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Is This Another Market Bubble?

Please refer to important disclosures on pages 14 and 15. Analyst certification is on page 14.

Financial markets are not perfectly efficient. They are prone to periods of over- and undervaluation, and both of these conditions should correct over time—it's just a question of the duration and magnitude of those changes. As Benjamin Graham once famously noted: "*In the short run, the market is a voting machine, but in the long run it is a weighing machine.*" Today, the stock market is seemingly hitting new highs every few days and mega-cap stocks like Nvidia are jumping 16.4% in a single day (a $277 billion increase in value, which for comparison purposes is slightly more than the entire market cap of Netflix, the 29th-largest stock in the S&P 500). Therefore, it feels like Mr. Market is behaving a lot more like a voting machine than a weighing one, and many investors are quite rightly wondering whether we are in the middle of yet another stock market bubble. **In this *Economics Weekly,* we outline our take on this bubble debate.**

A Marriage of Narratives and Numbers

While Benjamin Graham recognized that sentiment (the voting machine) was an important part of what drives the stock market, he also knew that sentiment is highly ephemeral. It was not something investors could rely on, and the best way to avoid being sucked into the current trending narrative was to concentrate on the cold hard numbers (the weighing machine)—such as cash flow, book value, and corporate earnings. Over time, if the numbers were good, this is what would eventually win out. Without the numbers, overvalued hyped stocks would almost certainly fail, and with the numbers, stocks trading well below their intrinsic value would eventually turn around. So it was probably best to not spend too much time listening to the sweet narratives of your friendly stock broker, and instead concentrate more on those ledger books.

In his book *Narrative and Numbers*, financial professor Aswath Damodaran wrote that narratives, or the stories that are used to spin the merits of any particular stock, typically fall into seven categories. These are: **1) the bully** – has a large market cap and is able to exploit brand power and capital to squeeze competition; **2) the underdog** – provides better, cheaper products than the market leader; **3) the eureka moment company** – finds and fills an unmet need in the market; **4) the better mousetrap** – does it better and more efficiently; **5) the disrupter** – follows a new path to dethrone the established order; **6) the low-cost player** – runs on the motto of "stack'em high, sell'em cheap"; and **7) the missionary** – purports to have a more noble mission than just making money ("we're doing God's work").

Damodaran cites a perfect example of these two forces being on display in the film *Moneyball.* This true story is about the conflict between the narratives spun by the old-school baseball scouts and Billy Beane, the Oakland A's baseball executive who decided to put his faith entirely in the quant-driven numbers. Beane's success transformed the game (and sports more generally), which has since become a much better mix of the two.

Damodaran similarly notes that when it comes to market valuation, despite the trillions of data points available to market analysts today, it is neither a perfect quantifiable science nor the art of storytelling. Rather, stock valuation is a marriage between the two. Getting that right is a craft that needs to be worked at, and one that tends to improve over time—hence, the collected wisdom of accumulated gray matter tends to be an advantage here.

In today's market, with the rise of the Mag 7, there are many parallels being drawn with the internet boom and bust of the late 1990s. While there are many similarities—a small group of large-cap tech stocks driving the market forward, a potential economic soft-landing, a huge amount of tech investment, and a central bank pursuing opportunistic disinflation against sticky inflation—when it comes to the actual stocks driving the rally, the situation is quite different.

In the late 1990s, the vast majority of the internet boom was narrative—we vividly remember one salesperson at a previous firm telling us with deep conviction that the sine qua non of whatever stock it was he was pitching at the time was that it was "a *concept* stock". If you had a web page and could put dot-com after your name, that was all you needed. If there are comparisons to be made, this period seemed more akin to the crazy mini-bubble of meme stocks in 2021 (when Dave Portnoy pulled stock names out of a Scrabble bag).

Yet while today's stocks are expensive, there is much more in the way of numbers behind the narrative than there was then. And while sentiment is high, the market has not, at least yet, lost all sense of perspective in the rush for performance.

It's Not a Bubble … Yet at Least

There is no one singular definition of a bubble. Charles Kindleberger describes a bubble as "*the systematic deviation of the market price of a stock from its fundamental value, which is characterized by an acute rise for a certain period followed by a sharp fall.*"

The great sage ChatGPT 4 describes it less succinctly:

> *A stock market bubble refers to a situation in which stock prices become significantly overvalued relative to their intrinsic value, driven primarily by investor enthusiasm and speculation rather than fundamental factors such as company earnings and economic indicators. During a bubble, there is typically a rapid increase in the prices of stocks, often accompanied by high trading volumes and excessive optimism about future returns. However, these inflated prices are unsustainable in the long term, and when the bubble bursts, stock prices can plummet dramatically, leading to significant losses for investors. Characteristics of a stock market bubble include irrational exuberance, widespread participation in the market by inexperienced investors, and a disconnect between stock prices and underlying economic fundamentals.*

While there are different types of bubbles, such as the internet bubble driven by tech stocks and the 2008 GFC the result of financial innovation and housing, all bubbles tend to follow similar patterns. There is 1) a substantial deviation from the asset's fundamental value, and 2) it comes with two clearly defined phases: as described by Kindleberger, "an acute rise for a certain period" followed by a "sharp fall."

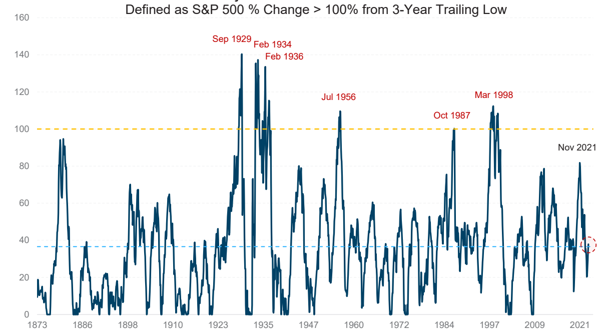
Most bubbles are only observable after the fact when those two phases are clearly visible. Today, while there has not been a crash phase, one way to get a sense of potentially being in a bubble is to look at the acuteness of the recent run-up in prices, and the deviation from fundamental value.

One paper we referenced when writing this note defined the acute phase as needing "*a faster-than-exponential power law growth process*". This was defined as being at least a 100% increase in the asset within a one- to three-year time frame. While having an acute phase is not the ultimate predictor of a bubble, it has often been the case that when such sharp increases occur, the probability of a bubble and associated crash rises significantly.

Are we seeing such acute increases today?

Exhibit 1 shows the rolling percentage change in the S&P 500 from its low over a three-year window. It shows a sharp rise of 82% in November 2021, although this should probably be put down to normalization following the COVID-related sell-off rather than an unsubstantiated rise driven by hype. Since then, stocks have effectively been in line with the historical "acuteness" average at 37%.

Exhibit 1
Major Stock Market Bubbles
Defined as S&P 500 % Change > 100% from 3-Year Trailing Low



Sources: Robert Shiller, William Blair Equity Research

The chart also highlights that the late 1990s and 1987 periods were clear stock market bubbles, whereas the GFC was not; it was a bubble in housing and financial services. Hence, relative valuation analogies made with this period to today should be viewed in this light in that they are not necessarily apples-to-apples comparisons.

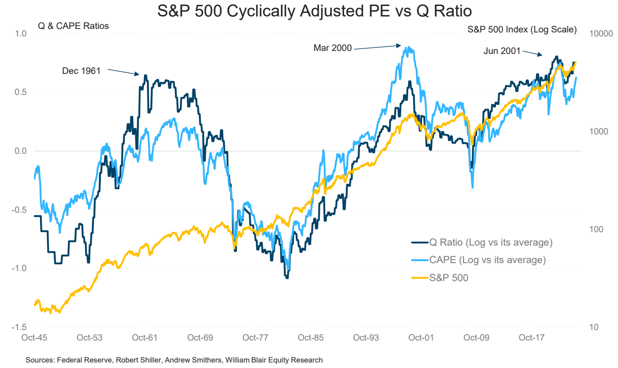
Are we seeing a systematic deviation of the market price from its fundamental value?

Here is where opinions become a little more divided, and Damodaran's caution about valuation being more of a craft becomes more apparent.

In his book *Wall Street Revalued*, the economist Andrew Smithers argues that any good valuation metric must be mean reverting—otherwise what use is it—and have some ability to predict future returns. His gold standard for attaining these are the Graham/Shiller CAPE ratio (cyclically adjusted P/E ratio) and the equity Q ratio (total market cap/net assets valued at replacement cost). Importantly, both metrics are derived independently of each other (to a certain extent) and both help confirm one another.

Today, both are showing the market in overvalued territory (exhibit 2), and based on this, Smithers stated in a recent panel discussion that he thought the market was currently in a bubble.

Exhibit 2
S&P 500 Cyclically Adjusted PE vs Q Ratio



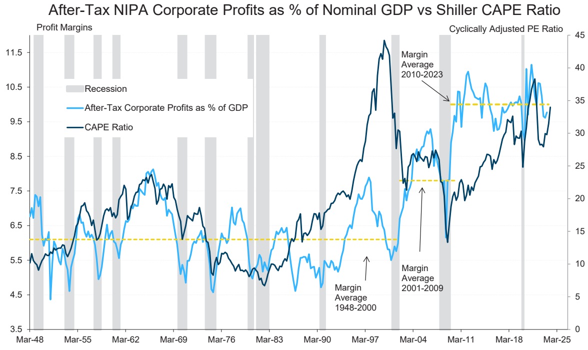
The problem with using these two ratios is that neither is a good market-timing measure, and both have been showing the market as being overvalued for decades—with the exception of some brief periods. Also, by definition, any metric must at times be in overvalued territory, and also in the undervalued zone.

Investors strictly adhering to these two metrics would have found themselves massively underperforming and deeply disappointed. The other major complaint is that both by definition are backward-looking. They tell us nothing about near-term expected returns and are incapable of acknowledging that regime shifts can and do take place.

Importantly, one area we have seen a regime shift taking place has been corporate profitability.

As exhibit 3 shows, profit margins have been 1) structurally elevated and 2) closely tied to the CAPE ratio, except for periods of more extreme overvaluation such as the late 1990s.

Exhibit 3
After-Tax NIPA Corporate Profits as % of Nominal GDP vs Shiller CAPE Ratio



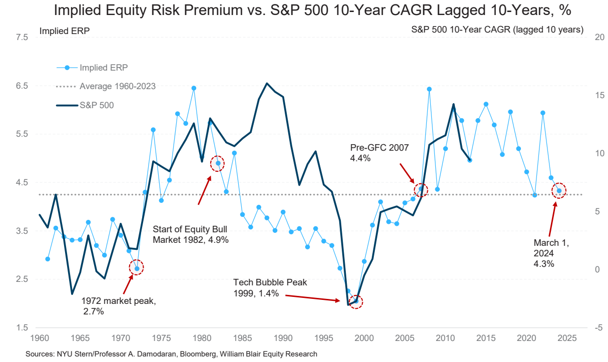
From 1948-2000, national income and profit account (NIPA) margins for all nonfinancial corporate businesses averaged 6.1%, but from 2010 to 2023 the average has been substantially higher at 10%. Hence, this structural regime change in margins should be consistent with a structurally higher multiple being paid for those margins, which is what we have been witnessing. The caveat is that any change in this profit regime going forward would necessarily be associated with a significant and very painful period of margin compression.

Yet there are also more forward-looking gauges of valuation and frothiness in the market, one of which is the *implied* equity risk premium (ERP). This measure combines forward earnings estimates, estimated payout ratios, and interest rates. The higher the ERP, the more risk averse investors are and the more extra yield they demand as compensation, as opposed to just sitting in cash on Treasurys.

Among the thousands of versions of ERP, we find the Damodaran version the most intuitive, and happily one the professor provides free access to on his webpage.

The implied ERP is also consistent with Smithers' rule of being mean reverting and also holds some predictive power with regard to future returns (as depicted in exhibit 4).

Exhibit 4
Implied Equity Risk Premium vs. S&P 500 10-Year CAGR Lagged 10-Years, %



Like the CAPE, it is not a good short-term market-timing metric, though it is forward-looking. Therefore, it should better reflect expectations of any coming structural changes, while also acting as a good marriage between the numbers and the narrative.

The current ERP reading is 4.3%. This is in line with the historical average since 1962, though at the bottom of the range experienced over the last decade. This reading would be consistent with a market that is expensive but not in bubble territory.

Once again for comparison, it is worth looking back to the late-1990s equity market bubble, when one of the biggest market-moving narratives at the time was the view that "*stocks always outperform over the long term*". If that was truly the case, the narrative was that equity markets really didn't deserve a risk premium at all and were being dramatically undervalued due to excessive investor caution.

The biggest proponents of this view were James Glassman and Kevin Hassett (one of three names floated this week by the Trump organization as a potential Fed chair should he be elected), who in their book Dow 36,000 argued that the DJIA (which at the time was trading at 10,000) when properly valued should reach 36,000 (260% higher) in the next five years. Seemingly taking them at their word, the market pushed the implied ERP down to just 1.4% at the peak of the bubble in 1999. Ultimately, the 36,000 milestone wasn't surpassed until 22 years later in November 2021.

Conclusion

There is unquestionably a lot of hype in the financial markets at the moment, mostly (but not entirely) centered on the theme of AI and a new wave of innovation. AI is exactly the sort of technological development that easily captures investors' imaginations and is therefore a perfect candidate for building the kind of euphoria that often drives markets into bubble territory. Against this background and with currently high equity market valuations, investors are right to be wary of what kind of future returns they should expect.

What is not clear, however, is whether this is a bubble, which by definition is a prelude to a major crash. Spotting widespread bubbles is not easy; if it were, they likely wouldn't exist.

Yet, if we use Kindelberger's simple definition of what constitutes a bubble, the current market does not seem to fully qualify just yet. While the acuteness of the price increase exiting the pandemic was sharp, the current market return from the three-year low is at the historical average, and returns have not been on the same scale as past pure equity market bubbles.

Meanwhile, gazing across a number of different valuation metrics, it is fair to say that the equity market is relatively expensive across most. Looking backward, many of the companies driving these gains have been delivering on these expectations, and profit margins up to now have been structurally higher—i.e., the numbers have backed up the narrative. This most definitely did not occur with the "concept" stocks of the late 1990s, which were mostly all narrative and no numbers. Using more forward-looking valuation metrics, such as the implied ERP, investors seem optimistic and are demanding a premium on the low end of what they have been asking for over the past decade; however, looking back to the early 1960s, the current premium exactly matches this historical average, and it is nowhere near the lows reached around the peak of the internet bubble in 1999.

Lastly, with so many who experienced the aftermaths of the internet and GFC bubbles still working in financial markets today, there is likely to be a fair amount of recency bias among investors—everyone is keen to spot the next bubble and avoid it (particularly given current aging demographics where there will be a lower willingness and ability to take on risk)—which may also be a helpful limiting factor in preventing one.

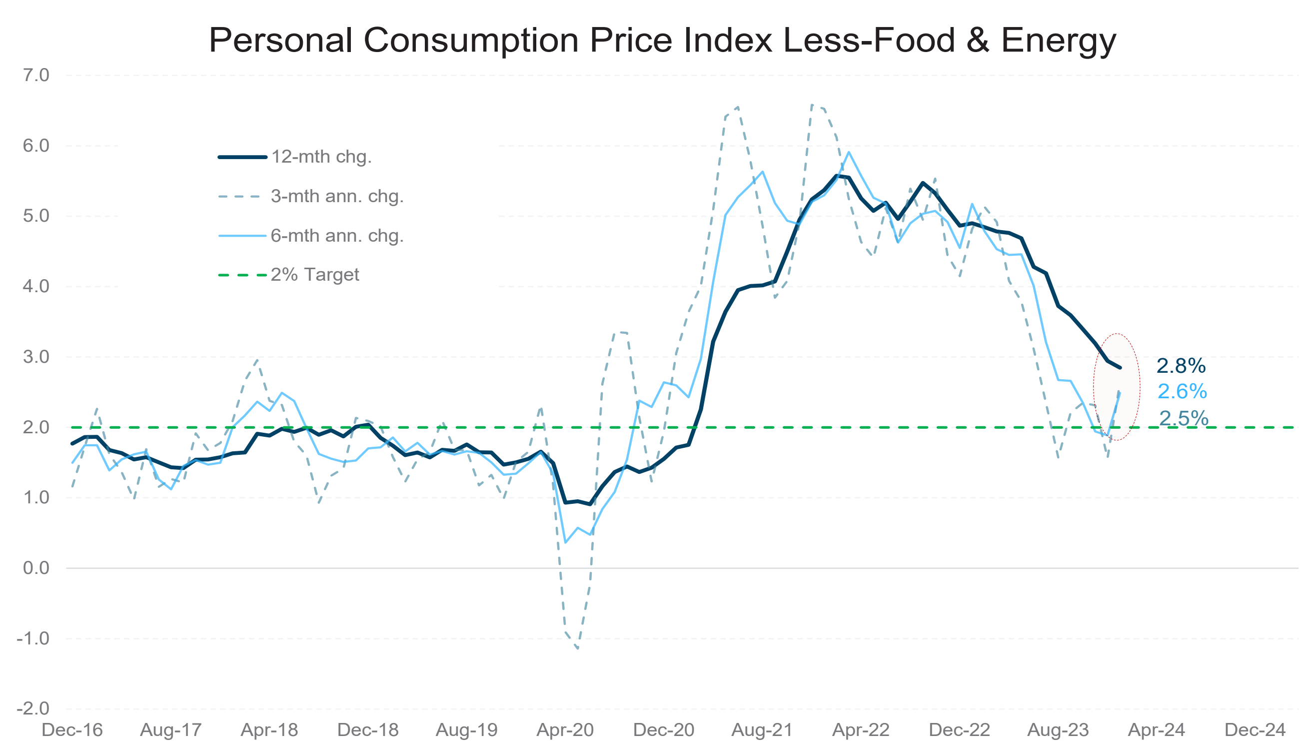
22 March 2024

Highlights in the Week Ahead

Date	Time (ET)	Indicator	Last	Consensus	WB Estimate	Actual
25 Mar	10:00 a.m.	New Home Sales (Feb)	1.5%	2.1%	2.5%	
26 Mar	8:30 a.m.	Durable Goods Orders (Feb)	-6.2%	1.2%	1.5%	
		Orders Less-transportation	-0.4%	0.3%	0.1%	
26 Mar	10:00 a.m.	Consumer Confidence (Mar)	106.7	107.0	106.5	
28 Mar	8:30 a.m.	GDP Q4 (Final Est.)	3.2%	3.2%	3.2%	
29 Mar	8:30 a.m.	Personal Income (Feb)	1.0%	0.4%	0.4%	
		Personal Spending	0.2%	0.4%	0.3%	
		PCE Price Index	0.3%	0.4%	0.3%	

Sources: Bloomberg, William Blair Equity Research

Indicator of the Week: PCE Price Index



Sources: Bureau of Economic Analysis, Bloomberg, William Blair Equity Research

Economic Scorecard

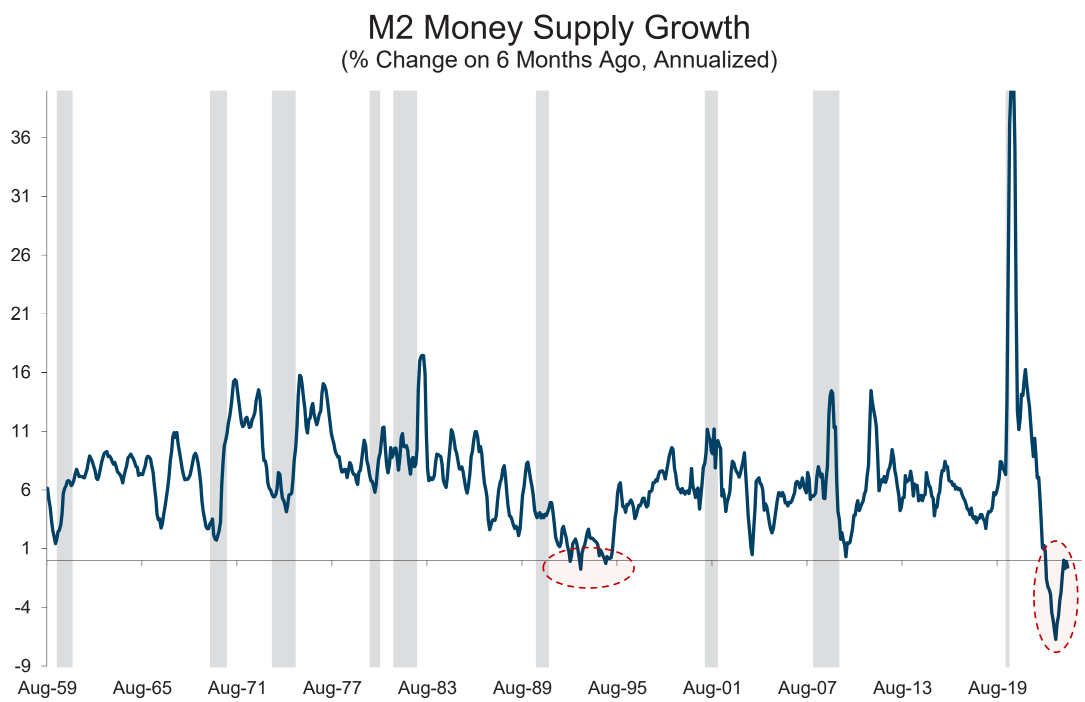
Rolling monthly heat map, % Change on Year Ago (unless otherwise noted)

	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
Growth																			
US Leading Indicators	-2.1	-3.6	-5.1	-6.4	-6.1	-7.0	-8.0	-8.3	-8.2	-8.1	-7.8	-7.9	-8.1	-8.1	-7.6	-7.1	-7.0		
US Coincident Indicators	2.0	1.4	0.8	0.8	1.5	1.4	1.4	1.4	1.7	1.8	1.7	1.4	1.3	1.4	1.9	2.1	1.8		
US Lagging Indicators	7.6	7.3	7.4	7.4	6.3	6.1	5.5	4.9	3.7	2.9	2.3	1.8	1.0	1.2	1.3	0.3	0.8		
Consumer																			
Total Retail Sales	9	8.9	6.2	5.5	8	5.6	2.2	1.3	2.1	1.5	2.8	2.8	4	2.2	3.6	5.0	0.0	1.5	
Personal Income	5.1	4.9	4.6	4.5	5.8	5.7	5.8	5.7	5.6	5.4	4.9	4.9	4.8	4.4	4.7	4.8	4.8	4.8	
Real Disposable Personal Income	-2.3	-2	-1.6	-0.9	3.2	3.5	4.4	4.5	5	5.3	4.4	4.1	3.9	3.9	4.3	4.2	2.1	2.1	
Real Personal Consumption	1.9	1.4	0.9	1.3	2.3	2.3	1.7	1.6	1.8	2.1	2.5	2	2.1	2	2.8	3.2	2.1	2.1	
Personal Saving Rate (%)	3	3	3.3	3.4	4.4	4.7	5.2	5.2	5.3	4.8	4.4	4.5	3.9	4.1	4.1	3.7	3.8	3.8	
Consumer Confidence (Conference Board)**	107.8	102.2	101.4	109	106	103.4	104	103.7	102.5	110.1	114	108.7	104.3	99.1	101	108	110.9	106.7	
Employment																			
Employment Growth	4.0	3.6	3.3	3.0	3.2	2.8	2.5	2.5	2.5	2.4	2.1	2.1	2.0	1.9	1.9	2.0	1.8	1.8	
ASA Temporary Staffing Index	5.4	1.1	0.2	1.0	-2.1	-6.1	-6.5	-6.8	-5.9	-6.6	-4.7	-4.8	-5.5	-7.5	-7.6	-5.5	-12.2	-9.4	
ISM Employment Index Manufacturing*	49	50.2	49.3	50.2	50	48.8	47.8	49.4	50.3	49.1	45	48.6	50.9	47.1	46.1	47.5	47.1	45.9	
ISM Employment Index Services*	51.4	49.5	50.4	49.8	50.4	53.6	51.1	51.2	49.7	52.9	50.9	54.1	52.5	50.4	50.6	43.8	50.5	48	
Unemployment Rate, %	3.5	3.6	3.6	3.5	3.4	3.6	3.5	3.4	3.7	3.6	3.5	3.8	3.8	3.8	3.7	3.7	3.7	3.9	
Average Hourly Earnings	5.1	5	5.1	4.9	4.6	4.7	4.6	4.7	4.6	4.7	4.7	4.5	4.5	4.3	4.3	4.3	4.4	4.3	
Initial Jobless Claims (avg. wkly. chg. '000s)	198	203	210	208	203	214	224	217	227	252	234	245	217	211	218	206	210	209	
Jop Openings	-0.8	-7.4	-4.3	-4.4	-7.3	-15.8	-21.0	-15.9	-18.8	-18.6	-23.7	-7.5	-13.7	-17.5	-16.5	-19.2	-15.0	-10.0	
Layoff Announcements	67.6	48.3	416.5	129.1	440	410.1	319.4	175.9	286.7	25.2	-8.2	266.9	58.2	8.8	-40.8	-20.2	-20	8.8	
Housing Market																			
Housing Starts	-6.2	-8.9	-16.6	-24.1	-19.7	-18.9	-19.4	-25.2	2.6	-9.2	5.8	-13.3	-7.3	-3.9	6	15.4	2.5	5.9	
New Home Sales	-23.6	-15.1	-24.6	-23.4	-19.9	-19.1	-9.5	11.1	11.6	21.3	34.1	2.5	23.1	16.1	4.3	2.4	1.8		
Existing Home Sales	-23.8	-27.7	-34.8	-33.7	-36.7	-23.1	-22.7	-23.7	-20.9	-19.4	-16.7	-15.2	-15.3	-14.3	-6.7	-5.8	-1.7		
Median House Price (Existing Homes)	15.6	16.3	7.4	17	0.4	1.4	0.7	-8.9	-6.5	-3.5	-8.9	0.1	-10.8	-16	-7.4	-13.8	-2.6		
Existing Homes Inventory (Mths' supply)	3	3.2	3.4	3.3	3.3	2.9	2.9	2.9	2.9	2.9	3	3	3.2	3.4	3.5	3.6	3.5		
New Homes Inventory (Mths' supply)	9.7	9.7	9.4	8.5	8.1	8.4	8.1	7.6	7.2	7.5	7.1	7.9	7.5	7.9	8.9	8.3	8.3		
NAHB Homebuilder Sentiment*	46	38	33	31	35	42	44	45	50	55	56	50	44	40	34	37	44	48	
Inflation																			
Consumer Price Index	8.2	7.7	7.1	6.5	6.4	6	5	4.9	4	3	3.2	3.7	3.7	3.2	3.1	3.4	3.1	3.2	
CPI Less-food & energy	6.6	6.3	6	5.7	5.6	5.5	5.6	5.5	5.3	4.8	4.7	4.3	4.1	4	4	3.9	3.9	3.8	
Producer Price Index	8.5	8.2	7.4	6.4	5.7	4.7	2.7	2.3	1.1	0.3	1.1	1.9	1.8	1.1	0.8	1.1	1	1.6	
PPI Less-food & energy	7.2	6.9	6.3	5.7	5	4.6	3.3	3.1	2.8	2.5	2.7	2.5	2.3	2.2	1.9	1.8	2	2	
PCE Price Index	6.6	6.3	5.9	5.4	5.5	5.2	4.4	4.4	4	3.2	3.3	3.3	3.4	3	2.7	2.6	2.4	2.4	
PCE Prices Less-food & energy	5.5	5.3	5.1	4.9	4.9	4.8	4.8	4.8	4.7	4.3	4.2	3.7	3.6	3.4	3.2	2.9	2.8	2.8	
Business Activity - US																			
Industrial Production	4.5	3.1	1.9	0.6	1.5	0.9	0.2	0.4	0.1	-0.4	0.1	-0.1	-0.2	-0.8	-0.1	1.2	-0.3	-0.2	
New Cap Gds Orders less-aircraft & parts	5.6	5	3.2	1	5.6	2.7	1.9	1	3.2	1.4	0.4	0.6	0.5	0.8	1.4	0.8	-0.3		
Business Inventories	19.5	18.3	16.9	15.2	12.5	10.7	8.8	6.2	5.2	3.3	1.8	1.4	1	1	0.7	0.3	0.4	0.4	
ISM Manufacturing PMI*	50.8	50	48.9	48.1	47.4	47.7	46.5	47	46.6	46.4	46.5	47.6	48.6	46.9	46.6	47.1	49.1	47.8	
Markit US Manufacturing PMI*	52	50.4	47.7	46.2	46.9	47.3	49.2	50.2	48.4	46.3	49	47.9	49.8	50	49.4	47.9	50.7	52.2	
ISM Services Index*	55.7	54.7	55.2	49	54.7	55	51.2	52.3	51	53.6	52.8	54.1	53.4	51.9	52.5	50.5	53.4	52.6	
Markit US Services PMI*	49.3	47.8	46.2	44.7	46.8	50.6	52.6	53.6	54.9	54.4	52.3	50.5	50.1	50.6	50.8	51.4	52.5	52.3	
Business Activity - International																			
Germany Manufacturing PMI Markit/BME*	47.8	45.1	46.2	47.1	47.3	46.3	44.7	44.5	43.2	40.6	38.8	39.1	39.6	40.8	42.6	43.3	45.5	42.5	
Japan Manufacturing PMI Jibun Bank*	50.8	50.7	49	48.9	48.9	47.7	49.2	49.5	50.6	49.8	49.6	49.6	48.5	48.7	48.3	47.9	48	47.2	
Caixin China Manufacturing PMI*	48.1	49.2	49.4	49	49.2	51.6	50	49.5	50.9	50.5	49.2	51	50.6	49.5	50.7	50.8	50.8	50.9	
China Manufacturing PMI*	50.1	49.2	48	47	50.1	52.6	51.9	49.2	48.8	49	49.3	49.7	50.2	49.5	49.4	49	49.2	49.1	
UK Manufacturing PMI Markit/CIPS*	48.4	46.2	46.5	45.3	47	49.3	47.9	47.8	47.1	46.5	45.3	43	44.3	44.8	47.2	46.2	47	47.5	
France Manufacturing PMI Markit*	47.7	47.2	48.3	49.2	50.5	47.4	47.3	45.6	45.7	46	45.1	46	44.2	42.8	42.9	42.1	43.1	47.1	
Currencies*																			
Euro (EUR/USD)	-15.4	-14.5	-8.2	-5.8	-3.3	-5.7	-2.1	4.5	-0.4	4.1	7.6	7.8	7.9	7.0	4.6	3.1	-0.4	2.2	
Renmimbi (USD/CNY)	10.4	14.0	11.4	8.5	6.2	9.9	8.4	4.7	6.5	8.3	5.9	5.3	2.6	0.2	0.6	2.9	6.1	3.6	
Yen (USD/Yen)	30.1	30.5	22.0	13.9	13.0	18.4	9.2	5.1	8.3	6.3	6.8	4.7	3.2	2.0	7.3	7.6	12.9	10.1	
Sterling (GBP/USD)	-17.1	-16.2	-9.3	-10.7	-8.4	-10.4	-6.1	-0.1	-1.3	4.3	5.5	9.0	9.2	6.0	4.7	5.4	3.0	5.0	
Canadian $ (USD/CAD)	9.1	10.0	5.0	7.3	4.7	7.7	8.1	5.5	7.3	2.9	3.1	2.9	-1.8	1.8	1.1	-2.3	1.0	-0.5	
Mexican Peso (USD/MXN)	-2.4	-3.7	-10.2	-5.0	-8.7	-10.6	-9.2	-11.9	-10.0	-14.9	-17.8	-15.4	-13.5	-8.9	-9.8	-13.0	-8.6	-6.8	
US Equities																			
S&P 500	-16.8	-15.9	-10.7	-19.4	-9.7	-9.2	-9.3	0.9	1.2	17.6	11.1	14.0	19.6	8.3	12.0	24.2	18.9	28.4	
S&P 400 Midcap	-16.6	-12.9	-4.8	-14.5	0.7	-2.3	-6.7	-0.4	-4.3	15.6	8.6	8.8	13.6	-2.7	-0.5	14.4	3.0	11.1	
S&P 600 Smallcap	-20.0	-13.1	-7.4	-17.4	-2.5	-5.1	-10.4	-5.5	-8.9	7.8	3.4	3.6	8.1	-9.3	-5.9	13.9	-0.1	4.5	
Russell 2000	-24.5	-19.6	-14.2	-21.6	-4.8	-7.4	-12.9	-5.1	-6.1	10.6	6.3	3.0	7.2	-10.0	-4.1	15.1	0.8	8.3	

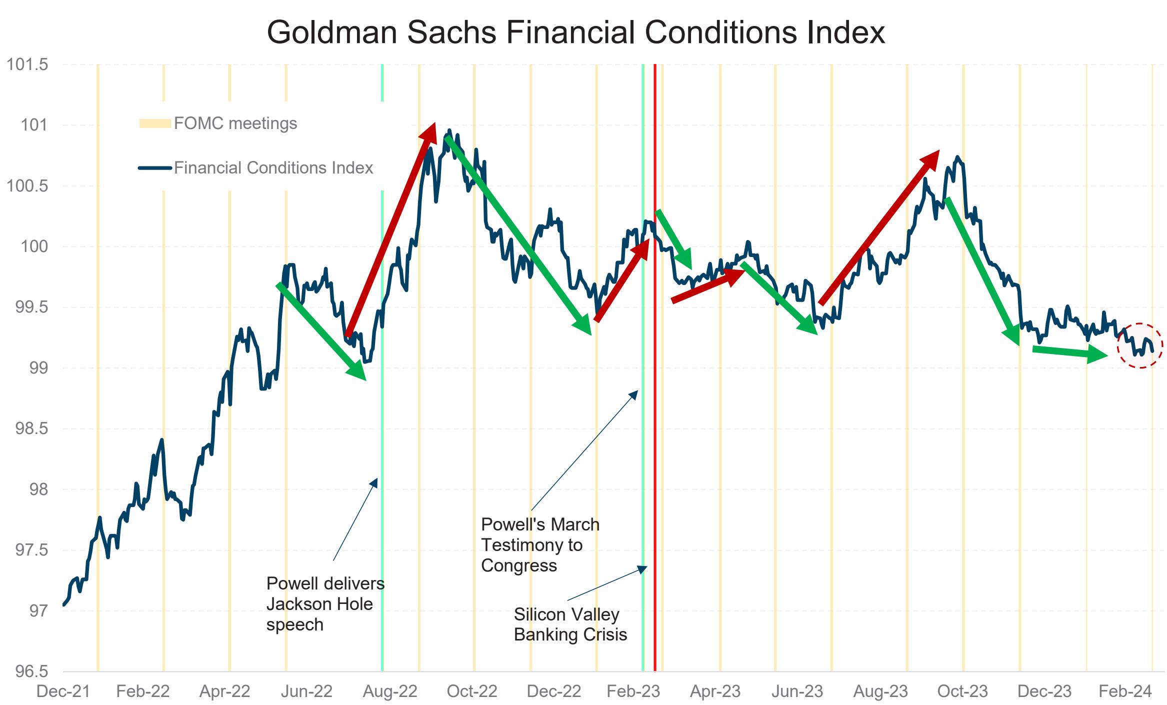
* Diffusion Index, **1985=100, ***Currencies - green/red = strengthening/weakening foreign currency vs dollar

Source: ISM, Federal Reserve, Census Bureau, Bureau of Labor Statistics, Conference Board, Bloomberg, William Blair

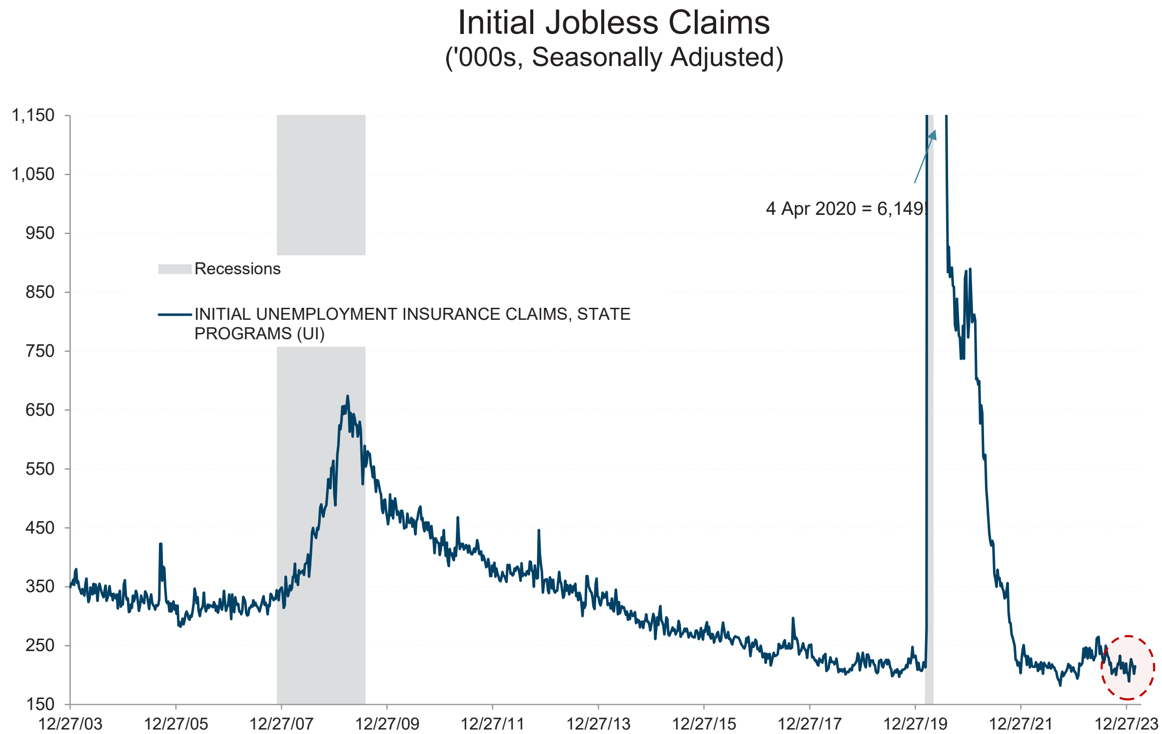
Other Economic Indicators



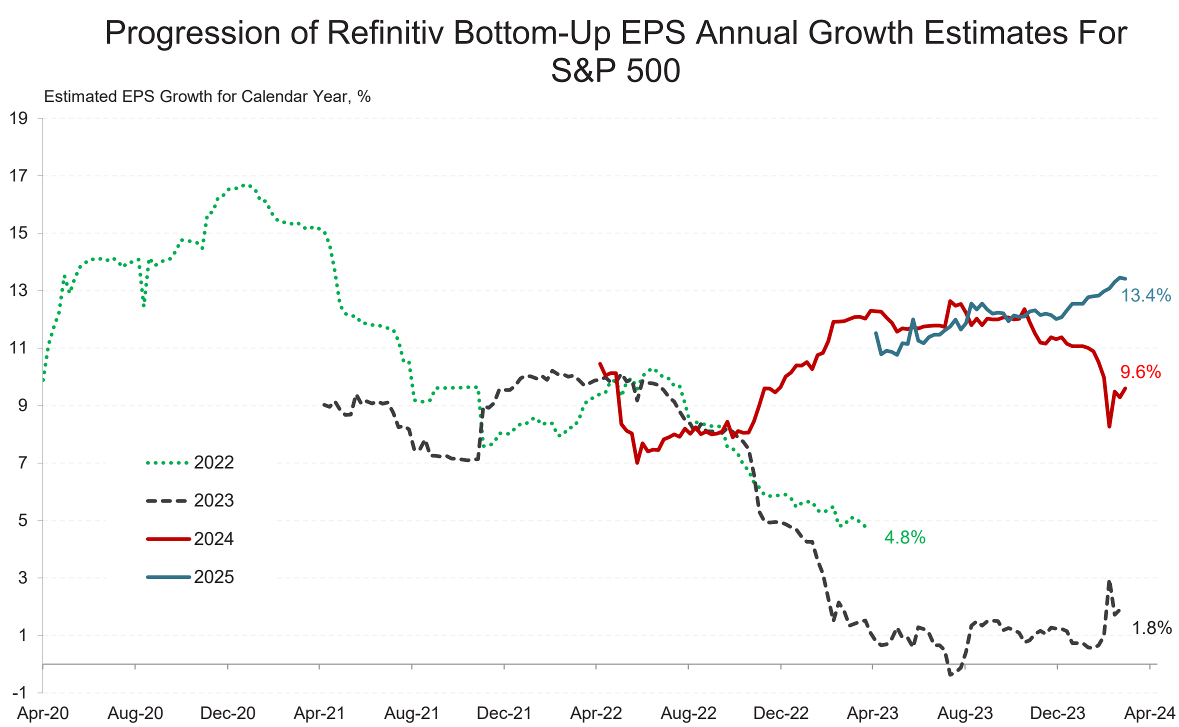
Sources: Federal Reserve, William Blair Equity Research



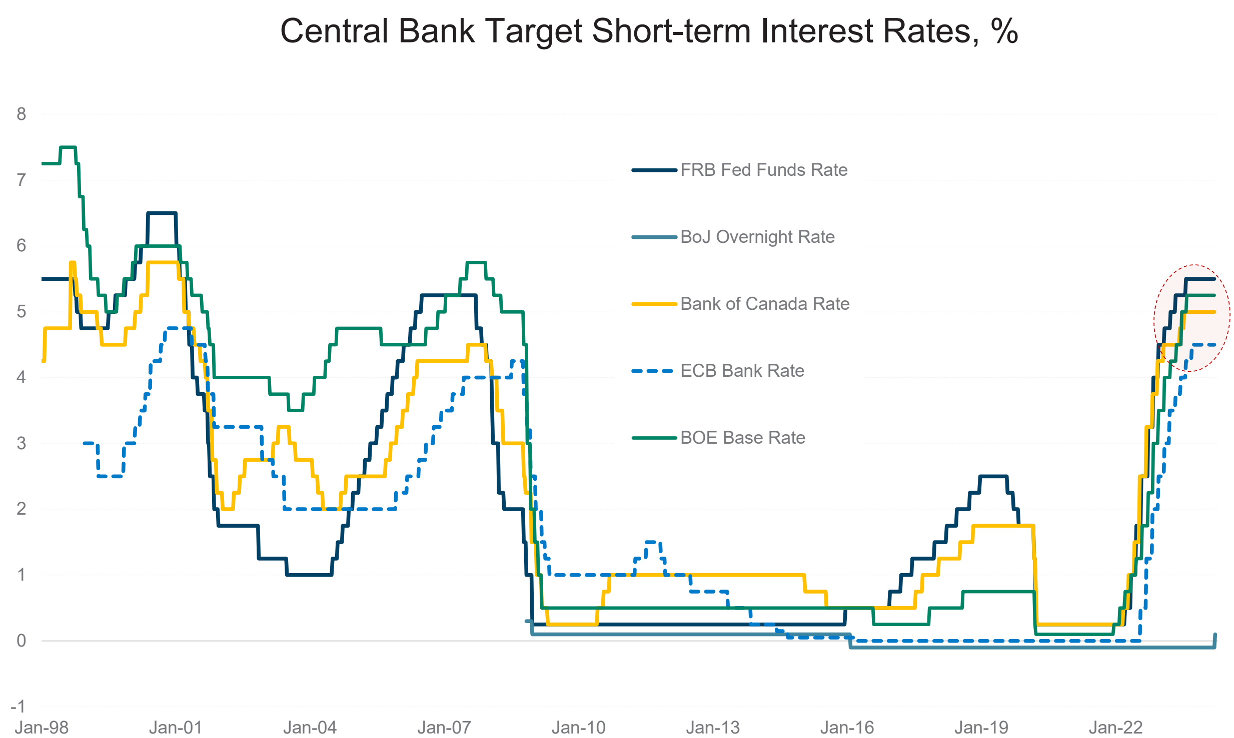
Sources: Bloomberg, William Blair Equity Research



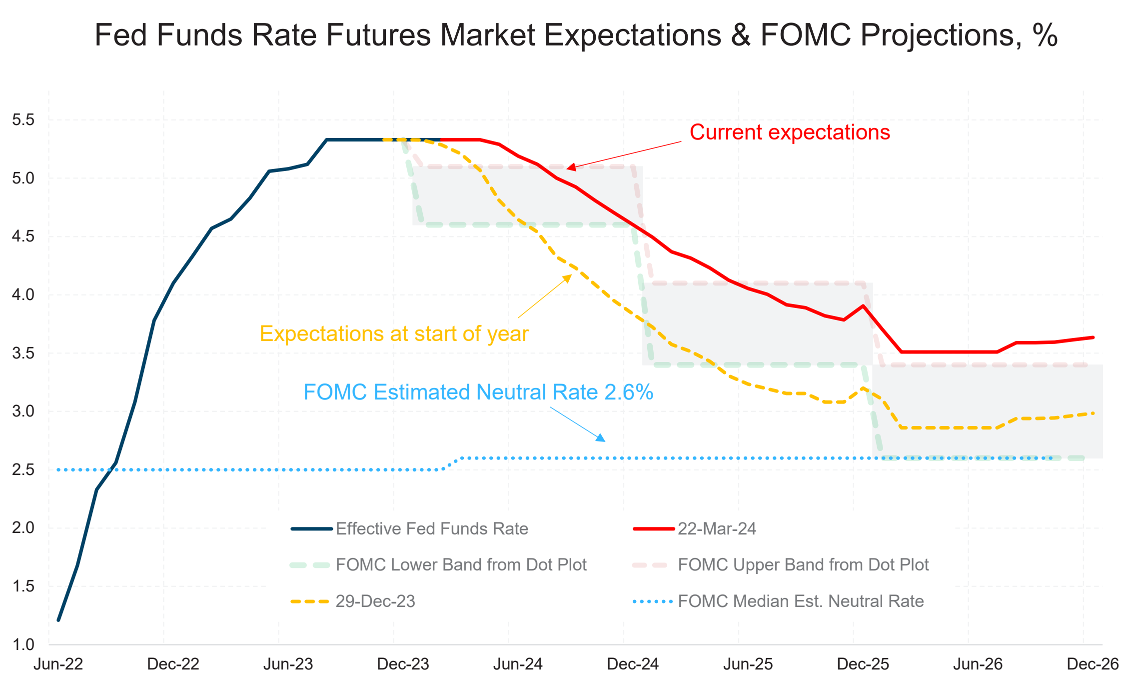
Source: Department of Labor, Bloomberg, William Blair Equity Research



Sources: LSEG, William Blair Equity Research



Sources: Bloomberg, William Blair Equity Research



Sources: Bloomberg, William Blair Equity Research

S&P 500 Sector Performance

Global Industry Classification System	Current Weight* 21-Mar-24	Week Ago 14-Mar-24	Month Ago 21-Feb-24	Qtr-to-Date 29-Dec-23	Year-to-Date 29-Dec-23
S&P 500 Index	**100.00**	**1.77**	**5.21**	**9.89**	**9.89**
S&P400 MidCap Index		**2.97**	**7.11**	**8.33**	**8.33**
S&P600 SmallCap Index		**3.61**	**3.10**	**0.72**	**0.72**
Dow Jones Industrials		**2.25**	**3.03**	**5.55**	**5.55**
Nasdaq Composite		**1.69**	**5.27**	**9.26**	**9.26**
Communication Services	**9.21**	**2.68**	**4.82**	**15.46**	**15.46**
Advertising	0.07	1.61	4.60	5.79	5.79
Broadcasting	0.05	4.37	1.16	-6.65	-6.65
Cable & Satellite	0.48	0.02	2.49	-6.19	-6.19
Integrated Telecommunication Services	0.64	1.49	-0.41	5.27	5.27
Interactive Home Entertainment	0.13	1.28	-3.34	-4.14	-4.14
Interactive Media & Services	6.23	3.17	5.46	18.36	18.36
Movies & Entertainment	1.16	2.69	7.97	24.89	24.89
Publishing & Printing	0.03	0.52	0.37	6.54	6.54
Wireless Telecommunication Svcs	0.42	-1.18	-1.90	0.38	0.38
Consumer Discretionary	**10.74**	**2.26**	**3.45**	**4.68**	**4.68**
Apparel Retail	0.36	0.63	1.21	5.92	5.92
Apparel & Accessories & Luxury Goods	0.18	1.93	5.53	-0.91	-0.91
Auto Parts & Equipment	0.07	5.35	5.38	-9.37	-9.37
Automobile Manufacturers	1.43	6.76	-8.17	-25.02	-25.02
Automobile Retail	0.30	3.90	15.13	22.08	22.08
Broadline Retail	4.13	-0.33	5.76	17.05	17.05
Casinos & Gaming	0.16	0.14	-1.70	0.32	0.32
Computer & Electronics Retail	0.04	3.85	8.53	2.76	2.76
Consumer Electronics	0.06	0.75	10.90	15.24	15.24
Distributors	0.11	4.18	7.52	10.10	10.10
Footwear	0.27	1.13	-3.68	-6.61	-6.61
Home Furnishings	0.02	7.90	10.94	21.92	21.92
Home Improvement Retail	1.19	5.69	10.14	14.91	14.91
Homebuilding	0.32	7.04	10.37	10.09	10.09
Hotels, Resorts & Cruise Lines	0.89	2.97	5.43	8.32	8.32
Household Appliances	0.01	5.70	1.54	-8.26	-8.26
Leisure Products	0.02	5.83	11.92	9.80	9.80
Restaurants	1.01	1.05	-0.20	1.23	1.23
Other Specialty Retail	0.14	-0.28	4.81	14.61	14.61
Consumer Staples	**6.49**	**1.34**	**2.98**	**6.43**	**6.43**
Agricultural Products	0.10	7.00	13.24	-10.01	-10.01
Brewers	0.03	1.73	7.36	9.57	9.57
Hypermarkets	2.11	1.47	4.68	13.75	13.75
Distillers & Vintners	0.14	2.07	5.10	7.00	7.00
Drug Retail	0.04	0.87	-4.37	-20.34	-20.34
Food Distributors	0.09	2.01	2.46	11.64	11.64
Food Retail	0.09	2.72	19.26	24.74	24.74
Household Products	1.18	0.11	1.59	9.66	9.66
Packaged Foods & Meats	0.74	2.82	1.10	1.30	1.30
Personal Products	0.16	-0.61	3.17	-1.99	-1.99
Soft Drinks	1.32	2.00	0.63	1.39	1.39
Tobacco	0.49	-0.69	4.92	2.41	2.41
Energy	**3.83**	**2.20**	**7.90**	**10.48**	**10.48**
Integrated Oil & Gas	1.74	0.99	4.90	9.54	9.54
Oil & Gas Equipment & Services	0.39	3.05	11.35	3.60	3.60
Oil & Gas Exploration & Production	0.99	2.21	7.59	7.26	7.26
Oil & Gas Refining & Marketing & Transportation	0.43	5.12	17.91	28.08	28.08
Oil & Gas Storage & Transportation	0.35	3.75	8.90	11.74	11.74

Financials	**12.70**	**3.05**	**6.05**	**11.44**	**11.44**
Asset Management & Custody Banks	0.87	5.00	5.57	4.33	4.33
Consumer Finance	0.59	3.06	7.51	16.95	16.95
Diversified Banks	3.00	5.01	10.12	14.11	14.11
Financial Exchanges & Data	1.08	1.15	1.72	0.54	0.54
Insurance Brokers	0.60	-0.23	3.34	11.34	11.34
Investment Banking & Brokerage	0.97	6.26	8.97	4.52	4.52
Life & Health Insurance	0.38	2.49	5.78	7.25	7.25
Multi-line Insurance	0.14	1.72	11.17	13.05	13.05
Multi-Sector Holdings	1.19	1.73	1.11	16.01	16.01
Property & Casualty Insurance	0.97	0.93	4.71	20.10	20.10
Regional Banks	0.28	6.64	7.73	4.56	4.56
Reinsurance	0.04	-1.00	6.23	8.72	8.72
Transaction & Payment Processing	2.60	2.24	6.40	12.81	12.81
Health Care	**12.25**	**0.17**	**0.38**	**6.85**	**6.85**
Biotechnology	1.86	-0.24	0.73	3.82	3.82
Health Care Distributors	0.34	1.37	4.65	14.03	14.03
Health Care Equipment	2.37	-0.58	0.32	7.77	7.77
Health Care Facilities	0.21	1.72	6.25	21.06	21.06
Health Care Services	0.53	1.67	2.08	6.24	6.24
Health Care Supplies	0.11	0.77	3.97	9.28	9.28
Life Sciences Tools & Services	1.42	0.84	5.22	8.80	8.80
Managed Health Care	1.49	0.66	-4.10	-4.30	-4.30
Pharmaceuticals	3.91	0.01	-0.53	11.24	11.24
Industrials	**8.79**	**3.32**	**6.51**	**10.28**	**10.28**
Aerospace & Defense	1.50	2.54	2.47	0.32	0.32
Agricultural & Farm Machinery	0.24	4.58	11.29	-0.56	-0.56
Air Freight & Logistics	0.45	1.78	5.97	-0.43	-0.43
Building Products	0.51	4.42	10.58	15.09	15.09
Construction & Engineering	0.08	5.75	21.34	18.77	18.77
Construction Machinery & Heavy Trucks	0.69	7.07	13.56	23.09	23.09
Data Processing & Outsourced Services	0.05	3.16	4.82	0.15	0.15
Diversified Support Svcs	0.26	1.70	9.66	11.15	11.15
Electrical Components & Equipment	0.65	3.64	10.22	17.88	17.88
Environmental & Facilities Services	0.42	1.27	4.94	15.15	15.15
Human Resource & Employment Services	0.39	2.11	-0.91	4.16	4.16
Industrial Conglomerates	0.84	4.54	11.66	13.94	13.94
Industrial Machinery	0.87	2.76	6.62	12.30	12.30
Passenger Airlines	0.16	5.89	1.01	9.19	9.19
Railroads	0.62	0.98	-0.14	4.67	4.67
Research & Consulting Svcs	0.23	2.00	2.39	7.76	7.76
Trading Companies & Distributors	0.32	5.00	10.80	23.59	23.59
Information Technology	**29.74**	**1.13**	**7.72**	**13.40**	**13.40**
Application Software	2.44	-0.35	3.75	4.60	4.60
Communications Equipment	0.83	1.91	6.80	7.11	7.11
Electronic Components	0.21	3.84	7.20	13.55	13.55
Electronic Equipment & Instruments	0.17	2.92	5.11	2.66	2.66
Electronic Manufacturing Services	0.13	-1.49	0.00	2.19	2.19
Internet Software & Services	0.08	0.16	0.38	-7.56	-7.56
IT Consulting & Services	1.09	-4.75	0.24	4.88	4.88
Semiconductor Equipment	0.95	4.96	9.12	23.58	23.58
Semiconductors	9.13	3.36	21.58	41.84	41.84
Systems Software	8.47	0.97	7.27	13.89	13.89
Technology Distributors	0.07	3.38	5.58	12.09	12.09
Technology Hardware, Storage & Peripherals	6.17	-1.02	-5.50	-10.48	-10.48
Materials	**2.31**	**1.66**	**7.60**	**7.34**	**7.34**
Commodity Chemicals	0.16	1.14	3.93	5.97	5.97
Construction Materials	0.16	1.42	11.50	22.14	22.14
Copper	0.15	6.74	18.99	8.62	8.62
Fertilizers & Agricultural Chemicals	0.16	1.35	7.09	8.38	8.38
Gold	0.09	0.93	3.30	-16.57	-16.57
Industrial Gases	0.61	-2.06	5.56	7.09	7.09

Metal & Glass Containers	0.05	1.33	6.26	13.93	13.93
Paper Packaging	0.16	2.33	7.27	8.76	8.76
Specialty Chemicals	0.62	3.10	7.54	5.51	5.51
Steel	0.15	8.16	9.82	15.49	15.49
Real Estate	**2.22**	**0.72**	**1.52**	**-2.30**	**-2.30**
Data Center REITs	0.26	-4.69	-2.97	1.92	1.92
Health Care REITs	0.18	2.44	-0.06	-2.15	-2.15
Hotel & Resort REITs	0.03	2.32	4.65	8.63	8.63
Industrial REITs	0.26	-0.67	-2.65	-2.56	-2.56
Multi-Family Residential REITs	0.00	1.96	3.83	-0.14	-0.14
Office REITs	0.07	4.59	4.13	-1.01	-1.01
Real Estate Service	0.15	8.54	12.83	8.97	8.97
Retail REITs	0.28	3.19	1.41	-1.50	-1.50
Self-Storage REITs	0.17	0.27	-1.62	-9.08	-9.08
Single-Family Residential REITs	0.17	0.27	-1.62	-9.08	-9.08
Telecom Tower REITs	0.35	-2.25	1.11	-10.90	-10.90
Timber REITs	0.06	3.71	7.15	2.18	2.18
Utilities	**2.07**	**1.42**	**3.26**	**0.61**	**0.61**
Electric Utilities	1.39	1.85	4.61	2.16	2.16
Gas Utilities	0.04	1.68	1.87	0.80	0.80
Independent Power Producers & Energy Traders	0.02	4.85	-4.77	-18.13	-18.13
Water Utilities	0.05	-0.23	-2.89	-10.44	-10.44
Multi-Utilities	0.57	0.39	1.09	-1.07	-1.07

*Current Weight is market cap based, based on calculations by William Blair Intl. Ltd.

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DOW JONES: 39781.40
S&P 500: 5241.53
NASDAQ: 16166.80

Additional information is available upon request.

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Coverage Universe	**Percent**	**Inv. Banking Relationships ***	**Percent**
Outperform (Buy)	71	Outperform (Buy)	7
Market Perform (Hold)	28	Market Perform (Hold)	2
Underperform (Sell)	1	Underperform (Sell)	0

*Percentage of companies in each rating category that are investment banking clients, defined as companies for which William Blair has received compensation for investment banking services within the past 12 months.

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