

# ▶ THE LOW VOLATILITY ANOMALY – EXAMINING THE EVIDENCE

**Traditional finance theory suggests that investors need to take higher risks to achieve higher returns. Eastspring's own analysis however confirms that low volatility stocks tend to outperform higher volatility stocks over the long-term and that this anomaly exists broadly across equity markets globally. This ability to achieve market returns with less volatility offers a compelling proposition for investors who wish to have exposure to the equity markets, minus the large swings.**

Low volatility investing has recently come back to the fore as market volatility and investor uncertainty returned after a period of relative calm.

The MSCI ACWI Minimum Volatility Index, as at end November 2018, outperformed its global benchmark by 625 basis points<sup>1</sup>. Its Asian counterpart performed even better – the MSCI AC Asia Pacific ex Japan Minimum Volatility Index beat the broader market by 780 basis points<sup>2</sup> over the same period.

The low volatility anomaly lies at the core of a low volatility strategy. This anomaly refers to how lower risk assets (as measured by volatility) keep up with and even tend to outperform higher risk



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assets over the long term, defying traditional finance theory.

## DEFYING CONVENTION

According to the Capital Asset Pricing Model (CAPM) which was introduced in the 1960s, the return on an asset should be proportional to the amount of risk taken (or volatility). Hence an asset should earn a combination of a risk-free return plus an excess return that compensates for the quantum of market risk it carries. Market risk is scaled by the asset's beta, or its sensitivity to the return of the overall market. High beta stocks are viewed as more volatile – rallying more than the market as it rises and falling harder when it corrects.

Challenges to this theory began soon after the CAPM was introduced. In 1967, Pratt observed that between 1926 and 1960, high risk stocks in

the US did not exhibit the higher returns as suggested by the model. Black, Jensen, and Scholes (1972), who analysed portfolios of US stocks from 1926-1966, found that the average returns of low beta portfolios were indeed higher than what was predicted by the CAPM.

Since then, observations of the low volatility anomaly have surfaced in many stockmarkets around the world and even in other asset classes. Baker and Haugen (2012) confirmed the presence of the low volatility anomaly in 21 developed and 12 emerging markets between 1990-2011<sup>3</sup>.

There are various theories for why the low volatility anomaly exists and persists. Many of the theories are behavioural including:

**The Lottery Effect:** Volatile stocks are similar to lottery tickets – the potential payoff is large (but the probability of receiving the payoff is low) – and investors are prepared to overpay for this.

**Representativeness Heuristic:** Investors associate high volatility with glamour stocks from the past (think Amazon, Netflix, Apple) and overpay in the hope of owning the next “big one”.

**Overconfidence Bias:** Investors are generally overconfident in their ability to forecast the future. Low volatility stocks usually have more predictable future cashflow streams, leaving less room for overconfidence to creep in.

## EXAMINING THE EVIDENCE

Analysing data over several business cycles and significant market events is always preferable when researching any quantitative factor. This can often be challenging as historical data representing the factor may not always be available. With volatility-based factors, however, where the primary input is stock returns, historical data going back several decades is readily available, particularly for the US equity market.

For our analysis, we considered the universe of the 500 largest US stocks (by market capitalisation) at each date over a period of more than 45 years,

from June 1973 to November 2018. The stocks were split into quintiles based on their recent 60-day volatility. Quintile 1 (Q1) contained the top 20% or lowest volatility stocks, while quintile 5 (Q5) contained the bottom 20% or highest volatility stocks.

This relatively simple strategy is used only to highlight the differences in the long-term performance of low versus high volatility stocks. A low volatility strategy, in practice, will contain many other considerations including turnover constraints, transaction costs, country and sector positions, etc.

Our findings clearly show an important feature of a low volatility strategy - by losing less when the market falls, it requires less of a climb when the market turns up. This is often referred to as “gaining more by losing less”. Importantly, across longer periods, even though the market is up (the S&P 500 Index returned 10.4% p.a. over this period), the low volatility portfolio outperformed both the index and the high volatility portfolio. (See Fig.1).

We note that the performance of the low and high volatility portfolios is broadly similar for most of the period under consideration. It is evident, however, that the low volatility portfolio tends to lag when the market rallies quickly. Conversely, the low volatility portfolio is more resilient when the market falls sharply. There are two notable

**Fig.1: Cumulative sum of returns of low and high volatility portfolios (June 1973 to November 2018)<sup>4</sup>**



periods where the low and high volatility portfolios accentuate this pattern - the 1999-2002 Tech Boom and Bust as well as the 2007-2009 Global Financial Crisis and the ensuing recovery.

- ▶ **The low volatility portfolios lag in fast rising markets**
- ▶ **The low volatility portfolios outperform in sharply falling markets**

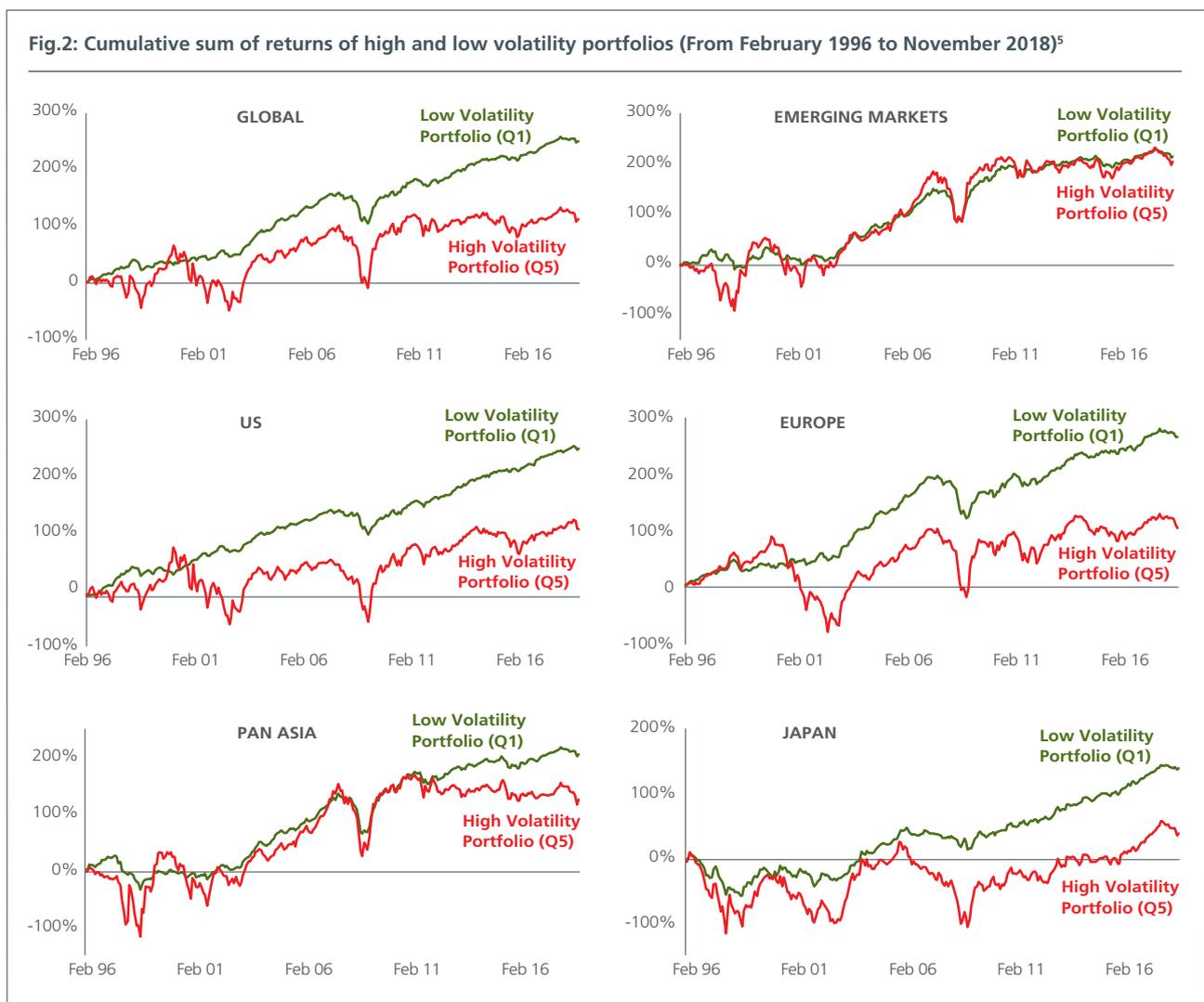
### CASTING THE NET WIDER

We observed very similar outcomes for low and high volatility portfolios when we extended our analysis to other regional markets outside the US.

In summary,

- ▶ **The low volatility portfolios outperform over the long term**

Fig.2 below shows our analysis for the different regions from February 1996 to November 2018. Given more limited historical data outside the US markets, we performed the analysis over 22+ years using the S&P Broad Market Index as the universe for each region. We have used a similar universe for the US market in this analysis for easier comparison.



## HIGHER RETURNS WITHOUT MORE RISK

While the outperformance of low volatility stocks is compelling, it is their higher risk adjusted returns that is most stark. Investors are basically getting higher returns without taking on more risk, which is reflected by the higher risk adjusted returns. The table below (Fig.3) clearly demonstrates this by showing the annualised returns, volatility and risk-adjusted returns for the different portfolios in the above Fig.2.

## EXPLOITING THE LOW VOLATILITY ANOMALY

The ability of low volatility strategies to deliver market-like returns over the long-term, but with much lower volatility is compelling. Long term investors who wish to have exposure to the equity

markets while wanting to avoid large swings can consider using low volatility strategies to help manage risk. Importantly, there is little reason to suspect the behavioural biases that underpin the low volatility anomaly will not continue to exist across markets.

In the shorter term, the performance of low volatility strategies will be influenced by the direction and strength of the market. In 2017, when stock markets climbed strongly and steadily, low volatility strategies expectedly lagged. In a falling and volatile market as seen in the latter months of 2018, low volatility strategies have outperformed the market. If 2019 is going to be anything like 2018, given continued trade tensions and concerns over quantitative tightening among other market uncertainties, low volatility strategies can help investors navigate this heightened market volatility.

**Fig.3: Comparison of annualised returns and volatility across different regions<sup>6</sup> (From February 1996 to November 2018)**

Region	Low Volatility (Quintile 1)			High Volatility (Quintile 5)			Quintile 1 vs Quintile 5 Excess Return (p.a.)	Regional MSCI Index	Return Volatility Return/		
	Return (p.a.)	Volatility (p.a.)	Return/ Volatility	Return (p.a.)	Volatility (p.a.)	Return/ Volatility			Return (p.a.)	Volatility (p.a.)	Return/ Volatility
Global (Emerging + Developed)	11.0%	11.2%	1.0	4.9%	30.4%	0.2	6.0%	MSCI AC World	7.4%	15.2%	0.5
Emerging Markets	9.4%	16.0%	0.6	9.0%	34.0%	0.3	0.4%	MSCI Emerging Markets	6.4%	22.7%	0.3
US	12.9%	11.2%	1.1	5.8%	36.5%	0.2	7.1%	MSCI US	9.6%	14.8%	0.6
Europe	11.6%	14.3%	0.8	4.6%	28.3%	0.2	7.0%	MSCI Europe	7.2%	17.6%	0.4
Pan Asia (ex Japan)	9.1%	15.9%	0.6	5.6%	38.1%	0.1	3.5%	MSCI Pan Asia (ex Japan)	6.0%	21.2%	0.3
Japan	6.2%	14.0%	0.4	1.8%	28.4%	0.1	4.4%	MSCI Japan	1.5%	17.3%	0.1

Sources: <sup>1</sup>MSCI, as at end of November 2018. Outperformance refers to the USD returns of MSCI ACWI Minimum Volatility Index versus MSCI ACWI. <sup>2</sup>MSCI, as at end of November 2018. Outperformance refers to the USD returns of MSCI AC AP ex Japan Minimum Volatility Index versus MSCI AC AP ex Japan Index. <sup>3</sup>Analysis was done on returns to stock deciles based on prior 24-month volatility. <sup>4</sup>Eastspring Investments, Datastream, as at December 2018. <sup>5</sup>Eastspring Investments, MSCI, S&P, Bloomberg, Datastream, as at December 2018. <sup>6</sup>Eastspring Investments, MSCI, S&P, Bloomberg, Datastream, as at December 2018.

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