

Low volatility anomaly

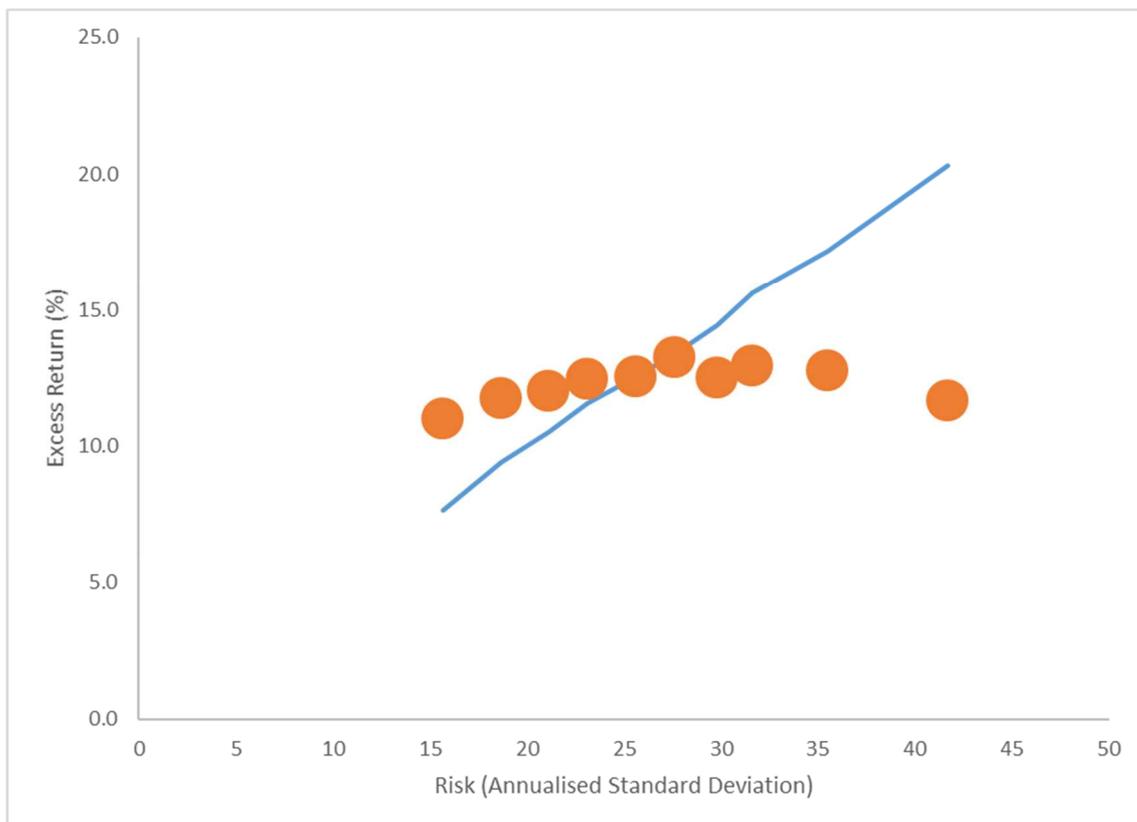
Straying slightly from the topic of infrastructure, one of the anomalies in markets that has proven robust across stocks and bonds, across a multitude of countries, and time, is the low volatility anomaly. That is, that low volatility assets provide higher risk adjusted returns than high risk assets.

Finance theory says that systematic risk is a key driver of long term returns. If you invest in higher risk assets you will, on average, earn higher returns over time. This is usually expressed the other way – that is, to get a higher return you need to take more risk. Implicit in this, is that risk adjusted returns remain reasonably constant across different levels of risk.

However, the empirical evidence doesn't really support this theoretical notion. In particular, if you construct portfolios where the market is partitioned by risk level, the low risk portfolios do have lower returns, but not by nearly as much as they have lower risk. Thus low risk portfolios offer unusually high risk adjusted returns (for example, measured by Sharpe Ratio), and high risk portfolios offer unusually poor risk adjusted returns.

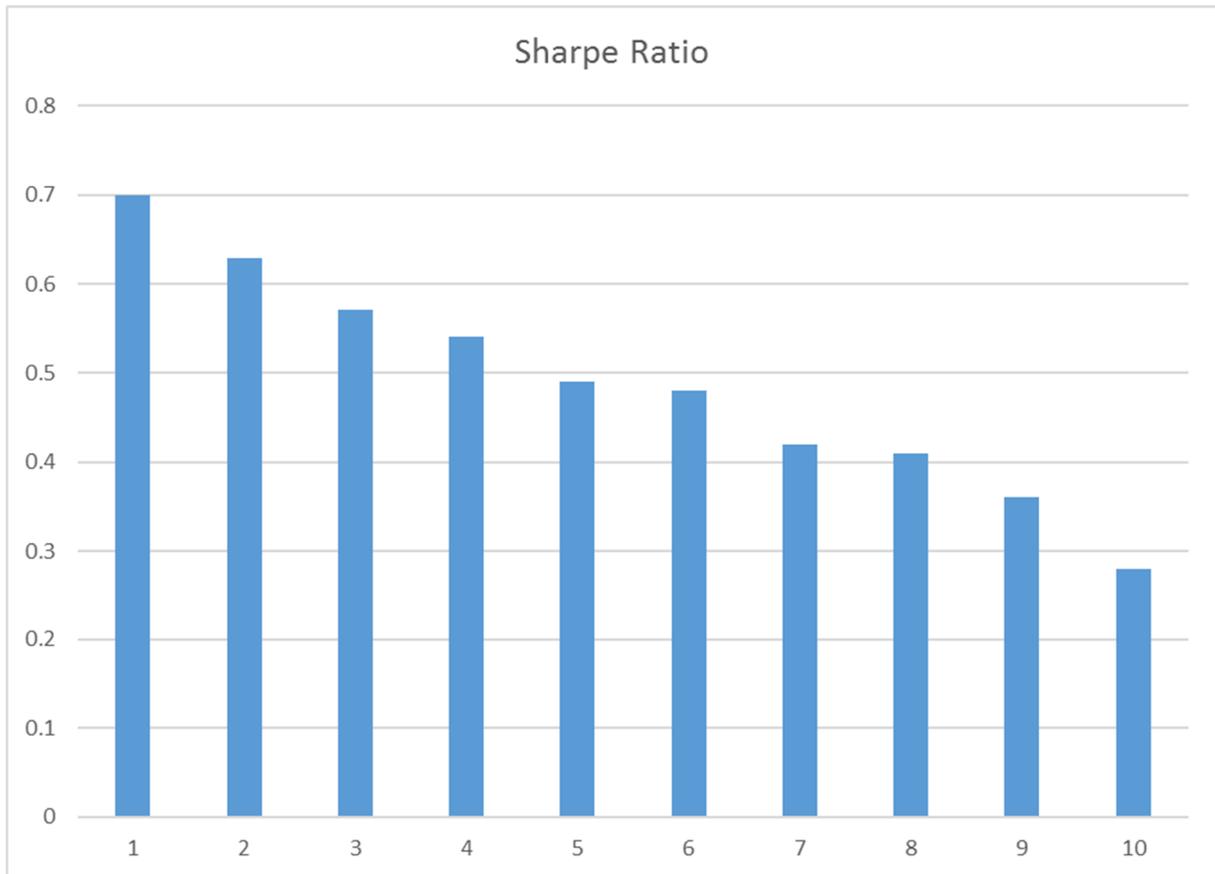
To illustrate this, the following two charts are based on returns to US stocks between 1926 and 2012 (Frazzini A., Pederson L. 2013: Betting against Beta). The study looks at 10 portfolios where stocks have been ranked on their beta (the observed correlation between their returns and market returns). The lowest risk portfolio consists of the 10% of stocks with the lowest betas and so on.

Finance theory would suggest that the lowest risk portfolios should have a lower excess return (over risk free), and the higher risk portfolios should have higher returns. According to the Capital Asset Pricing Model (CAPM), the performance of these portfolios should fall in a line proportionate to their beta (see blue line in chart below). In reality they don't, the low risk portfolios earn significantly more than their risk would dictate and high risk portfolios earn significantly less.

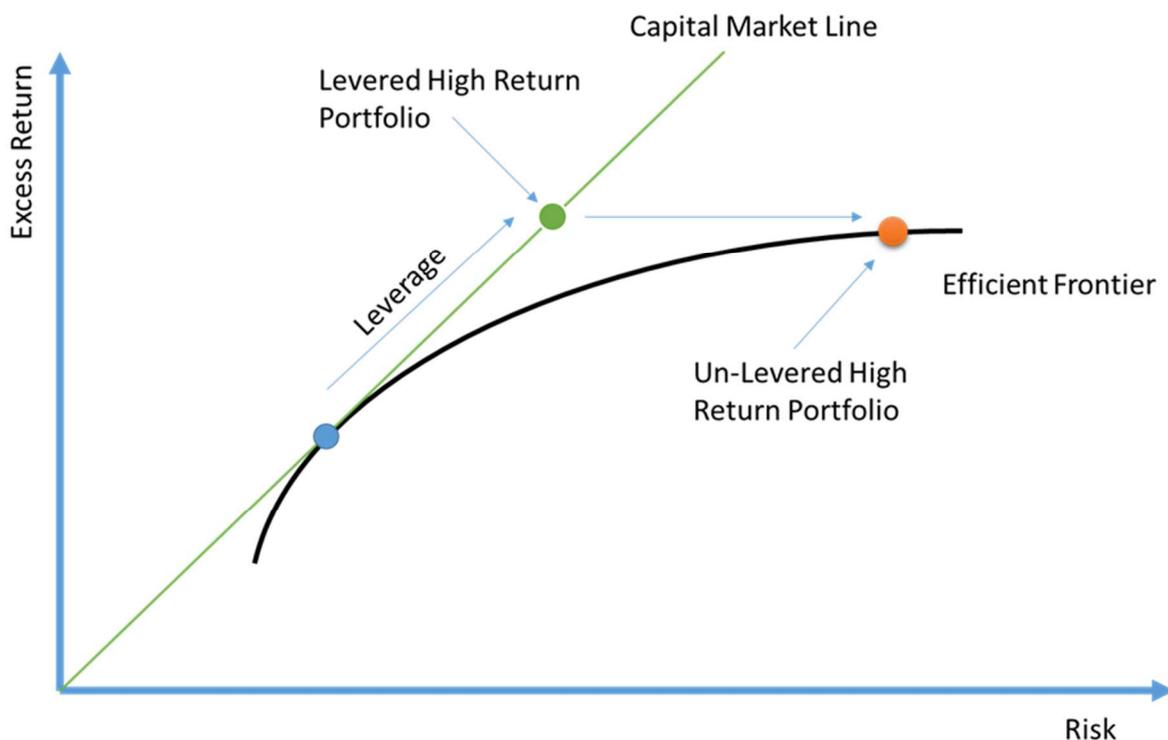


This means low risk portfolios have much higher Sharpe Ratios – that is risk adjusted returns – than high risk portfolios.



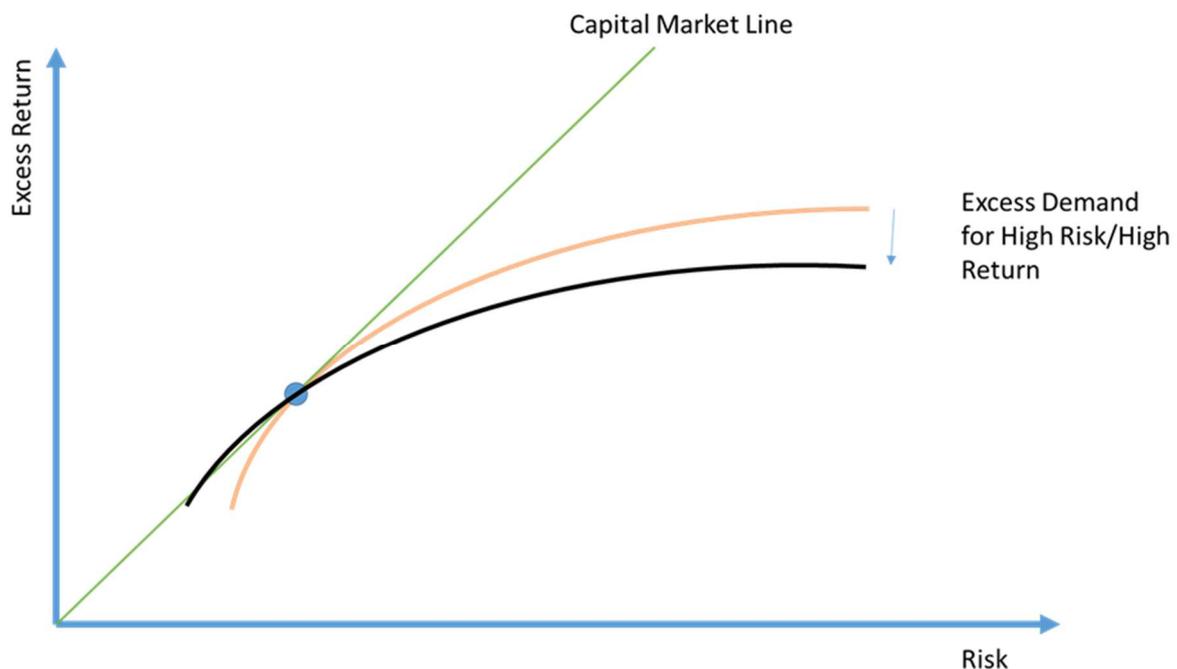


Why does this exist? The most compelling argument is that this is driven by investors return targets and costs/difficulties in leveraging. Finance theory assumes (among other things) that investors can leverage their portfolio at the risk free rate. Thus for investors who need, for whatever reason, a higher average level of returns – CAPM assumes they hold the same portfolio but use leverage to increase returns. This preserves the risk adjusted return, and can be thought of as moving along the capital market line in the figure below.



However, if investors are unwilling to leverage – superannuation funds (except SMSF’s to buy property) aren’t – then this isn’t an option. In this situation, if an investor needs higher returns they are forced to buy only higher returning stocks. By doing so they lose the more complete diversification of the market portfolio (the blue dot) and suffer a deterioration of their risk adjusted return (the orange dot).

Finally, if there are a large number of investors that need high returns, one of the outcomes will be increased competition for these high return (and high risk) stocks further depressing risk adjusted returns. Conversely at the other end of the risk spectrum, low risk assets will have few buyers and, hence, benefit from lower prices and higher returns. This can be thought of as a twisting of the efficient frontier (see below).



You might now be wondering what my point is?

My point is that there is a long history that shows that low risk assets offer excess returns because investors can’t leverage and have high return targets. There is robust evidence of this effect across equity and debt markets around the world. The opposite side of the coin to low risk assets earning excessively favourable risk adjusted excess returns, is high risk assets not earning the returns justified by their risk.

It is my view that this phenomenon exists at an asset class level today. That is, as risk free rates fall and yet return targets remain much the same, investors are hunting for yield amongst an increasingly narrow set of high risk asset classes. This is bidding these assets up, further driving down the prospective risk adjusted returns on offer. The classic example of this would be the performance of high yield over the past year or two, despite the clearly deteriorating credit quality and default outlook.