MARKET COMMENTARY

EQUITY ANALYSIS

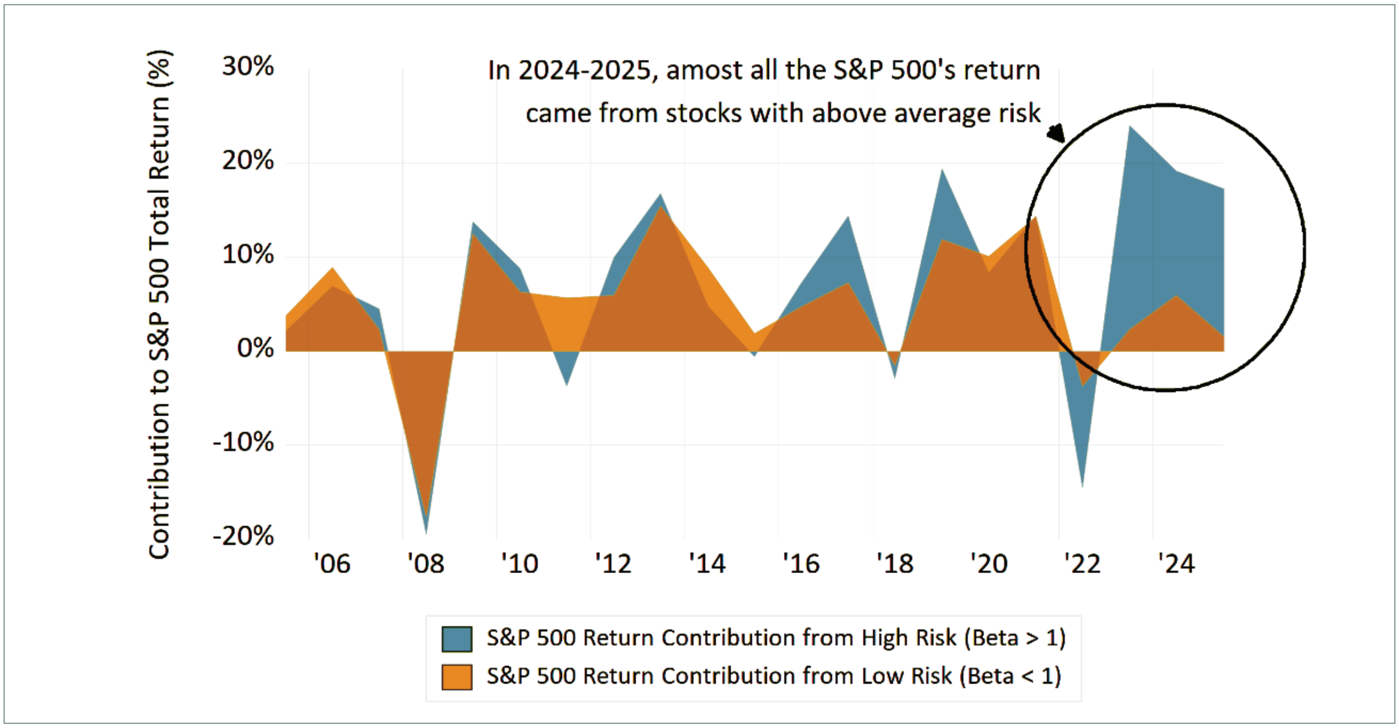
S&P 500 RISK AND RETURN ATTRIBUTION (2005-2025*)

We sought to look back at twenty years' data for the S&P 500 to study the source of return by company risk category. As the graphs and tables that follow show, the results were eye opening.

KEY TAKEAWAYS

- 83% of the S&P 500's 2023-2025 return was driven by high-risk stocks. Users of the index for benchmarking purposes must be aware the index return composition has shifted dramatically toward risk. Practitioners may want to revisit whether the benchmark remains aligned with investor risk management objectives.
- A look back over the past two decades reveals 2023-2025 returns as an outlier. Most of the time, rising markets' leadership is shared between higher and lower risk stocks. There is balance. Since 2023, the balance has been lost. Returns have been skewed toward high risk resulting in lopsided, one-way leadership.
- The concentrated high-risk 2023-2025 rally has been an anomaly and raises risk of potential mean reversion. A significant "gap" has emerged between the value of high-risk and low-risk stocks.

CHART A | WHERE ARE S&P 500 RETURNS COMING FROM? Source: Bloomberg, WCA



S&P 500 RAW DATA (2005-2025*)

This table shows how S&P 500 returns have evolved since 2005. It breaks the index into two cohesive groups of stocks: Low Risk with betas below 1 and High Risk with betas above 1. The sum of the first two columns add up to the overall S&P 500 total return. The last two columns isolate the returns for each risk category. Note that since 2023, 86% of the overall S&P 500 return has come directly from high risk stocks (for the sake of simplicity, we use basic math — combining three most recent years of high risk contribution to return and dividing it by the combined total returns for the same time period).

Year	High Risk Contribution to Return (Beta>1)	Low Risk Contribution to Return (Beta<1)	S&P 500 Total Return	Total Return High Risk (Beta>1)	Total Return Low Risk (Beta<1)
2025*	17.3%	1.5%	18.8%	29.9%	3.5%
2024	19.2%	5.9%	25.0%	33.6%	14.0%
2023	24.0%	2.3%	26.3%	49.3%	5.4%
2022	-14.5%	-3.7%	-18.2%	-25.2%	-9.7%
2021	14.4%	14.3%	28.7%	29.0%	27.9%
2020	8.3%	10.1%	18.4%	26.3%	12.5%
2019	19.4%	11.9%	31.3%	34.0%	27.7%
2018	-2.9%	-1.5%	-4.4%	-5.8%	-3.2%
2017	14.4%	7.3%	21.8%	26.9%	15.8%
2016	7.2%	4.7%	11.9%	15.2%	9.1%
2015	-0.6%	1.9%	1.3%	-1.1%	4.2%
2014	4.8%	8.9%	13.7%	9.9%	17.2%
2013	16.8%	15.4%	32.2%	36.8%	28.2%
2012	10.0%	5.9%	15.9%	19.9%	12.2%
2011	-3.7%	5.7%	2.0%	-6.6%	11.3%
2010	8.8%	6.3%	15.1%	20.3%	11.2%
2009	13.8%	12.5%	26.2%	36.4%	20.6%
2008	-19.5%	-17.6%	-37.0%	-44.8%	-31.5%
2007	4.5%	2.3%	6.7%	9.2%	4.6%
2006	6.9%	8.9%	15.8%	14.1%	17.4%
2005	2.1%	3.8%	5.9%	5.5%	6.7%
Annual Return			**10.8%**	**12.4%**	**8.9%**
Annual Risk**			**16.9%**	**22.4%**	**13.5%**
Alpha				**-0.9%**	**+0.8%**
Beta				**1.3**	**0.7**

** YTD through December 10, 2025 ** Volatility (Standard Deviation of Returns) Source: WCA, Bloomberg*

HIGH BETA HAS OUTPERFORMED OVERALL, BUT WITH MUCH HIGHER RISK

Higher risk stocks generated ~1.6% more annual return than the S&P 500 over the full period (2005-2025*), but at the cost of 30% more risk.

After factoring in risk, the returns of the S&P 500 and low risk stocks are fairly comparable (near 0.63-0.65). However, high risk stocks lag far behind after factoring in risk (return per unit of risk is only 0.55).

Index	Annual Return	Volatility / Risk*	Return / Risk
S&P 500	10.8%	16.9%	0.63
High Risk (Beta > 1)	12.4%	22.4%	0.55
Low Risk (Beta < 1)	8.9%	13.5%	0.65

** Annual standard deviation   Source: Bloomberg, WCA*

ASYMMETRY RULES: HIGH BETA AMPLIFIES LOSSES AND GAINS

Even after the massive high-beta runup from 2023-2025, regressing against the S&P 500 for 2005-2025 reveals:

- **High risk companies: implied Beta = 1.3, Alpha = -0.9%**
- **Low risk companies: implied Beta = 0.7, Alpha = +0.8%**

A core tenet of financial theory suggests holding higher beta (risky) stocks should yield higher returns, but empirical data often shows high-beta stocks often underperform low-beta stocks. To read more about this phenomenon, we recommend a paper titled "Betting Against Beta" by New York University Finance Professor Aswath Damodaran. While the paper was written over a decade ago, it appears that even in the bull market that followed the paper's publishing, betting against high-risk and high-beta proved to hold water.

IN THE SHORT-RUN, MARKET REGIME IS KEY

This should come as no surprise. Lower risk stocks tend to do better in difficult markets. Higher risk stocks tend to do better in rising markets.

Market Regime (2023-2025)	S&P 500 Average Annual Rtn	High Risk (Beta>1) Average Annual Rtn	Low Risk (Beta<1) Average Annual Rtn
S&P 500	10.8%	16.9%	0.63
High Risk (Beta > 1)	12.4%	22.4%	0.55
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** Annual standard deviation   Source: Bloomberg, WCA*

RECENT YEARS: A DRAMATIC SHIFT TOWARD HIGH RISK

As you can see above, the 2023-2025 window is off the chart for high-risk, raising the risk of mean reversion.

This is not a normal market. Over the past three years, the performance gap between high-risk and low-risk stocks has blown out.

Where a relatively steady relationship used to exist between higher and lower risk investing styles, the risk-on market of 2023-2025 has created a large gap. The higher risk index (blue area) below appears positioned to revert to the mean as valuations become significantly stretched.

CONCLUSION

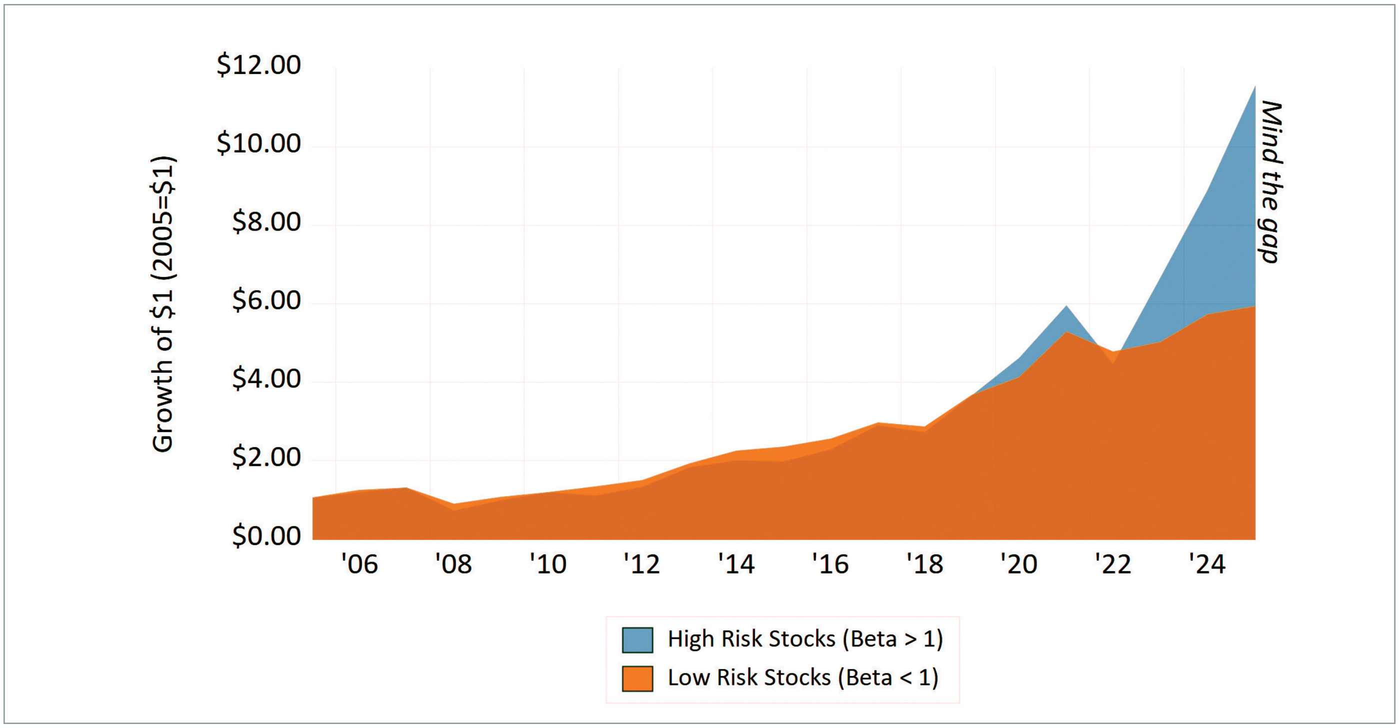
We performed this risk and return attribution of one of the most common indices to help us better understand what kind of risks are undertaken when investing in a strategy that tracks the index.

We discover that it is helpful to break the S&P 500 into two distinct types of investments — high risk (high beta) and low risk (low beta). In this way, we can study what drives performance of the index from one period to another.

We find that it is critical to understand that the S&P 500 is not a static index with static risk dynamics. Instead it is a continually changing benchmark with massive shifts in risk composition. The relative proportion of these two investment types shift over time without regard to any one individual investor's goals, risk tolerance, or circumstances. Over time, however, there is evidence that the two types of investments obey basic logic of mean reversion.

We also see that the most recent stretch of returns for the S&P 500 skews massively toward high risk style companies which accounted for 83% of the S&P 500 index's return since 2023. This shift is historic and substantial, measuring a several standard deviation move away from the historic average. Such a move suggests that mean reversion risk is high when comparing high versus low beta strategies.

CHART B | HIGH RISK STOCKS' RALLY EXPOSES GAP (MEAN REVERSION RISK HIGH) Source: Bloomberg, WCA



IMPORTANT DISCLOSURES

Standard & Poor's 500 Index (S&P 500) is a capitalization-weighted index that is generally considered representative of the U.S. large capitalization market.

Indices are unmanaged, and it is not possible to invest directly in an index. All benchmark returns presented are provided to represent the investment environment existing during the time periods shown. Actual investment performance will vary due to fees and expenses. For comparison purposes, the benchmarks include the reinvestment of income. The benchmarks are unmanaged and unavailable for direct investment.

The Washington Crossing Advisors' High Quality Index and Low Quality Index are objective, quantitative measures designed to identify quality in the top 1,000 U.S. companies. Ranked by fundamental factors, WCA grades companies from "A" (top quintile) to "F" (bottom quintile). Factors include debt relative to equity, asset profitability, and consistency in performance. Companies with lower debt, higher profitability, and greater consistency earn higher grades. These indices are reconstituted annually and rebalanced daily. For informational purposes only, and WCA Quality Grade indices do not reflect the performance of any WCA investment strategy.

The ICE BofA U.S. High Yield Index is an unmanaged index that tracks the performance of U.S. dollar denominated, below investment-grade rated corporate debt publicly issued in the U.S. domestic market.

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Beta is a measure of the volatility, or systematic risk, of a security or a portfolio relative to the market as a whole. A beta of one is considered as risky as the benchmark and is therefore likely to provide expected returns approximate to those of the benchmark during both up and down periods. A portfolio with a beta of two would move approximately twice as much as the benchmark.

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