Factor Facts

A Comprehensive Guide

History

The Explanation

Risk

It's argued that there are clear and simple risk-based explanations for the typically have higher financial leverage (debt), less liquidity, lower profitability which demand a premium.

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Factor Facts
Minimum Volatility

What is the Minimum-Volatility Factor?

Traditional investment principles demand that investors take additional risk for higher reward, as risk and reward go hand-in-hand. The Minimum-Volatility (Min-Vol) investment approach turns the traditional approaches on their head: stocks which exhibit lower volatility have returns above that which would be implied by the efficient market theory. Min-Vol strategies, therefore, seek to enhance risk-adjusted returns by insulating investors on the downside to a greater extent than they relinquish on the upside (essentially, they seek to gain more downside 'cushion' than they sacrifice in upside 'spring').

What is a Minimum-Volatility Stock?

A Min-Vol stock can be identified by a single variable: volatility; a measure of dispersion in the stock's price movements, with higher volatility signifying more risk. Min-Vol stocks exhibit lower volatility compared to their peers.

Minimum-Volatility Factor History

The first contribution came as early as 1972 when Robert Haugen and James Heins produced the paper "On the Evidence Supporting the Existence of Risk Premiums in the Capital Market". The paper found that between 1926 and 1971 there was a negative relationship between risk and return showing that high volatility stocks tended to deliver lower returns, while low volatility stocks tended to outperform. Decades later there have been several papers that empirically show that the Minimum Volatility anomaly exists.

The Explanation

The idea that Minimum Volatility stocks have a premium is counterintuitive to conventional investment thinking which dictates that higher rewards are inextricably linked with higher risk. Over the decades there have been multiple behavioural explanations as to why the Minimum Volatility Factor premium exists, predominantly:

Skewness preference - Many investors prefer the lottery-like payoffs of high volatility stocks which have the possibility of enormous returns. This preference will often result in investors overpaying.

Behavioural biases - Investors are often overconfident and overpay for attention-grabbing stocks. Such stocks garner increased media coverage, which tends to increase volatility, generating demand which leads to overvaluation of volatile stocks.

Key Papers

1972 - Haugen & Heins - 'On the Evidence Supporting the Existence of Risk Premiums in the Capital Market
2013 - Baker, Bradley & Wurgley - Benchmarks as Limits to Arbitrage: Understanding the Low Volatility Anomaly
2020 – Alquist, Frazzini & Ilmanen - Fact and Fiction about Low-Risk Investing

The value of investments can go down as well as up & it is possible to get back less than the amount invested.
Past performance is not a reliable indicator of future performance.

Factor Facts
Momentum

What is the Momentum Factor?

The Momentum factor is the tendency for assets that have performed well in the recent past to continue to perform well in the future, at least for a short period of time.

What is a Momentum Stock?

Momentum tends to look at a stock's last 12 months of price movements, excluding the most recent month. Stocks are assigned a Momentum score based on how strong or poor their returns are, and those with the highest scores are bought.

Momentum Factor History

Mark Carhart, in his seminal study "On Persistence in Mutual Fund Performance", was the first to use Momentum together with the Fama-French three factor model to explain mutual fund returns. This "fourth" factor increased the explanatory power of returns and the four factor model became the widely accepted model in this area.

The Explanation

Most of the academic literature in this area focuses on investors' behavioural traits to explain the Momentum anomaly; namely: investor underreaction or delayed overreaction.

Underreaction

Underreaction results when the information flow is not fully absorbed by the market at the time of its release, with the resulting price impact being slow to be realised. The result is that the market tends to underreact to corporate earnings and dividend announcements, and consequently overlooks small, but persistent, price moves (a practice commonly referred to as "limited attention bias". The market at large is slow to react to positive information, allowing prices to fall for longer than they should.

Delayed overaction

Delayed overaction results from investors who chase returns; providing a positive reinforcement loop that serves to drive prices further above those suggested by their underlying fundamentals.

Key Papers

1993 - Jagadesh & Titman - Returns to Buying Winners and Selling Losers: Implications for stock Market Efficiency
1997 – Carhart, M - On Persistence in Mutual Fund Performance
2014 – Da, Guran & Umit – Frog in the Pan: Continuous Information and momentum

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Factor Facts
Quality

What is the Quality Factor?

The Quality factor is the phenomenon whereby profitable firms generate higher returns than unprofitable firms, despite having significantly higher valuation ratios.

What is a Quality Stock?

A high-quality firm is generally one that exhibits stable earnings, low financial leverage, and high asset turnover. Aside from these balance sheet measures, however, Quality stocks are also considered to be ones with a solid 'economic moat', meaning that they possess some distinguishing factor that is difficult for competitors to mimic (patents, brand identity, etc.)

History

The first major contribution came from Robert Novy-Marx with his 2013 paper "The Other Side of Value: The Gross Profitability Premium", which in itself built upon Fama & French's paper 2006 paper, "Profitability, Investment and Average Returns". These studies found that Profitability (as measured by the ratio of gross profits to book-to-market value) identified companies that generated significantly higher returns than unprofitable firms, despite having significantly higher valuation ratios (price higher).

The Explanation

Academic research provides some support for both risk-based and behavioural explanations.

Risk

Profitable firms tend to be growth firms, which have more of their cash flows in the distant future, requiring a risk premium. Profitable firms also attract more competition, increasing uncertainty and requiring a risk premium.

Behavioural

Investors expect stock prices of profitable firms to mean-revert faster than they actually do, often curtailing returns from early exit. It is psychologically preferable to back the revival of the unprofitable firms than to expect continued strength in superior firms. Investors underreact to news concerning profitability and hence high-profitability firms become relatively under-priced.

Key Papers

2006 - Fama & French - Profitability, Investment and Average Returns
2013 - Robert Novy-Marx - The Other Side of Value: The Gross Profitability Premium
2016 – Bouchaud et al – The Excess Returns of "Quality" Stocks: A Behavioural Anomaly
2016 – Lam, Wang & Wei – The Profitability Premium: Macroeconomic Risks of Expectation Errors

Factor Facts
Size

What is the Size Factor?

The Size factor pertains to the phenomenon whereby companies with a lower market capitalisation (i.e. small companies), exhibit a returns premium over companies with a large market capitalisation.

What is a Small Stock?

A Size (Small-Cap) stock can be identified by market capitalisation. Labelling Small-Cap stocks may be different depending on the circumstance. Generally, a company with a market cap of between US$300 million and $2 billion is defined as a Small-Cap stock. Other methods can also be used, for example, when looking at an index, the bottom 15% of companies with the lowest market-cap could be labelled as Small-Cap.

History

Academic papers have evidenced the existence of a Small-Cap premium since 1936. Nobel prize winner Eugene F. Fama and Kenneth R. French are widely credited for solidly establishing the Small-Cap premium with their three-factor model, which became the foundation of academic research.

The Explanation

Risk

It's argued that there are clear and simple risk-based explanations for the Size premium. These firms typically have higher financial leverage (debt), less liquidity, lower profitability and higher volatility, all of which demand a premium.

Behavioural

An explanation for the Size factor can be found in behavioural finance; Nicholas Barberis and Ming Huang's paper 'stocks as lotteries: The implication of profitability weighting for security prices' found investors prefer investments that have a lottery-like payoff with a small probability of a huge return. This results in the securities being overpriced, but due to the expense and limited supply of Small-Cap stocks investors are unwilling to trade against the overpriced stocks, allowing the anomaly to persist.

Key Papers

1992 - Fama & French - The Cross-Section of Expected Stock Returns
1993 - Fama & French - Common risk factors in the returns on stocks and bonds
2008 - Barberis & Huang - Stocks as Lotteries: The Implications of Probability Weightings for Security Pricing
2015 - Asness et al. – Size Matters, If You Control Your Junk
2019 - Esakia et al. - Size Factor in Multifactor Portfolios: Does the Size Factor Still Have Its Place in Multifactor Portfolios?

Factor Facts
Value

What is the Value Factor?

The Value factor is the tendency for relatively cheap assets to outperform relatively expensive ones.

What is a Value Stock?

The most common measures used to identify a Value firm are Price-to-Earnings (P/E) and Book-to-Market. Stocks with a market capitalisation (value of outstanding shares) close to its book value (value of its assets) are considered Value stocks.

Value Factor History

The Value factor has a long history in financial research, dating back to the 1930s and the seminal work of Benjamin Graham, the universally-acclaimed 'father of value investing', and has maintained prominence in no small part due to the exploits of Warren Buffett, a one-time student and protégé of Ben Graham. Subsequent work was carried out by Eugene Fama and Kenneth French in their 1992 paper "The Cross-Section of Expected Stock Returns". They found that firms with a high Book-to-Market ratio outperformed those with a lower Book-to-Market ratio.

The Explanation

There has been great debate as to the source of the Value premium. There is a belief among many academics that the Value premium is actually an anomaly and the result of persistent pricing errors made by investors.

Risk

Value stocks are cheap because they tend to be highly leveraged (high debt), face substantial earnings risk and in distress. They, therefore, provide greater returns due to the greater risks. Furthermore, it's argued that Value stocks are much riskier than growth stocks in bad economic times and moderately less risky in good times, resulting in asymmetric risk with unproductive capital.

Behavioural

Investors tend to extrapolate past growth rates when evaluating a company, and thus place undue emphasis on those inflated results, persistently over-pricing Growth companies and under-pricing Value companies.

Key Papers

1934 - Graham & Dodd - Security Analysis
1992 - Fama & French - The Cross-Section of Expected Stock Returns
1998 – Chen & Zhang - Risk and Return of Value Stocks
2005 – Zhang – The Value Premium
2005 – Nielsen & Peterkort – Is the Book-To-Market Ratio a Measure of Risk?

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