RegimePilot

Market Volatility Regimes, Betas and Portfolio Returns

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INTRODUCTION

The August volatility spike and stock market drawdown highlights the fragility of equity markets today. While the 8% drawdown in the S&P 500 over a 14-day period is uncommon, the rapid appreciation of VIX prices from under 13% to over 64% is rarer still. It took the VIX, for example, almost twice as long to make a similar move over the initial days of the Covid Pandemic. This temporary shift in volatility regime reflects the degree of latent systematic risk in markets today that investors should understand. Toward that end, we share some of our insights about the characteristics of market volatility regimes that advisors and allocators may find informative as they seek to structure more efficient portfolios for their clients. We also share some general guidelines that we use in our directional strategies.

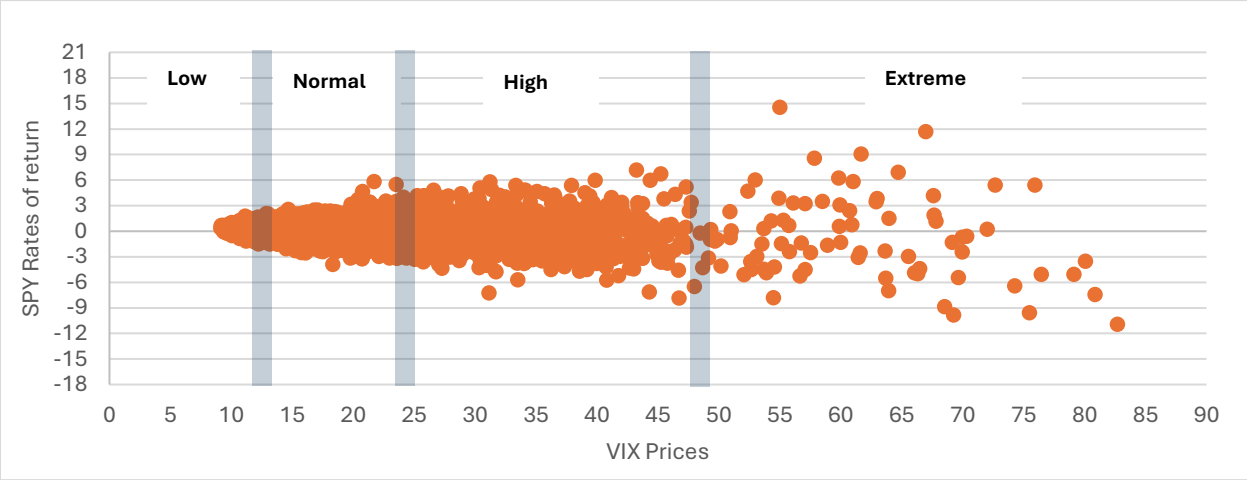
DEFINITION

Market volatility regimes are sources of market risk. They are market volatility levels that shift and cluster for periods of time. The concept recognizes that markets do not experience constant levels of volatility; instead, they transition between regimes based on factors such as economic conditions, investor sentiment, and external events. Understanding regimes is essential for investors, as they have tangible implications for portfolio management, particularly beta policy—the sensitivity of portfolio returns to market movements.

CHARACTERISTICS OF VOLATITY REGIMES

One way to visualize market volatility regimes is to plot VIX prices against daily rates of return for the SPDR S&P 500 ETF Trust, SPY. This creates a surface area that captures the range of returns for different volatility levels. We do this in Figure 1. The data reveals 4 regimes: a Low volatility regime, a Normal regime, a High volatility regime and an Extreme volatility regime. Most of the value's cluster into Low (19%) and Normal volatility regimes (59%), about 78%. These regimes generally occur in bull markets. High volatility regimes account for 21% of values and Extreme regimes account for about 1%. These regimes generally occur in corrections and bear markets.

Figure 1: U.S. Market Volatility Regimes (January 1993 to July 2024).



We also show the historical return averages (means and medians) for the different regimes. Figure 2 shows that both Low and Normal volatility regimes have positive rates of return with the lowest regime producing the highest return, 0.16%. Both High and Extreme regimes have negative rates of return with the Extreme regime producing the worst return, -1.36%. So, what does it all mean?

Figure 2: Average Daily Returns for U.S. Market Volatility Regimes (January 1993 to July 2024)

	Low	Normal	High	Extreme
Mean	0.16%	0.07%	-0.13%	-0.71%
Median	0.13%	0.05%	-0.16%	-1.36%

IMPLICATIONS FOR INVESTORS

If you take equity market risk, you should care about volatility regimes. We conduct original research and seek to draw rational conclusions based on the data and apply these conclusions in our strategies. We list some basic findings and portfolio guidelines below.

First, we believe Low market volatility regimes are high conviction times to own equities. This regime has the highest average daily return and the lowest return dispersion. Normal regimes are second. Trading in these regimes is unlikely to be remunerated with returns above the market. Buying and holding equity portfolios with above average market exposure is an optimal investment policy in these regimes. We implement this view in our strategies by holding market portfolios and using small amounts of leverage to increase portfolio beta.

Second, trading has a high likelihood of being rewarded in high market volatility regimes for investors with skill. While the regime's average daily return is negative, return dispersion is high and, as Figure 1 shows, many of the returns are large and positive. In addition, we find that returns can be serially correlated in high volatility regimes. We believe that directional long-short trading is an optimal investment policy in this regime and apply models and algorithms to trade in it.

As a sidebar, we note that equity assets become highly correlated in High volatility regimes and portfolio betas can increase dramatically. As such, what may have been considered a diversified

equity portfolio in a Low or Normal regime effectively becomes a geared portfolio positioned directionally long which is why investors lose money quickly in these environments.

Third, we find that Extreme regimes are neither good times to buy and hold short equity portfolios nor good times to trade. The speed of price changes and range of price movements is elevated to such a degree that discretionary and systematic strategies stop working as intended in this regime. We believe that market neutrality is an optimal policy in this regime.

Finally, it should be clear that we believe beta policy matters a lot and should be a focus area for professional investors today. The historical record is littered with cautionary tales chronicling the great gains and heavy losses that accrue to managers that don't prioritize beta and market risk. A stark example is the Ark Innovation ETF. The ETF's over 350% return from the Covid Pandemic low in 2020 to the high 2021 was celebrated endlessly in financial media and the CIO was happy to attribute the fund's success to their skill. However, the evidence points to a different, more random explanation. The volatility environment over the period ranged from Low and Normal regimes where investors bought equities with little regard for risk, driving prices higher. The ETF's ultra-high beta was ideal in this environment and drove a good measure of the fund's success over the period. This became evident in late 2021 and throughout 2022, when the ETF plunged by 81% amidst a bear market high volatility regime. This example shows that regimes and beta policy are key portfolio return drivers. Higher betas increase exposure to volatility regimes and vice versa. Ark's clients would have been better served had the portfolio management team been more aware of the regime shift that took place and created a more adaptable portfolio.

In summary, we know that advisors and allocators cannot exhaustively incorporate our conclusions into their portfolios. We do, however, believe that our findings can help them think more critically about the market exposure they own and how it will play out in different volatility environments. RegimePilot strategies are, of course, built around these ideas. They are designed to help investors move to a more optimal place on the efficient frontier by optimally managing market exposure over a cycle. As always, we welcome your feedback.

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