPS (Y+1)	8,800	6,600	4,800
Annualized Two-year return	38%	16%	-2%
2025 YE Probability Weighted Estimate	6,900		

Bubble Trouble	Most Likely	Over Hyped
<ul style="list-style-type: none">Higher assumed long-run earnings growth (nominal GDP = 2.5% real + 2% inflation)Extremely compressed equity risk premium (i.e., very high price/earnings ratio)Excess earnings yield (difference between equity earnings yield and expected risk-free rate) turns negative......possibly reaching depths last seen in previous bubbles (-1.5%), such as 2000's Dot-Com Bubble	<ul style="list-style-type: none">Solid long-run earnings growth (nominal GDP = 2% real + 2% inflation)ERP compresses less aggressively, but falls below longer-run ERP estimatesExcess earnings yield falls to near zero, but doesn't turn negativeIn other words, the market becomes very expensive but avoids becoming a bubble that would inevitably burst	<ul style="list-style-type: none">Weaker-than-average long-run earnings growth (nominal GDP = 1.5% real + 2% inflation)Lower expected risk-free rates as growth underwhelms and long-term growth fails to achieve historical potential growth (i.e., 2% real)ERP widens and excess earnings yield remains positive, near current levels, and enthusiasm for AI fizzles out and fails to deliver hoped-for productivity boost; regulation may impede wider-adoption

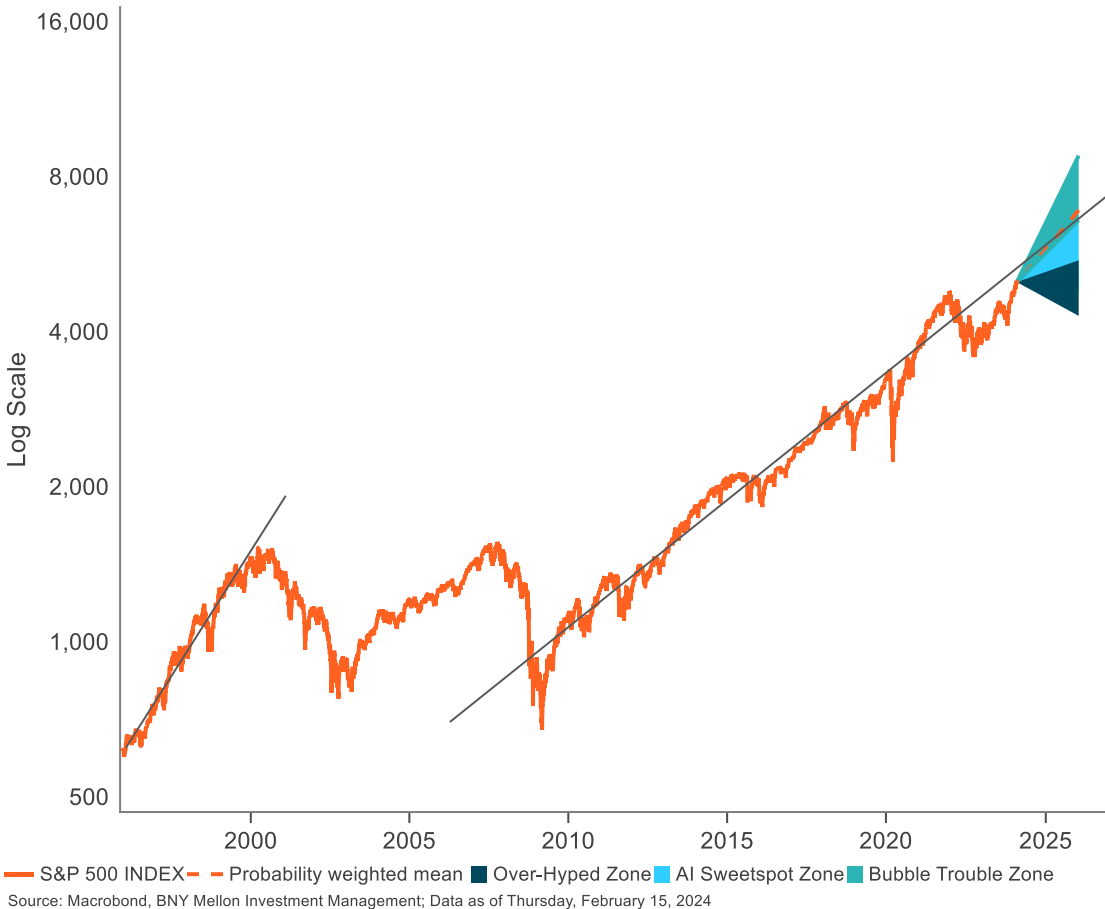
There are risks of a bubble forming, but also an over-hyped fizzle

Our Vantage Point: Given significant uncertainty around AI adoption/impact, it's more intellectually honest to focus on probability weighted ranges for the equity outlook, in other words, a fan chart. We think an "AI-rally Sweetspot" lies between 5,500 and 6,600 through 2025.

S&P 500 Fair Value Estimates based on AI Scenario Impact



S&P 500 Fair Value Estimates based on AI Scenario Impact



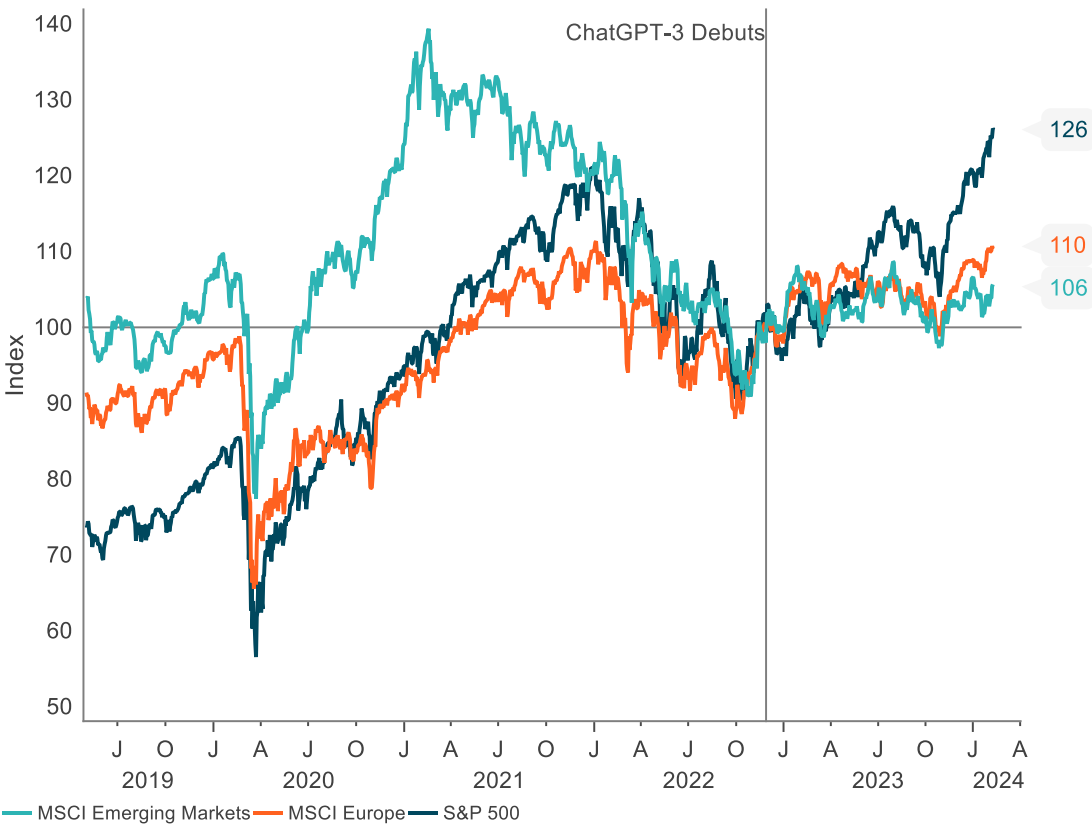
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AI explains less than half of the surge in the S&P 500...

Our Vantage Point: Contrary to popular belief, the performance of the S&P 500 since late-2022 is not exclusively an AI story, as less than half of the return over the period can be related to optimism around AI. But to be clear, this boost was still large and a major driver of the outperformance of US equities versus global indices.

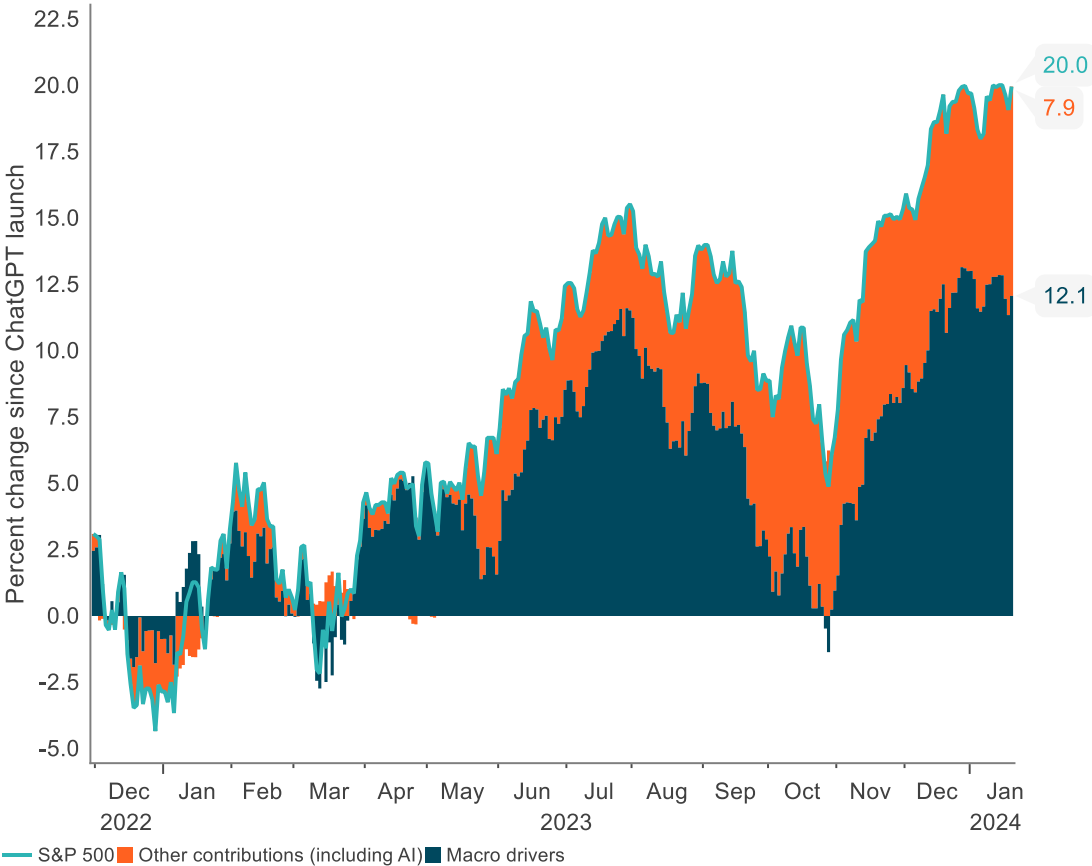
S&P 500 vs. MSCI Europe and Emerging Markets

Indexed to 100 on November 29, 2022



Source: Macrobond, BNY Mellon Investment Management; Data as of Thursday, February 8, 2024

Cumulative S&P 500 returns by driver



Source: Macrobond, BNY Mellon Investment Management; Data as of Friday, February 2, 2024

What we refer to as 'macro drivers' are market's expectations of short-term growth, real interest rates and inflation. We extract them based on a method to describe variability among observed variables in terms of fewer underlying drivers

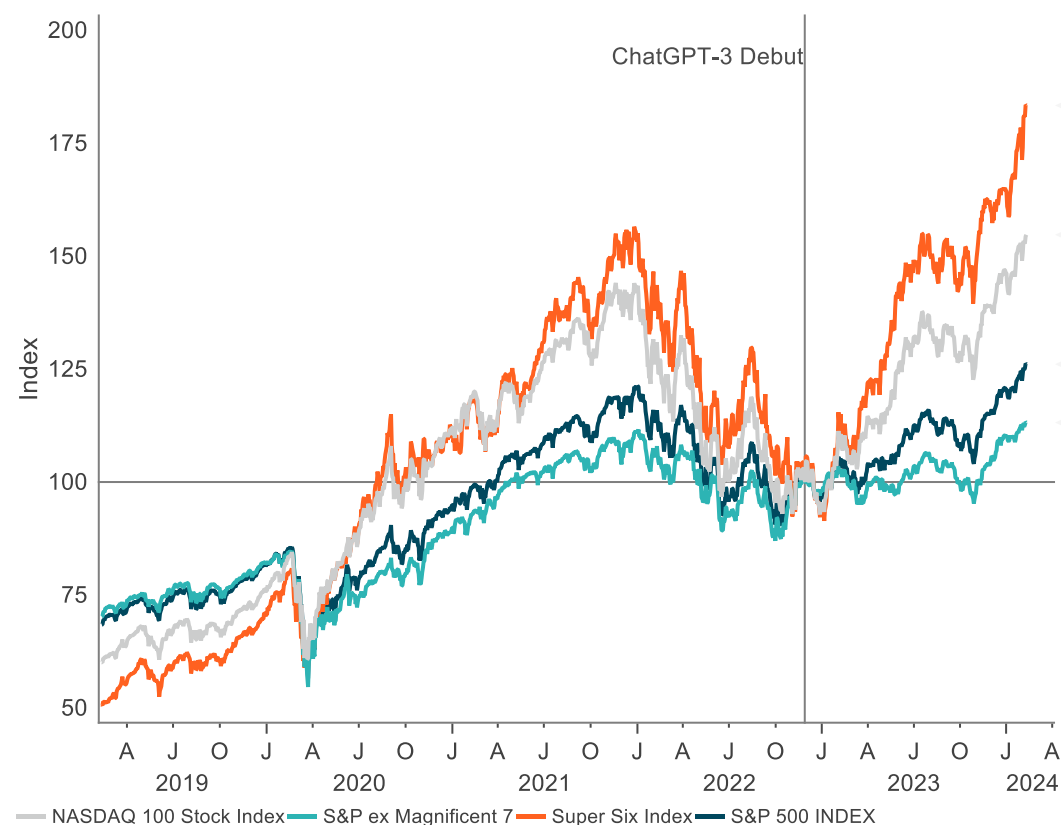
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...And not all the strong returns in the Mag7 are AI driven

Our Vantage Point: We estimate that roughly 60% of the return likely derived from AI enthusiasm, but an underappreciated portion of the return is explained by beneficial macro driver developments (i.e., better near-term growth, lower rates, lower inflation).

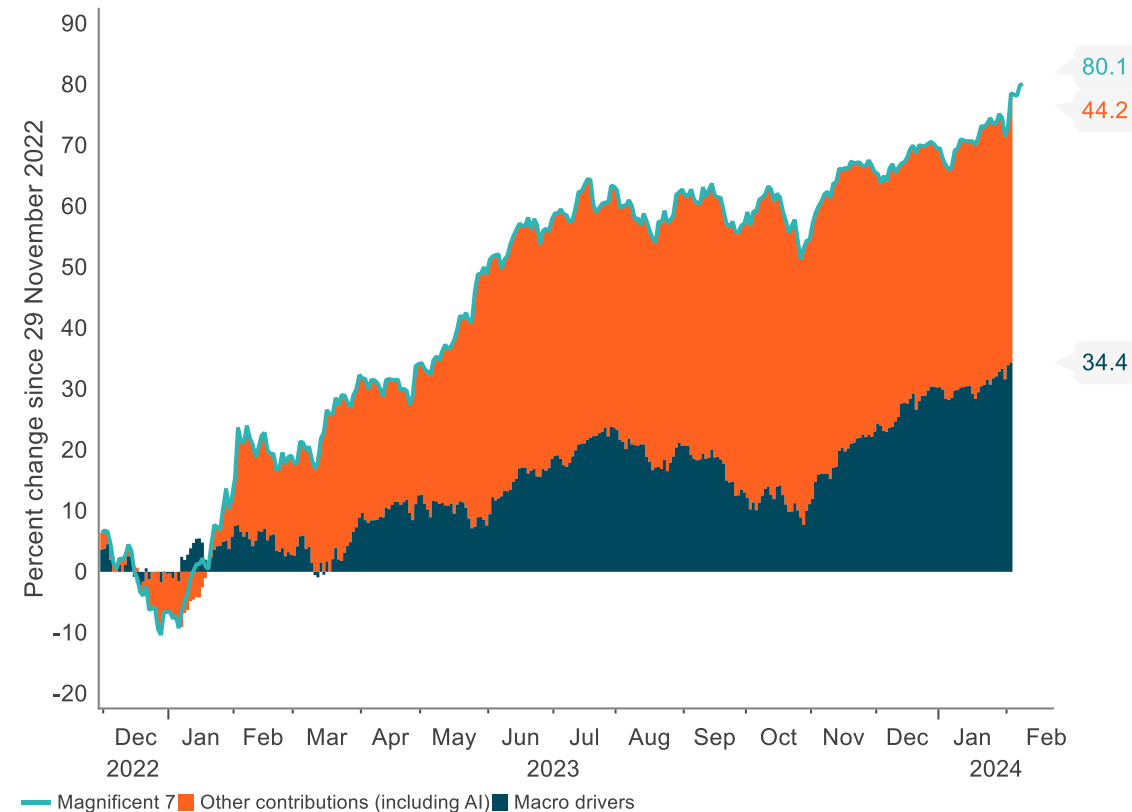
Super Six* vs. S&P 500 et al

Indexed to 100 on November 29, 2022



Source: Macrobond, BNY Mellon Investment Management; Data as of Thursday, February 8, 2024
*Super Six defined as: GOOGL, AMZN, AAPL, META, MSFT, and NVDA (i.e., Mag7 less TSLA); market cap-weighted, author's calculation

Cumulative change in MAG7 - macro factor decomposition

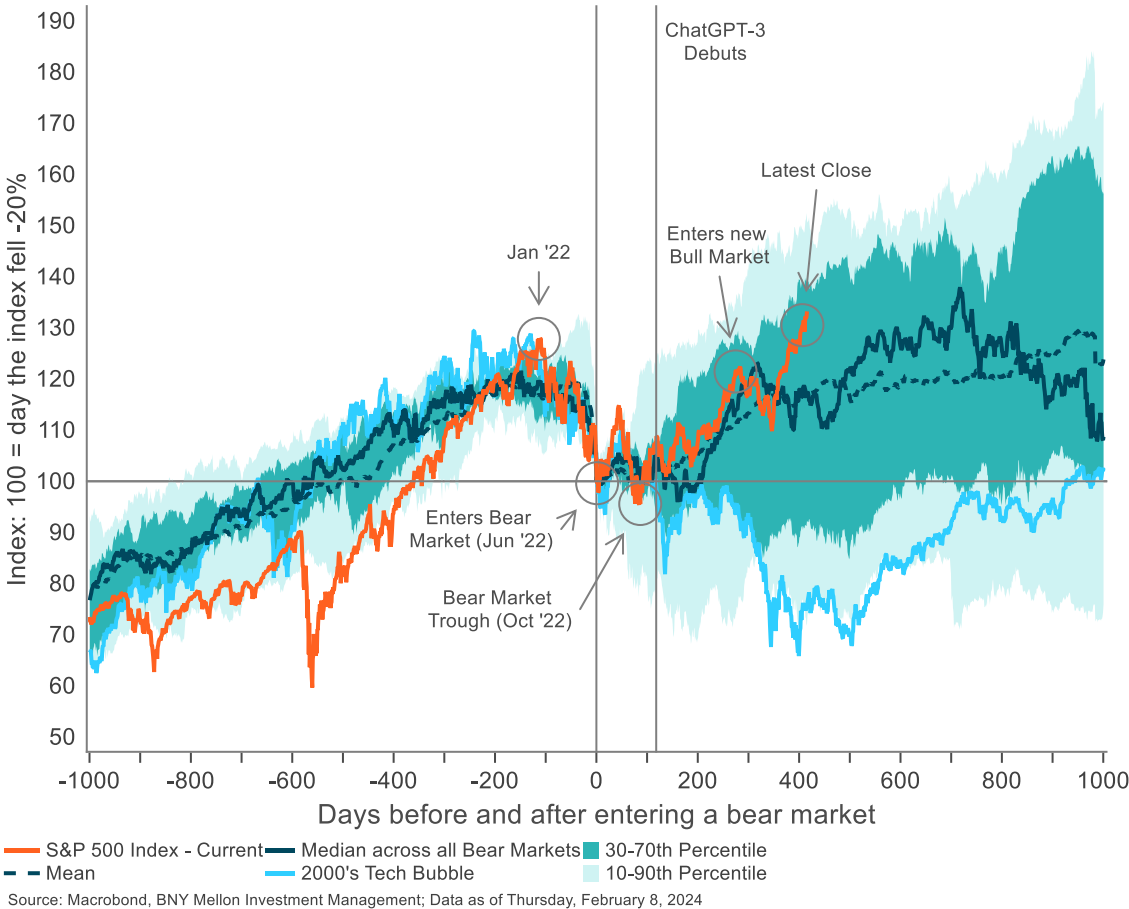


Source: Macrobond, BNY Mellon Investment Management; Data as of Thursday, February 8, 2024
The Bloomberg Magnificent 7 Price Return Index is an equal-weighted equity benchmark consisting of a fixed basket: GOOGL, AMZN, AAPL, META, MSFT, NVDA, and TSLA.
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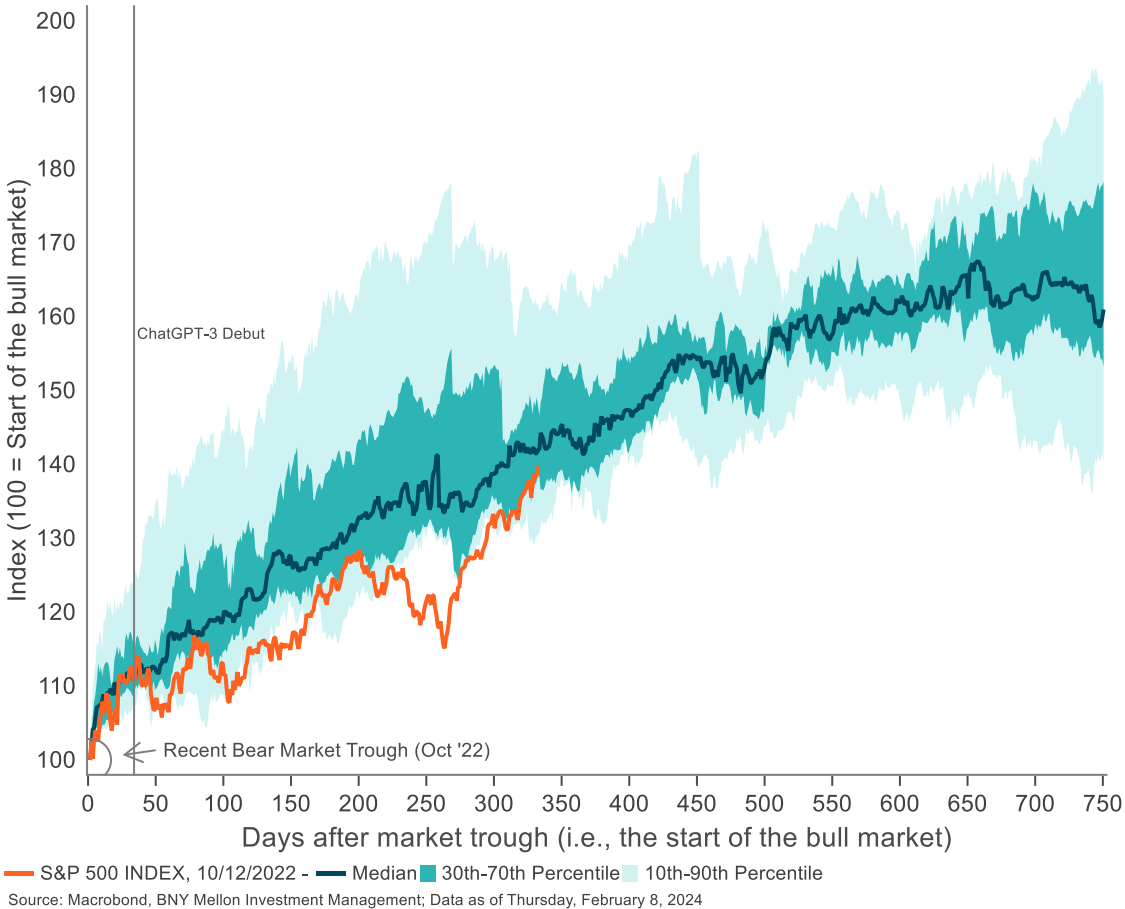
AI-fueled a strong bear market rebound, but the bull is average

Our Vantage Point: AI supported a vigorous market rebound from the recent bear market, making it stronger than historical averages (chart left), however compared to historical bull markets, the current performance is surprisingly average (chart right), which suggests in simple terms that the rally does not appear excessive.

S&P 500 Index before and after entering a Bear Market



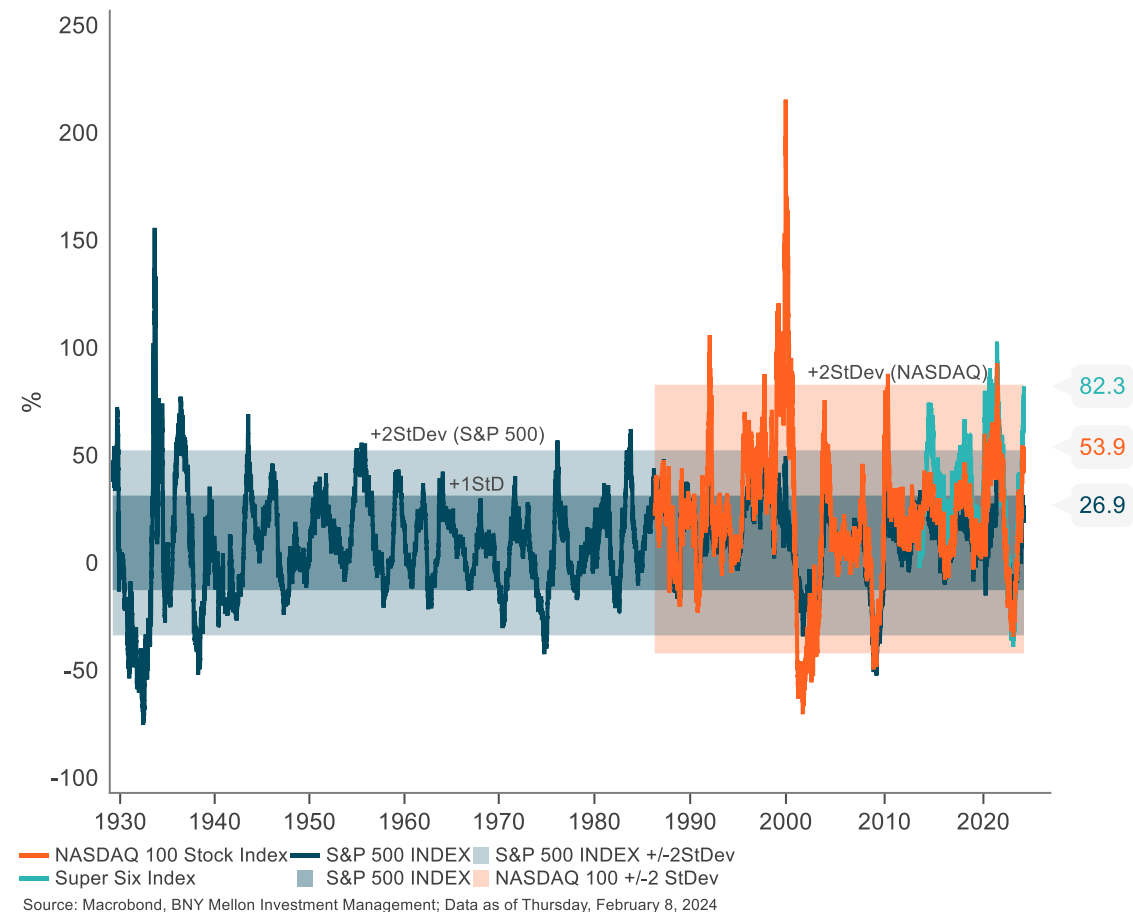
S&P 500 INDEX Bull Markets since 1950



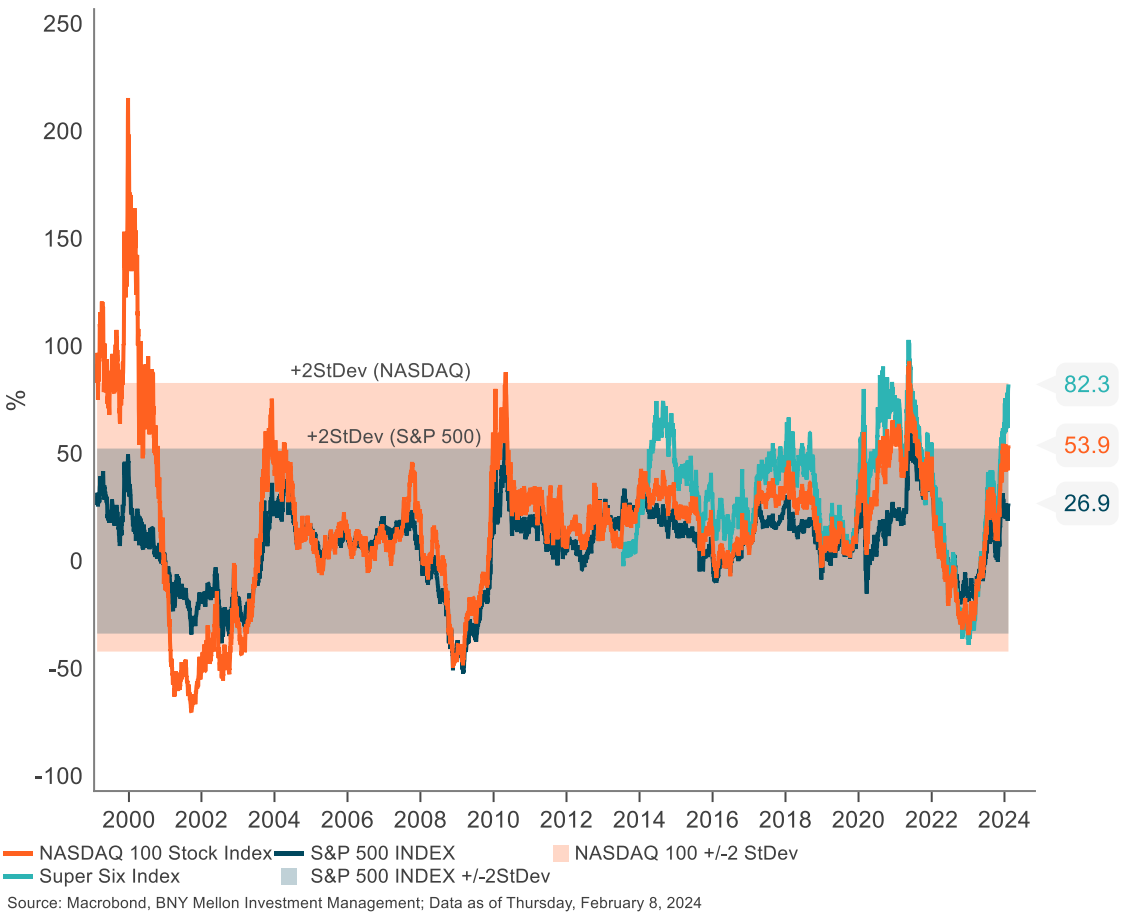
Rally since Nov '22 is significant, but not yet unsustainable

Our Vantage Point: The market's surge since the launch of ChatGPT-3 (about 14 months ago) does not appear extreme when compared to the long history of the market. In fact, the periodic returns of the S&P and Nasdaq both lie well below the extreme tails (+2StDev). This provides further evidence that the rally, when controlling for length of time, is strong, but not concerningly extreme.

Rolling 14 Month Return since 1929



Rolling 14 Month Return since 2000



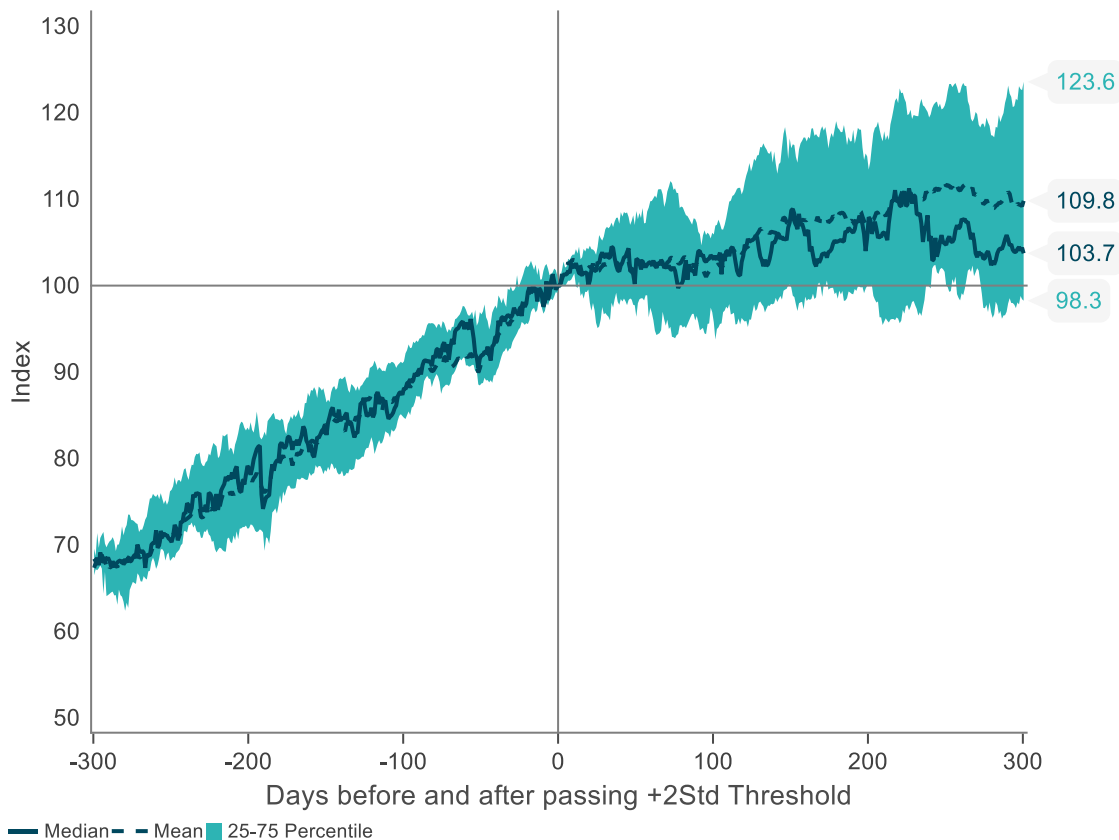
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Strong and extreme moves are not the same thing

Our Vantage Point: History suggests forward returns may be weaker after strong rallies over a short period, but for both extreme rallies (+2Std) and simply strong rallies (+1Std), the market generally has positive forward returns, albeit there is more variability after extreme rallies. The current rally passed 1StdDev in December 2023.

S&P 500 INDEX before and after +2Std 14-month returns

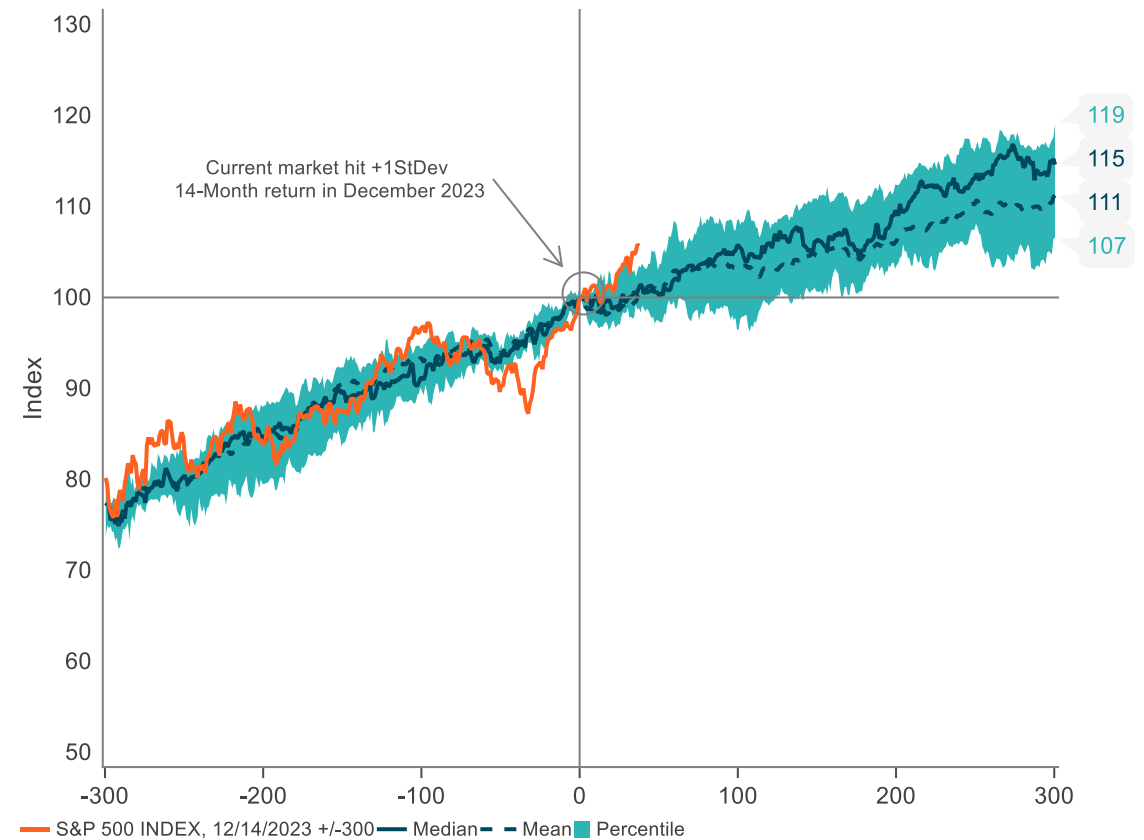
Includes only +2Std moves



Source: Macrobond, BNY Mellon Investment Management; Data as of Tuesday, February 6, 2024

S&P 500 INDEX before and after +1Std 14-month returns

Includes only +1Std moves that did not subsequently become +2Std moves

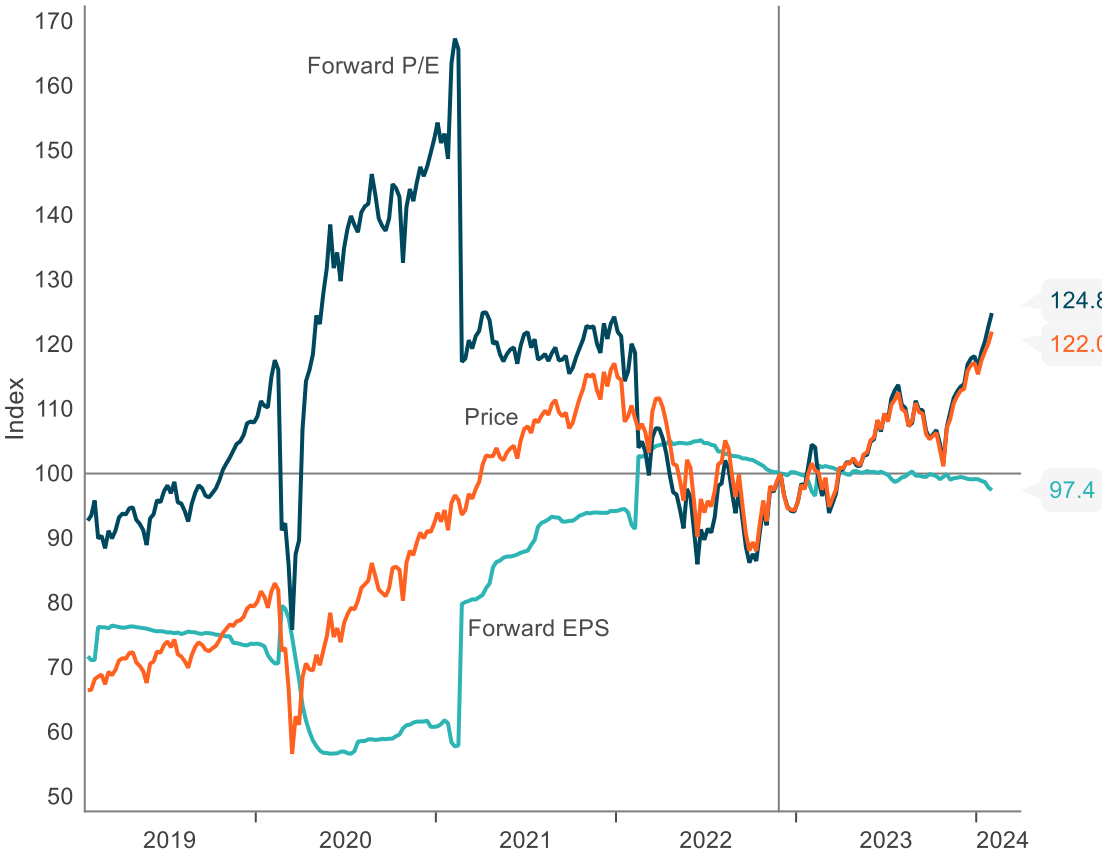


Source: Macrobond, BNY Mellon Investment Management; Data as of Thursday, February 8, 2024

A bottom-up view suggests the gains are supported

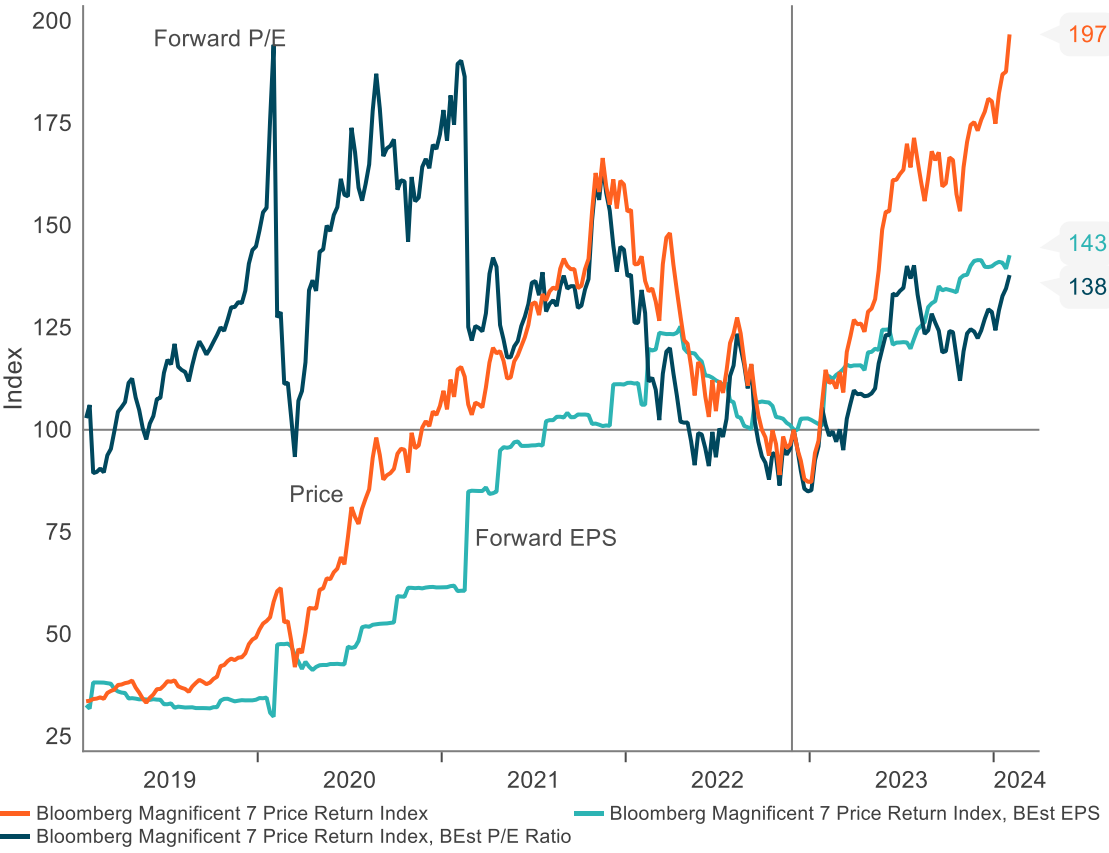
Our Vantage Point: The broader market rose on multiple expansion and flat earnings since November 2022; however, the narrative underpinnings were concentrated in a handful of names that realized gains on a combination of richer valuations AND stronger earnings expectations. But can valuations be sustained and/or push even richer from here?

S&P 500 rebased Index, Forward PE, and Forward EPS



Source: Macrobond, BNY Mellon Investment Management; Data as of Friday, February 2, 2024

Mag7 rebased Index, Forward PE, and Forward EPS*



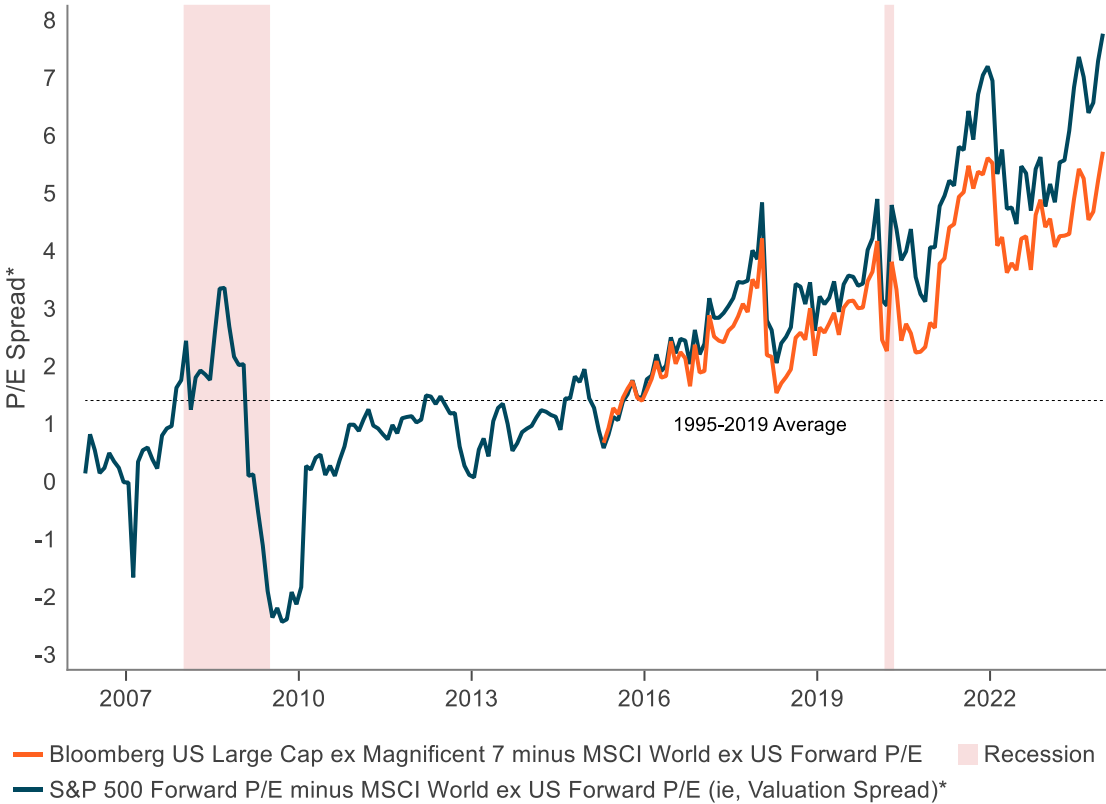
Source: Macrobond, BNY Mellon Investment Management; Data as of Thursday, February 8, 2024
The Bloomberg Magnificent 7 Price Return Index is an equal-weighted equity benchmark consisting of a fixed basket: GOOGL, AMZN, AAPL, META, MSFT, NVDA, and TSLA

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Are the rich (valuations) unsustainable in the near term?

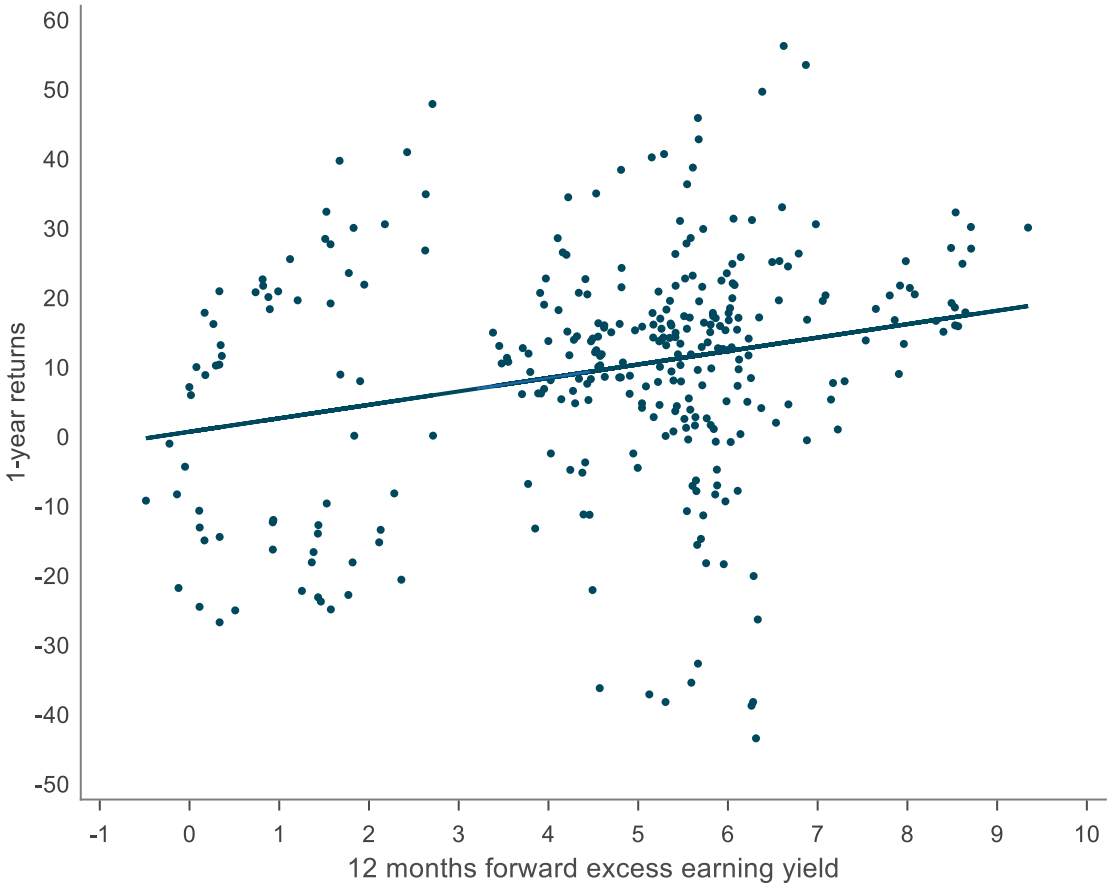
Our Vantage Point: US equity is clearly expensive relative to international equity and bonds, which suggests unfavorable relative returns in medium-term. In fact, even excluding Magnificent 7*, US equities are not cheap. But critically, valuations are a poor predictor of near-term performance. In other words, valuations can richen even from high starting levels.

US Equity vs. International Equity (ex US) Valuations



Source: Macrobond, BNY Mellon Investment Management
*Magnificent 7 companies defined as: GOOGL, AMZN, AAPL, META, MSFT, NVDA, and TSLA
Data as of Wednesday, February 7, 2024

Excess earning yield (12m fwd) & Subsequent Returns (1 year)



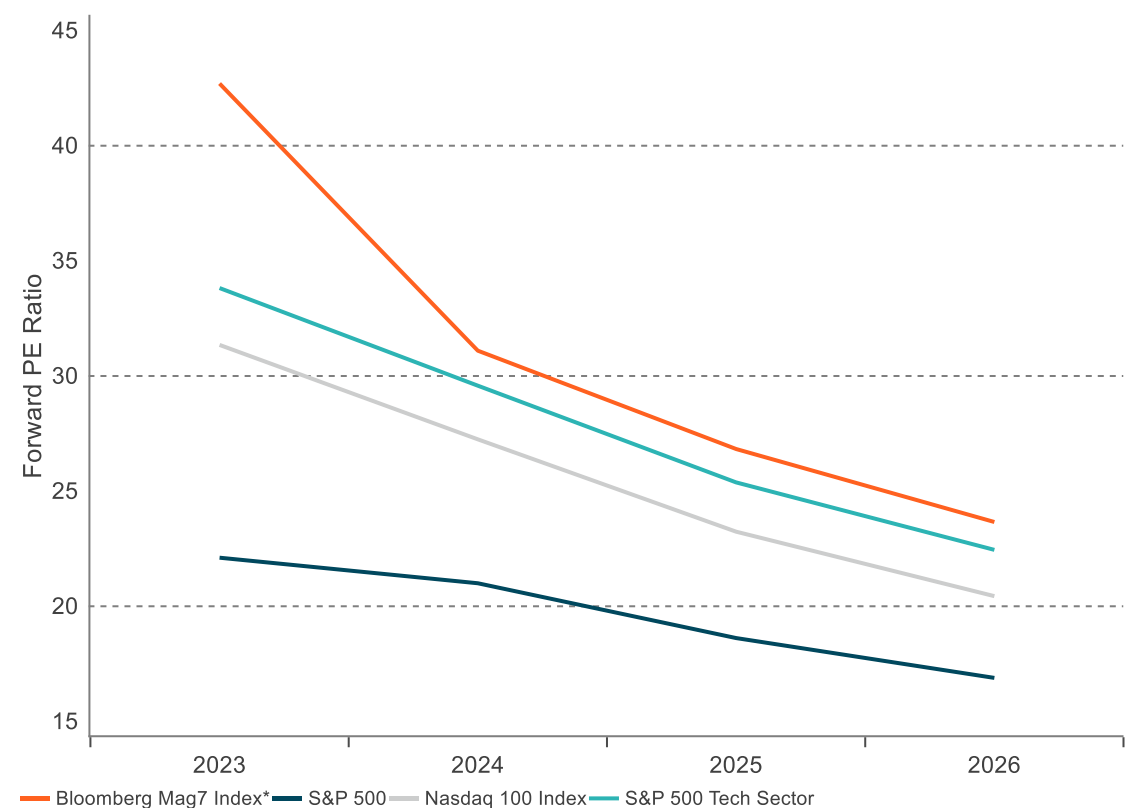
Source: Macrobond, BNY Mellon Investment Management; Data as of Wednesday, February 7, 2024

Longer-term multiples do not suggest extreme valuations...

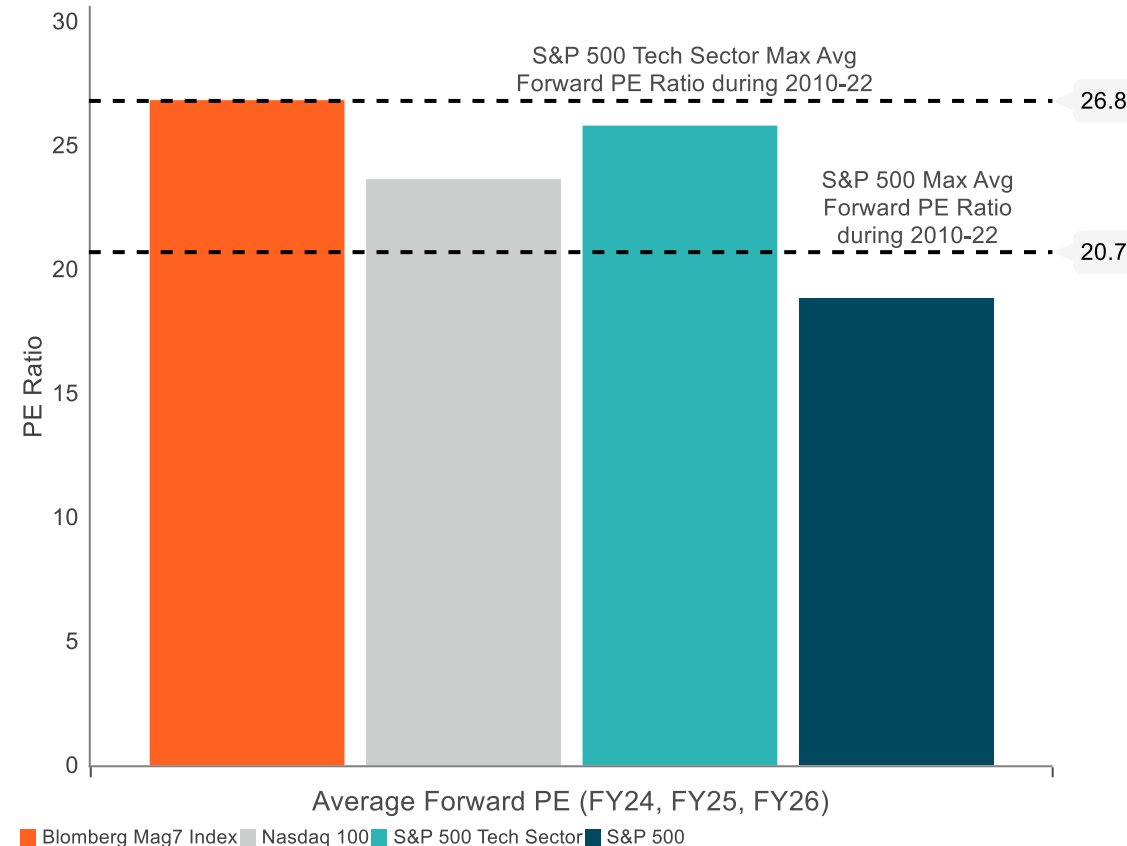
Our Vantage Point: Forward multiples beyond the next twelve months can help to judge whether valuations are stretched relative to long-run averages. Incorporating multi-year earnings expectations, companies “grow” into their valuation multiples. Based on the average forward PEs, the Mag7 and major indices are unsurprisingly expensive although not at extreme valuations based on history.

PE Ratios based on TTM and Forward EPS estimates (FY24, FY25, FY26) Average Forward PE Ratios (FY24, FY25, FY26)

Holding constant today's price, chart shows forward PE ratios based on consensus EPS estimates



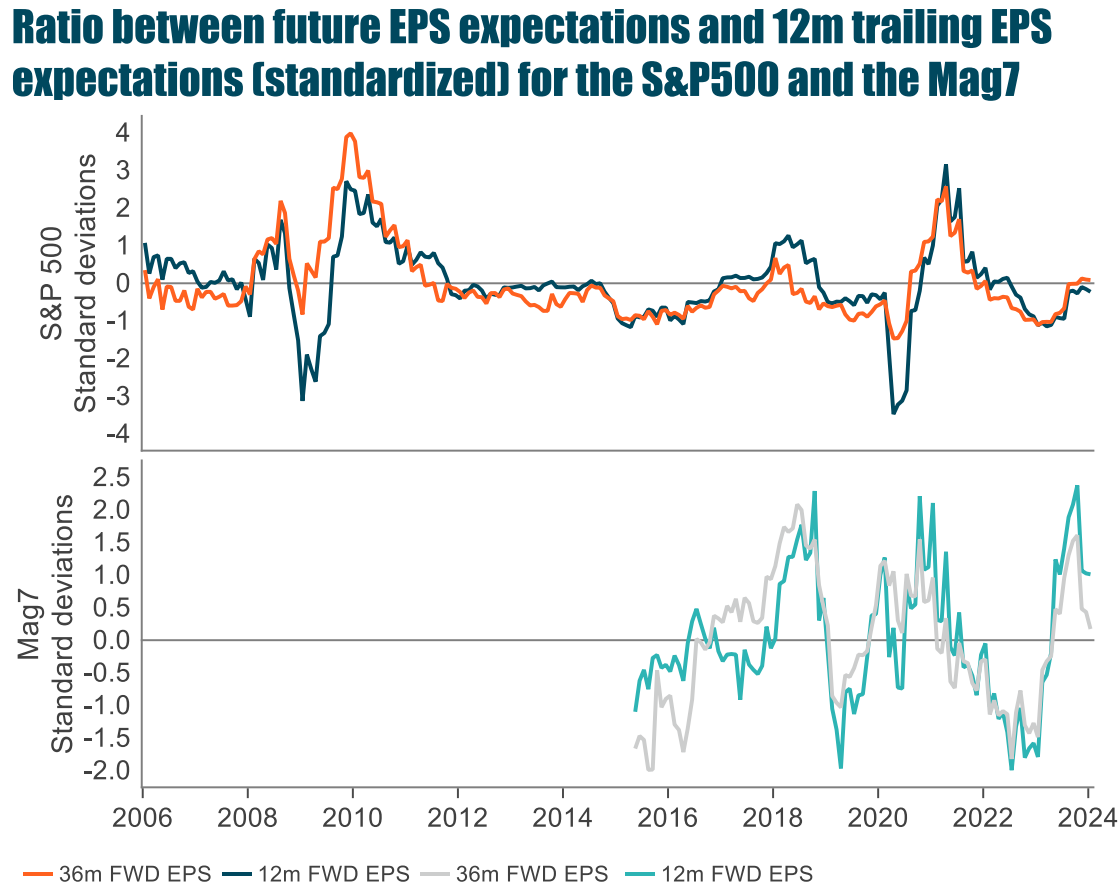
Source: Macrobond, BNY Mellon Investment Management; Data as of Wednesday, February 7, 2024
*Bloomberg Magnificent 7 Index is an equal-weighted equity benchmark consisting of a fixed basket of 7 stocks: GOOGL, AMZN, AAPL, META, MSFT, NVDA, and TSLA



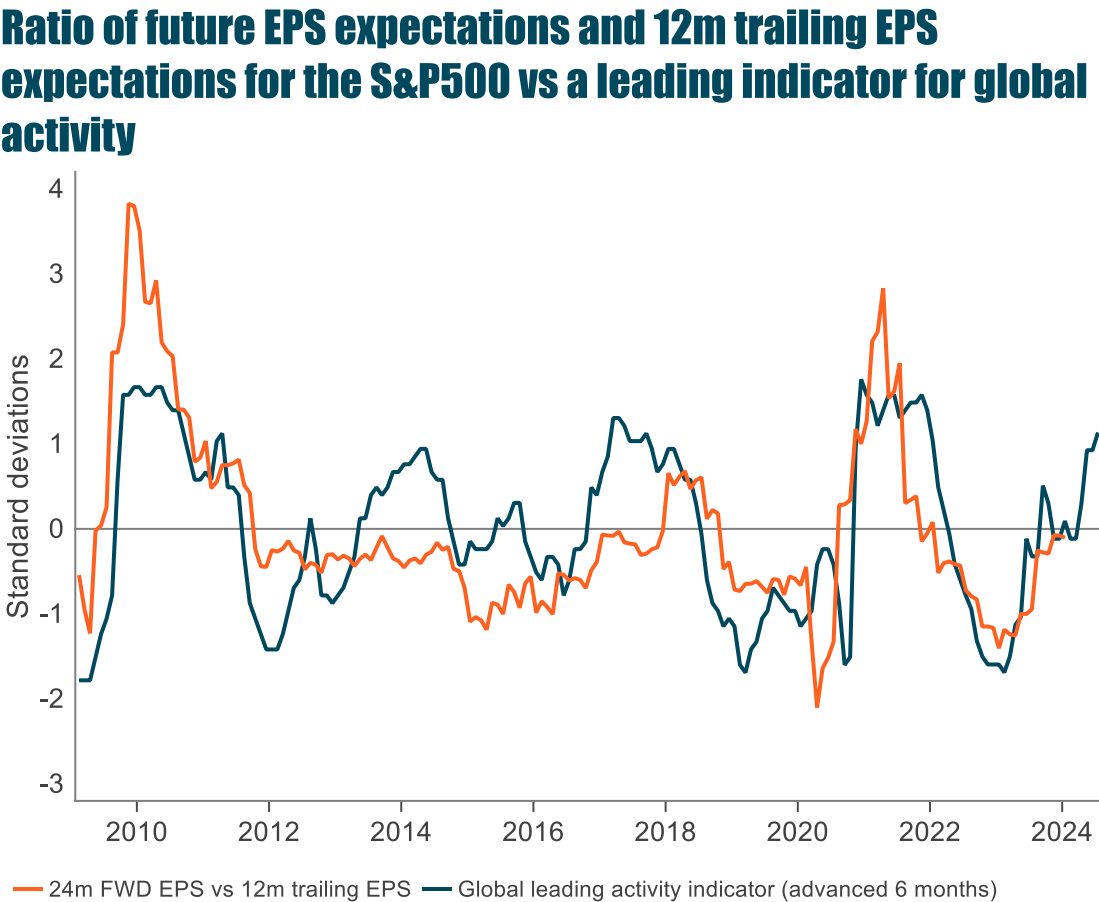
Source: Macrobond, BNY Mellon Investment Management; Data as of Wednesday, February 14, 2024
*Bloomberg Magnificent 7 Index is an equal-weighted equity benchmark consisting of a fixed basket of 7 stocks: GOOGL, AMZN, AAPL, META, MSFT, NVDA, and TSLA

...And EPS expectations aren't particularly high compared to history

Our Vantage Point: Forward earnings expectations relative to trailing earnings do not look stretched at the aggregate S&P 500 level. And the market is not extrapolating extreme near-term EPS growth into the distant future for the Mag7. Leading indicators suggest S&P 500 forward EPS expectations will be revised higher.



Source: Macrobond, BNY Mellon Investment Management. Data as of 15 February 2024



Source: Macrobond, BNY Mellon Investment Management. Data as of 15 February 2024

Will prices depart from fundamentals? Will a bubble form?

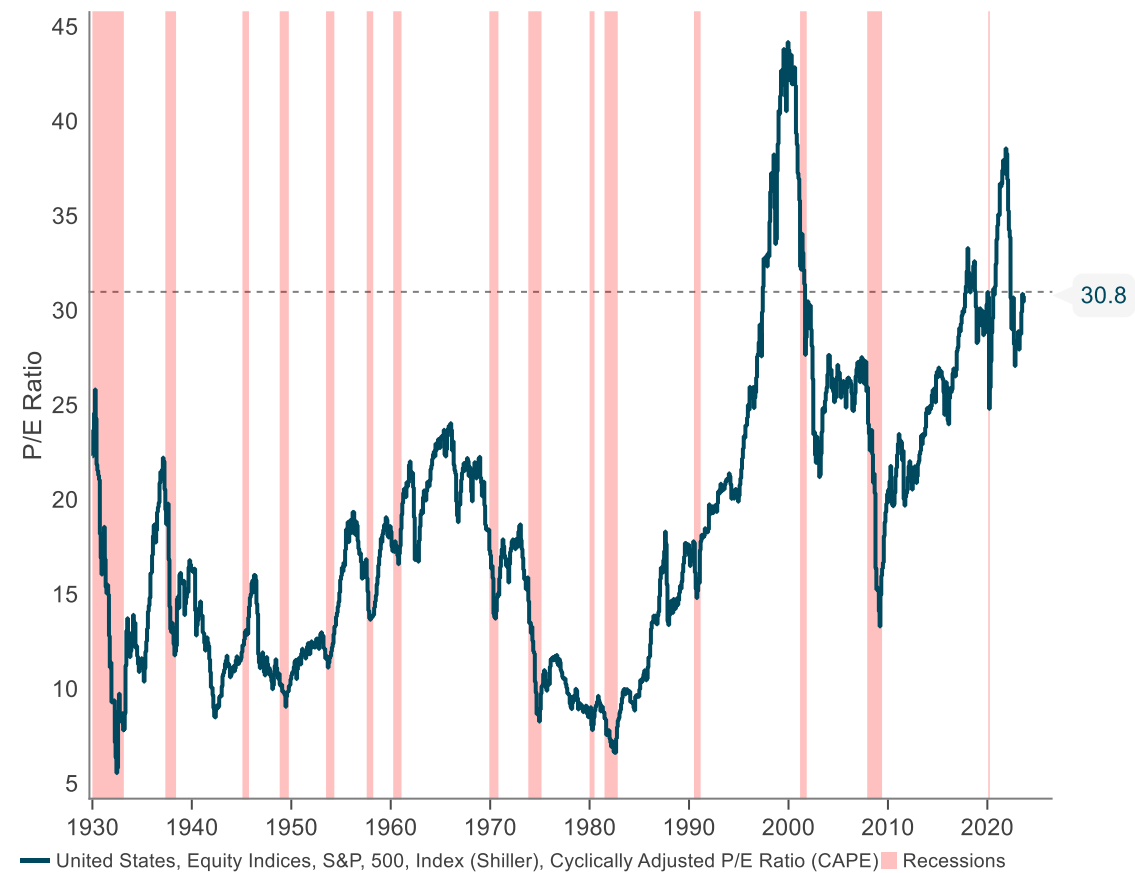
Our Vantage Point: Every major innovation since the 17th century, led to the formation of a market bubble. It’s hard to argue that this time will be different. At the very least, one should consider the probability of a bubble is quite elevated.

Technological shock	Start year and core country	Bubble	Market crash
Agricultural revolution	16th/17th century - Netherlands/Britain	Tulip Mania	1637
Industrial revolution	1771 - England	Canal Mania	1793
Age of steam and railways	1797 - Britain	Railway Mania	1847
Second industrial revolution	1875 - Britain, USA, Germany	Multiple	1890-1893
Age of electricity, automobile etc	1908 - USA	Roaring '20s	1929
Third industrial revolution	1971 - USA	Dot Com Bubble	2000

How Low Can You Go?

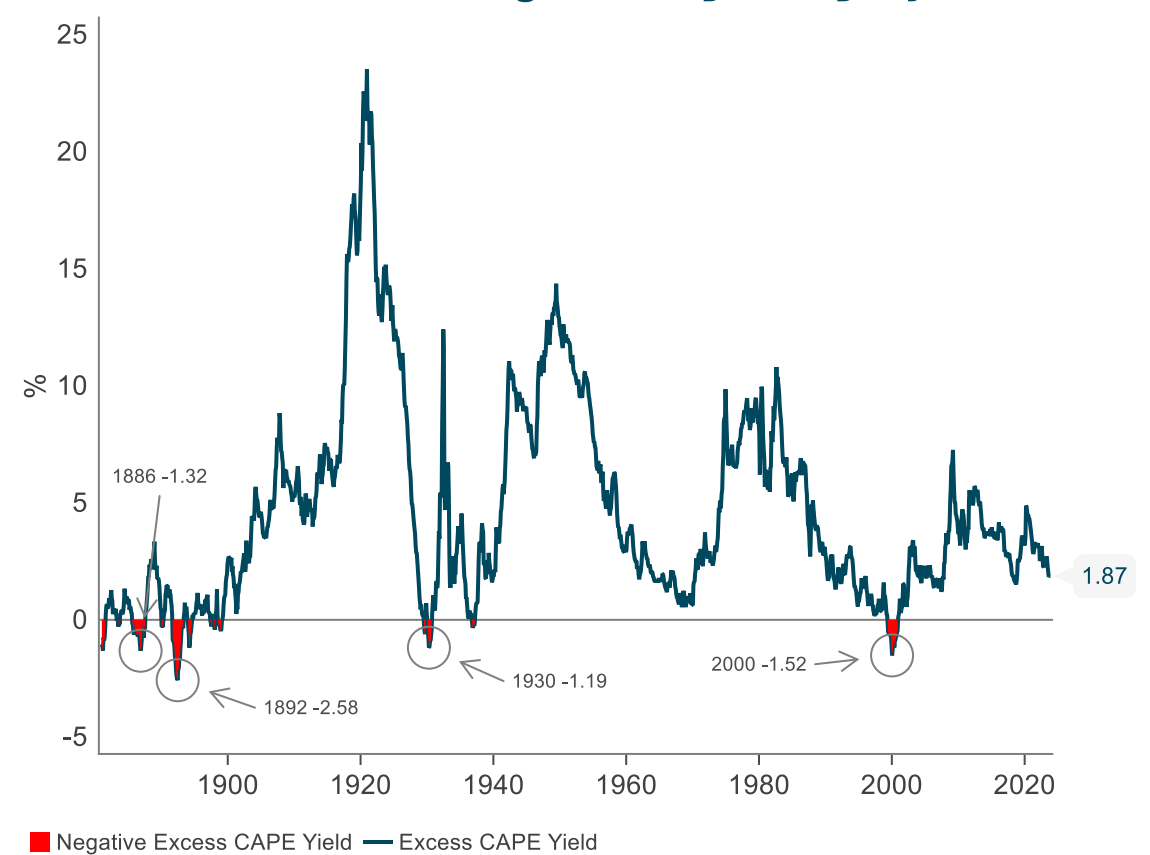
Our Vantage Point: Estimates of current excess earnings yields are low but are well above negative levels seen during previous market bubbles. We expect further risk premia compression as AI enthusiasm broadens among global investors. In our “Bubble Trouble” scenario, we see the excess earnings yield plumbing the lows achieved during the Dot-Com bubble.

Shiller's Cyclically Adjusted Price-to-Earnings Ratio (CAPE)*



Source: Macrobond, BNY Mellon Investment Management; Data as of Wednesday, February 7, 2024
*CAPE ratio uses real (inflation adjusted) earnings per share over a 10yr period

S&P 500 Excess CAPE Earnings Yield (Cyclically Adj. EY - Rf)

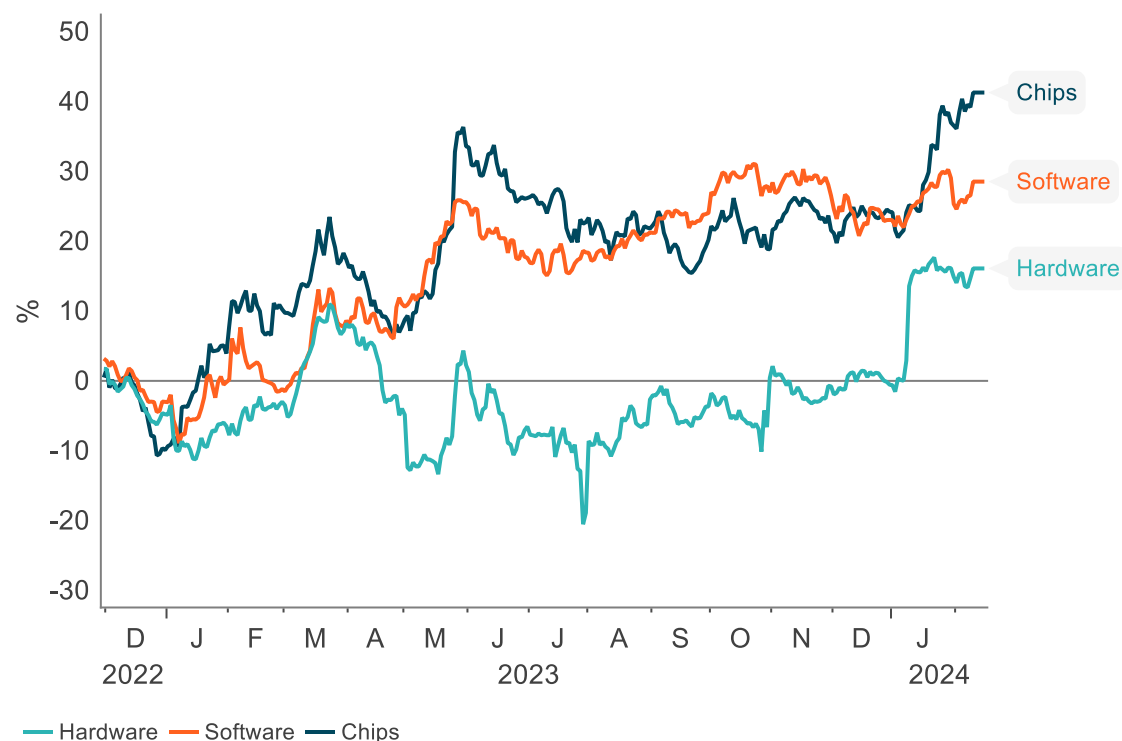


Source: Macrobond, BNY Mellon Investment Management. Data as of 15 February 2024

Sectors: Tech as the clear immediate winner

Our Vantage Point: As the technology is developed and rolled out to the rest of the economy, the firms that directly engage tend to gain first

Cumulative change in share price of AI exposed equities - amount not explained by macro backdrop since launch of ChatGPT



Source: Macrobond, BNY Mellon Investment Management. Data as of 15 February 2024

The biggest winners of past innovation cycles were firms directly involved in it, at least in the short run

- These can be grouped into:
 - Firms that supply the investment for transition to the new technology: **semiconductors**, and **infrastructure/hardware** providers (**e.g. cloud services**), in the current cycle.
 - Firms that provide the technology and new products enabled by the new technology: **software (e.g. Microsoft)**
 - Most of these firms are part of the **information technology sector**, although some may be part of other sectors (e.g. Communication Services).
 - While several major tech companies are well placed to benefit from AI, new companies may emerge and climb to the top market cap positions. Private markets, and venture capital in particular, will likely capture a big share of AI-driven value creation.

Sectors: What about the rest of the market?

Our Vantage Point: As the technology spreads into the economy and drives productivity growth, some firms not directly involved with AI will benefit from an increase in spending and/or cost savings, while others will be disrupted. Some firms may be relatively unimpacted.

Framework for impact of AI on sectors, industries and firms

Impact of AI on productivity		Competitive dynamics post AI innovation wave	
		High competition	Low competition
		High	Prone to disruption: both existing and added value are progressively captured by consumers
Low	Low additional value created is mostly captured by the consumer	Low additional value created is mostly retained by the firm	

Source: BNY Mellon Investment Management. Data as of 5 Feb 2024.

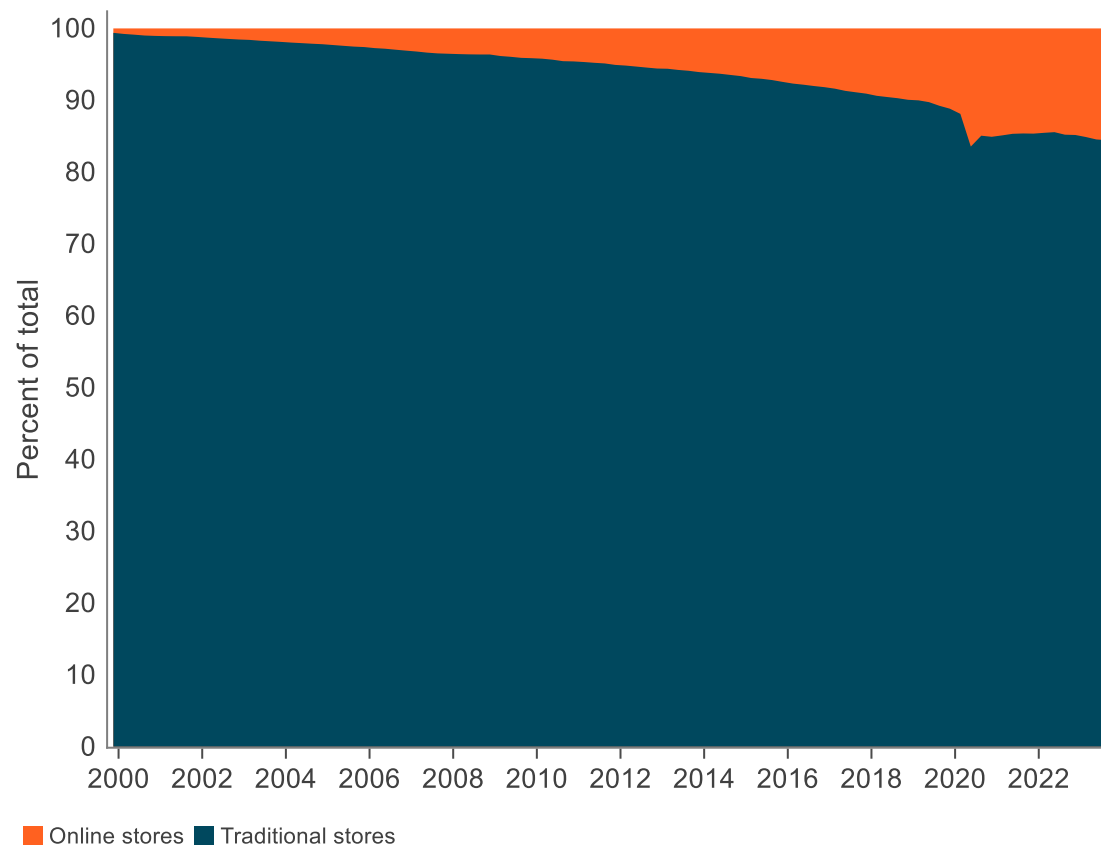
Below we propose a framework to assess different sectors/industry/companies.

- Whether AI will be beneficial or disruptive (for a given sector, industry, or company), will depend on i) the degree to which AI is productivity-enhancing for the sector and ii) post-AI competitive dynamics. The table on the left provides the key takeaways. For those interested in the details:
 - The extent to which AI can increase productivity depends, at a bottom-up level, on the share of cognitive tasks performed (the greater, the higher the gains driven by AI), and at a top-down level on the share of intangible capital (the greater, the higher the gains).
 - Competitive dynamics depend on the combination of a) future barriers to entry - which impact the share value captured by the firm vs the consumer and therefore profit margins - and b) proximity to peak demand (market saturation) - which affects the amount of additional demand (revenue) created for a given fall in prices.
 - Lower barriers to entry lead to greater competition, lower margins and a greater share of value captured by consumers. In other words, the *share* of the pie captured by firms doesn't get larger.
 - In sectors where the market is saturated, a fall prices driven by AI cost efficiencies, will not tend to increase demand (revenues) much, so earnings tend to stall. The pie it-self doesn't get larger.

Sectors: beneficiaries and disrupted – a case study

Our Vantage Point: During previous waves of technological innovation, several traditional sectors and industries were upended. For example, the advent of the internet and the rise of 'digital' spurred a complete re-definition of the Consumer Staples, Consumer Discretionary, Communication Services sectors.

US retail sales - traditional vs online



Retail (consumer discretionary and staples) and media were some of the industries most disrupted by digital

- New technologies can fundamentally alter the cost structure of a given industry and the way inputs are combined. This allows for a redefinition in the way goods and services are provided to the public (there is a change in the production function, as economist would say), and new business models emerge.
- For instance, the cost of providing an additional unit of a certain good and service (e.g. movies, music, news, stores) is close to zero for digital firms, but positive and often elevated for physical firms.
- This means that digital firms have a cost advantage over incumbents that are slow to leverage the new technology. A *prime* example is Amazon vs traditional retailers.

Source: Macrobond, BNY Mellon Investment Management. Data as of 06 February 2024

Sectors and countries: in our view, who stands to benefit the most?

Our Vantage Point: We see Tech (unsurprisingly) as the biggest beneficiary, followed by Communication Services, Financials, and Healthcare. At a country level, US indices are best placed to ride the AI wave, followed by Taiwan/Korea and several European countries.

Ranking of expected AI impact on earnings, by sector

AI Impact Ranking	Sector	Sector return since Nov '22
1	Information Technology	52%
2	Communication Services	44%
3	Financials	11%
4	Healthcare	5%
5	Energy	-2%
6	Real Estate	-7%
7	Industrials	18%
8	Consumer Discretionary	21%
9	Utilities	-4%
10	Consumer Staples	0%
11	Materials	2%

Source: BNY Mellon Investment Management calculations using Macrobond and Bloomberg data. Data as of Jan 29, 2024. The ranking is calculated considering a bottom-up analysis of the potential productivity increase driven by AI for the job functions performed in each industry. We then assess current and likely future barriers to entry in the industry in order to consider whether it will be firms, or consumers, to capture the value unlocked by any increase in productivity. Finally, we consider the sectors' structural demand outlook to capture the extent to which the size of the market is increasing, stagnating or shrinking. The ranking is based on an aggregation of these three different factors.

Ranking of expected AI impact on earnings, by country

AI Impact Ranking	Country	AI Impact Ranking	Country
1	US	15	Hong Kong
2	Taiwan	16	UK
3	Israel	17	Austria
4	Korea	18	Australia
5	Netherlands	19	Norway
6	Singapore	20	Spain
7	Finland	21	France
8	Canada	22	Belgium
9	Denmark	23	Italy
10	Germany	24	Saudi Arabia
11	Sweden	25	India
12	Switzerland	26	Ireland
13	China	27	Brazil
14	Japan	28	Portugal

Developed Market
Emerging Market

Source: BNY Mellon Investment Management calculations using Macrobond, Bloomberg and Capital Economics data. Data as of Jan 29, 2024. The ranking is calculated by considering the sector ranking, as well as the sector composition of each country index. In addition, we scale the results by a measure of the readiness of each country to adopt and diffuse AI in the economy.

Definitions

Purchasing Manger Indices (PMI)	An economic indicator derived from monthly surveys of private sector companies. A level above 50 indicates expansion compared to the prior month and below 50 contraction.
MSCI All-Country World	The MSCI All-Country World Index is an index that tracks the performance of both Developed and Emerging Market equities
MSCI World - DM	The MSCI World Index is an index that tracks the performance of Developed Market equities
MSCI EAFE	The MSCI EAFE Index is an index that tracks the performance of Developed Market equities across Europe, Australasia and the Far East excluding the US and Canada
MSCI EM	The MSCI EM index tracks the performance of Emerging Market Equities
US (S&P 500)	The S&P 500 is an index designed to track the performance of the largest 500 US companies
US (NASDAQ)	The Nasdaq Composite Index is the market capitalization-weighted index of approximately 3,000 common equities listed on the Nasdaq stock exchange
US (Russell 2000)	The Russell 2000 Index is a small-cap stock market index of the bottom 2,000 stocks in the Russell 3000 Index
Japan (Nikkei 225)	The NIKKEI 225 is an index that tracks the performance of the largest 225 companies traded in the Japanese market
EU (STOXX 50)	The EURO STOXX 50 Index, Europe's leading blue-chip index for the Eurozone, provides a blue-chip representation of supersector leaders in the region
UK (FTSE 100)	The STOXX 600 is an index that represents the performance of 600 large, mid and small capitalization companies across 18 countries in the European Union
France (CAC 40)	The CAC 40 is an index that tracks the performance of the largest 40 companies traded on the Paris Stock Exchange
Germany (DAX 30)	The DAX 30 is an index that tracks the performance of the largest 30 companies traded on the Frankfurt Stock Exchange
China (MSCI China)	The MSCI China Index captures large and mid cap representation across H shares, B shares, Red chips, P chips and foreign listings. With 459 constituents, the index covers about 85% of this China equity universe.
China Caixin Services PMI	In China, the Caixin Services Purchasing Managers' Index measures the performance of the services sector.
Global Treasury ex US	The Bloomberg Barclays Global Treasury ex US index tracks fixed-rate local currency government debt of investment grade countries excluding the US and represents the Treasury sector of the Global Aggregate Index
US Treasury	The Bloomberg Barclays US Treasury Index is the US Treasury component of the US Aggregate Index and uses public obligations of the US Treasury with a remaining maturity of one year or more
Global Investment Grade - Corp.	This Index reflects the Corporate component of the Bloomberg Barclays Global Aggregate Index which is designed to provide a broad-based measure of the global investment-grade fixed income markets
Earnings Yield	The earnings yield shows how much earnings per share a company generates from every dollar invested in the company's stock. Earning yield is the quotient of earnings per share, divided by the share price, giving E/P. It is the reciprocal of the P/E ratio.
PE ratio	The price-earnings ratio, also known as P/E ratio, P/E, or PER, is the ratio of a company's share price to the company's earnings per share. The ratio is used for valuing companies.
Equity Risk Premium (ERP)	The equity risk premium represents the excess returns over the risk-free rate that investors expect for taking on the incremental equity risk.
Artificial Intelligence	Artificial intelligence leverages computers and machines to mimic the problem-solving and decision-making capabilities of the human mind.
ChatGPT	ChatGPT is a chatbot developed by OpenAI and launched on November 30, 2022. Based on a large language model, it enables users to refine and steer a conversation towards a desired length, format, style, level of detail, and language.
The Mag7 Index	An equal-dollar weighted equity benchmark consisting of a fixed basket of Alphabet, Amazon, Apple, Meta, Microsoft, Nvidia, and Tesla.
Standard deviation	Standard deviation is a measure of the amount of variation/deviation of a variable from its mean.
Intangible capital	Intangible assets are assets part of firms' capital stock that lack a physical presence. Some examples are brands, goodwill, and intellectual property.
US High Yield	The Bloomberg Barclays US High Yield Index covers the universe of fixed-rate, non-investment grade corporate debt in the US
3M US Libor	Average interest rate at which a selection of banks in London lend to one another in USD with a maturity of 3 months
2Y US Treasuries	Average yield of a range of Treasury securities all adjusted to the equivalent of a two-year maturity
10Y US Treasuries	Average yield of a range of Treasury securities all adjusted to the equivalent of a ten-year maturity
10Y UK Gilt	Average yield of a range of UK government bonds all adjusted to the equivalent of a ten-year maturity
10Y German Bund	Average yield of a range of German government bonds all adjusted to the equivalent of a ten-year maturity
10Y Japanese Bond	Average yield of a range of Japanese government bonds all adjusted to the equivalent of a ten-year maturity
CBOE VIX	Indicator of the implied volatility of S&P 500 index as calculated by the Chicago Board Options Exchange (CBOE)
US 30Y Fixed-Rate Mortgage	Bankrate.com 30-year US home mortgage fixed rate national average
S&P CoreLogic Case-Shiller 20-city Composite Home Price Index	Tracks the value of single-family housing within the United States
USD - Majors Dollar Index	A measure of the value of the US dollar relative to a basket of currencies of the US's most significant trading partners including the euro, Japanese yen, Canadian dollar, British pound, Swedish krona, and Swiss franc.
PMI (Purchasing Managers' Index)	The Purchasing Managers' Index (PMI) is an index of the prevailing direction of economic trends in the manufacturing and service sectors
Citi Economic Surprise Index (and Inflation Surprise Index)	Citi's Economic Surprise Index — which measures the degree to which economic data (and inflation) is either beating or missing expectations.

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