

DAVY

A GUIDE TO

# FACTOR INVESTING

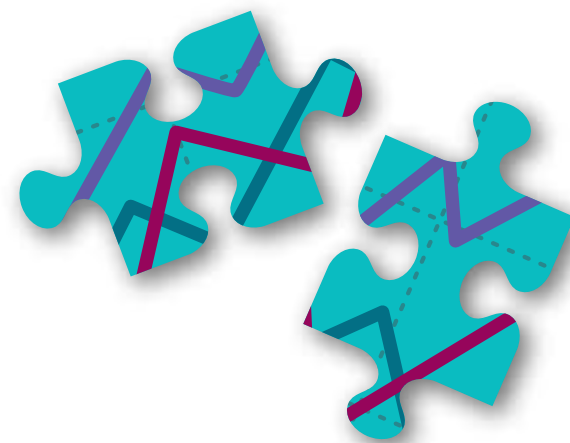




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# INTRODUCTION

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**Factor investing is a particular method of investing that is primarily focused on gaining exposure to very defined market factors. Market factors are fundamental characteristics that investors try to gain exposure to with the aim of achieving higher returns, for example, buying stocks that provide high dividend yields (the income factor) or only buying stocks that have performed well in the recent past (the momentum factor). There are numerous factors in existence but the most prominently researched and used are Quality, Value, Size, Momentum, Income and Minimum Volatility.**

Market factors have existed for as long as markets have, however the impact of factors often went unnoticed and was frequently misinterpreted as the stock picking skill of a manager, commonly referred to as Alpha. Nobel prize winner Eugene Fama and Kenneth French identified the value and size factors in the 1990's, with momentum (credited to Mark Carhart) subsequently included. However it is only in the most recent decade that factors have become a mainstream concept. It's an inconvenient truth for some, that much of what had previously been heralded as stock picking skill, is actually compensation for bearing more risk or gaining exposure to the idiosyncrasies of the market.

The concept of factor risk premia (the increased return that one can expect from gaining exposure to these factors) have existed for decades, however the refinement of factors into a fund that is investible by the general public is a relatively new concept, with many of the exchange traded funds (ETFs) - that can provide exposure to these kinds of factors - incepted in the last decade. Using these types of products a client can gain exposure to a diversified range of equity returns potentially at low cost, complimenting traditional sources of market return. The systematic approach used by these funds is designed to try and harvest the risk premia, while trying to avoid some of the common pitfalls associated with investing such as, human irrationality and behavioural biases (for example buying high selling low). Having exposure to different factors ensures that no single factor dominates the portfolio.



**Andrew Clifford**

Analyst, Davy

# 01

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## OVERVIEW OF EQUITY FACTORS



# OVERVIEW OF EQUITY FACTORS

The list below is not intended to be exhaustive and seeks to focus on the most predominately researched factors.

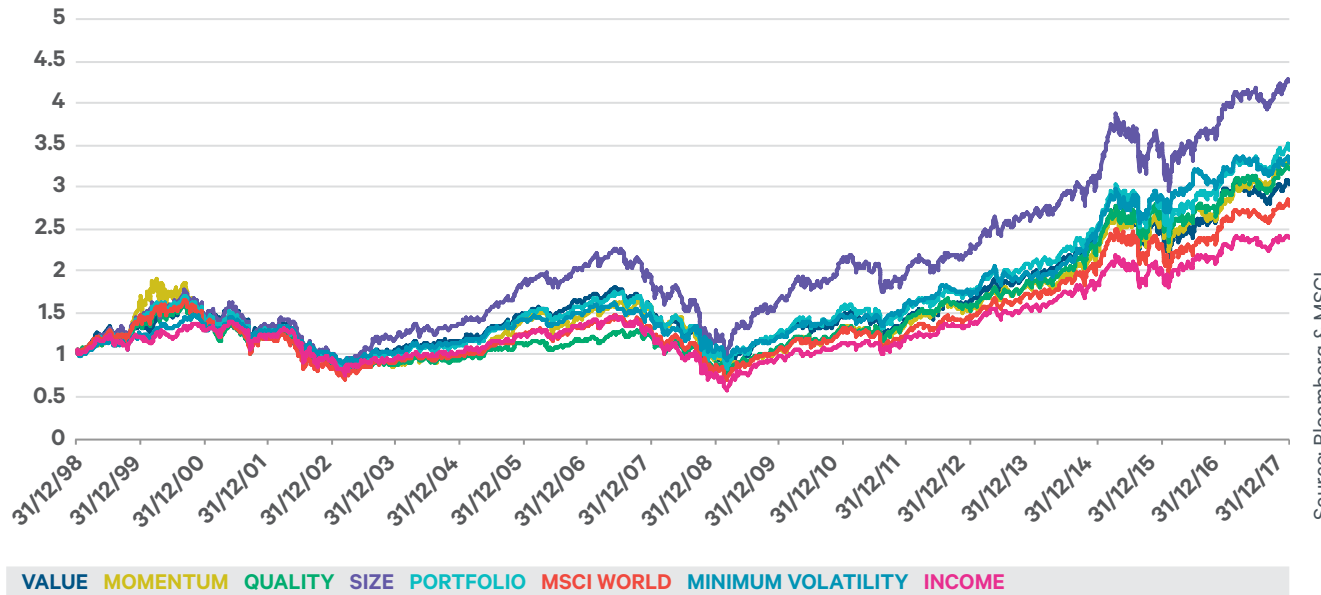
FACTOR	DESCRIPTION
<b>Quality</b>	The strategy seeks to identify companies with stable and dependable earnings, which are consistent throughout the business cycle. Quality is generally determined by ratios such as return on equity, debt to equity and earnings variability.
<b>Value</b>	The strategy seeks to identify companies with a low price to their underlying fundamentals such as earnings, book value and sales.
<b>Size</b>	The strategy seeks to allocate capital to smaller companies in the anticipation that they will grow faster than larger less dynamic companies. Small companies have the ability to sustain higher levels of growth than their larger counterparts which can enhance their return, although this comes with greater volatility.
<b>Momentum</b>	The strategy invests in securities exhibiting an upward trending price relative to the market.
<b>Income</b>	Value and income tend to go hand in hand as larger, more mature companies generally pay higher dividends. These companies tend to exhibit slower and more stable growth than their non-dividend paying counterparts and hence command a lower risk premium.
<b>Minimum Volatility</b>	The strategy identifies stocks that are considered 'lower risk' than the market as a whole. These stocks tend to perform well in stressed market situations. These companies often exhibit lower debt to equity ratios and tend to be in more defensive sectors such as consumer staples, healthcare and utilities.

“I don’t believe any of us have the pretension of believing that being very good analysts, or by going through very elaborate computations, we can be pretty sure of the correctness of our results. The only thing we can be pretty sure of, perhaps, is that we are acting reasonably and intelligently.”

- Benjamin Graham, Author of “The Intelligent Investor”

# FACTOR PERFORMANCE

Figure 1: Factor Performance (Rebased to 100%)



VALUE MOMENTUM QUALITY SIZE PORTFOLIO MSCI WORLD MINIMUM VOLATILITY INCOME

Total returns are based on net dividends reinvested. Net returns will take into consideration tax rates that would apply on any dividends received which will vary depending on the investor's taxable rate. You should consult your tax advisor for the rules that apply in your individual circumstances.

The performance shown in Figure 1 is based on the following Indices: MSCI World Value Index, MSCI World Momentum Index, MSCI World Sector Neutral Quality Index, MSCI World Mid Cap Equal Weighted Index, MSCI World Minimum Volatility Index & MSCI World High Dividend Index.

Factors will perform differently over time as we can see from the chart to the left. Size as a factor has performed well albeit with sharp drawdowns\* and higher volatility than the market as a whole. Blending these factors together can help to reduce the risk associated with holding any single factor.

\*See Glossary



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**QUALITY FACTOR**





# QUALITY FACTOR

<b>What does the strategy invest in</b>	Companies that tend to have stable earnings throughout the economic cycle; the earnings must also generate sufficient return on capital. These companies tend to be larger mature companies with well-known brands and a long track record. They also tend to be conservatively managed with lower debt than other companies.
<b>How are opportunities identified</b>	The strategy seeks to identify companies that have high quality financial reporting with a history of stable but increasing earnings and cash flow and conservative operational and financial leverage.
<b>What valuation methods are used</b>	Companies in this category tend to have high or attractive levels of cash flow and return on equity and thus are usually valued using cash flow metrics. Dividend discount models may also be used in the majority of cases as the companies tend to have stable dividend policies.
<b>Typical Sector Exposure</b>	Companies generally operate in sectors that tend to be less geared to economic growth such as consumer staples, healthcare and utilities.
<b>Source of Returns</b>	There are two aspects to return, dividends and capital growth. These companies tend to have high Return on Equity (ROE) and the effect of compounding can lead to significant growth over time. A company that compounds its earnings at 15% versus 10% will see significant outperformance in the long run.

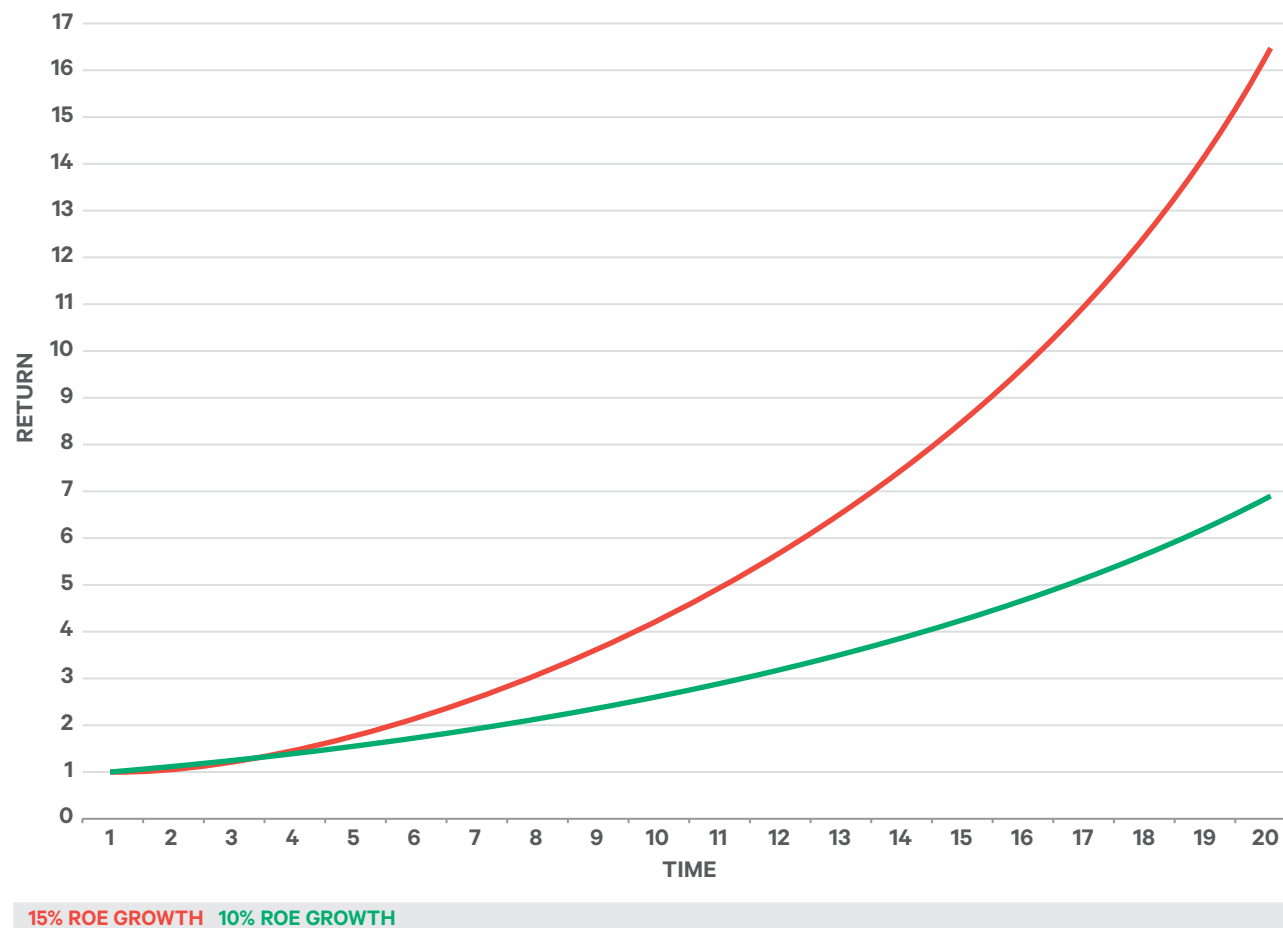
“We’ve really made the money out of high quality businesses. In some cases, we bought the whole business. And in some cases, we just bought a big block of stock. But when you analyse what happened, the big money’s been made in the high quality businesses. And most of the other people who’ve made a lot of money have done so in high quality businesses.

Over the long term, it’s hard for a stock to earn a much better return than the business which underlies it earns. If the business earns 6% on capital over 40 years and you hold it for that 40 years, you’re not going to make much different than a 6% return—even if you originally buy it at a huge discount. Conversely, if a business earns 18% on capital over 20 or 30 years, even if you pay an expensive looking price, you’ll end up with a fine result. So the trick is getting into better businesses.”

- Charlie Munger – Vice Chairman of Berkshire Hathaway

# QUALITY FACTOR

Figure 2: ROE Growth



Albert Einstein called compound interest “the 8th wonder of the world” and this holds true for every aspect of finance. Compounding high ROE such as the chart shown can lead to significant differences over a long period of time.

This graph is for illustrative purposes only.

# 03

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## INCOME FACTOR



# INCOME FACTOR

<p><b>What does the strategy invest in</b></p>	<p>Income-focused strategies seek to invest in companies offering a stable and growing income stream. In recent years the low yields offered by fixed income instruments have seen increased investor interest in high dividend paying stocks.</p>
<p><b>How are opportunities identified</b></p>	<p>Income strategies screen for companies paying higher dividend yields than the market average; sustainability of the dividend is also a key factor. Dividend paying stocks are typically concentrated in more mature industries where the high levels of free cash flow generated can be returned to shareholders. In comparison, stocks experiencing high growth rates tend to reinvest cash in their businesses rather than return it to shareholders via buybacks or dividends.</p>
<p><b>What valuation methods are used</b></p>	<p>Income producing stocks tend to have lower valuation metrics such as price-to-earnings and price-to-book ratios than the overall market. This is due to the fact that higher growth companies - which are more richly valued - tend not to pay dividends.</p>
<p><b>Typical Sector Exposure</b></p>	<p>Compared with the broad market index, income factor portfolios have greater allocations to the more stable, mature industries such as Utilities, Telecoms, Energy and Consumer Staples. Stocks in these sectors tend to generate higher levels of free cash flow which can then be returned to shareholders.</p>
<p><b>Source of returns</b></p>	<p>Income factor managers believe that as well as providing an income stream, stocks with a history of paying dividends are more efficient in terms of allocating capital and managing their cash flow. Historically, approximately half of the total return* generated from investing in stocks has been derived from the compounding effect of reinvesting dividends**.</p>

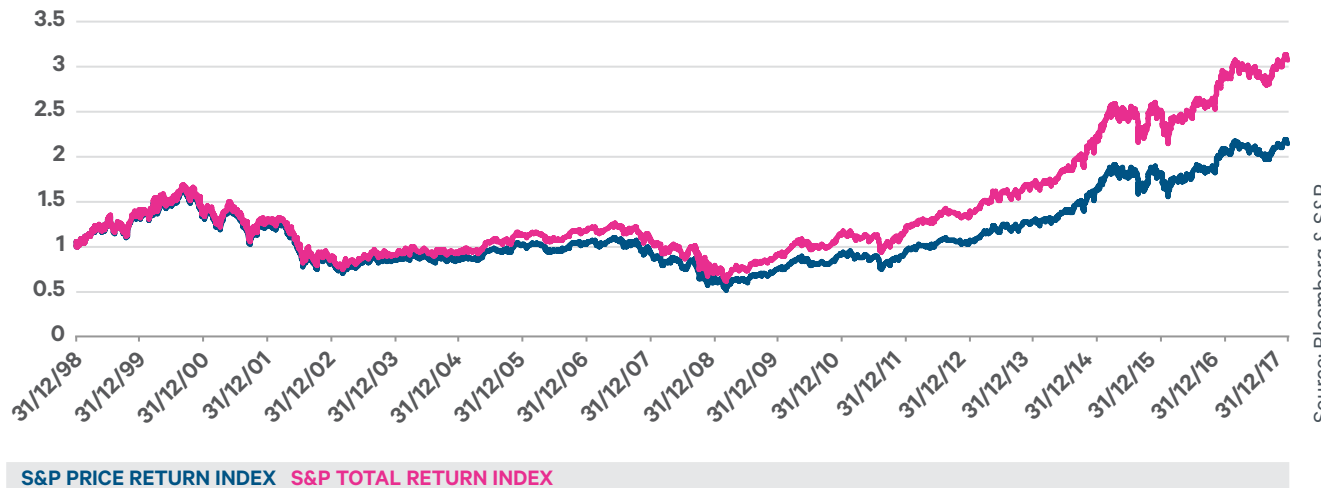
In order to avoid those companies in distress that have high dividends but which are unsustainable, income investors conduct in-depth fundamental analysis to assess the sustainability of dividends. A stock with a high dividend may indicate that the market does not believe that the current dividend will be sustained. An income-focused factor strategy, therefore, should incorporate quality factors (return on equity, low leverage, etc.) to avoid those companies in financial distress that cannot sustain dividends at historical levels.

\*See Glossary

\*\*Source: Triumph of the Optimists: 101 Years of Global Investment Returns by Elroy Dimson, Paul March and Mike Staunton

# INCOME FACTOR

Figure 3: S&P Index (Rebased to 100%)



Source: Bloomberg & S&P

S&P PRICE RETURN INDEX S&P TOTAL RETURN INDEX

Total returns are based on net dividends reinvested, price returns exclude dividends. Net returns will take into consideration tax rates that would apply on any dividends received which will vary depending on the investor's taxable rate. You should consult your tax advisor for the rules that apply in your individual circumstances.

The performance in Figure 3 is based on the following Index: S&P 500

\* See Glossary

Once again we can see the virtuous effect of compounding. This chart demonstrates the difference between the price return\* (excluding dividends) and total return\* (where dividends are reinvested). Over time the impact of reinvesting dividends has a notable impact on wealth.

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## SIZE FACTOR



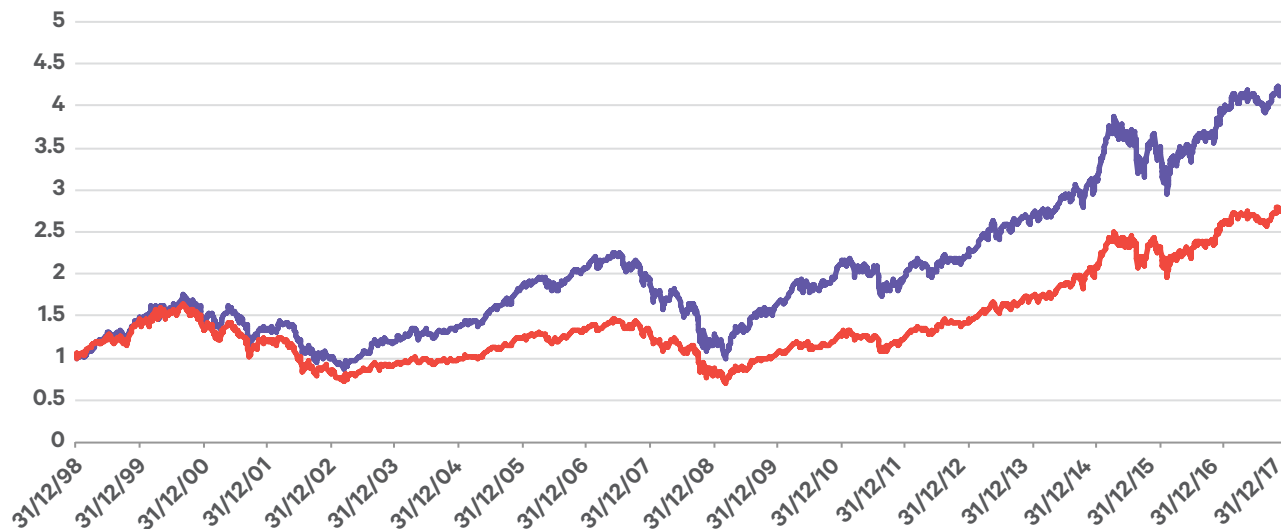
# SIZE FACTOR

<b>What does the strategy invest in</b>	Companies that are below a certain market capitalisation, the hope is that today's smaller companies will become the bigger companies of the future and will earn a substantial return in the process. Smaller companies have the potential to grow at higher rates for longer, however they also tend to be more risky due to the lack of diversification of their revenue streams.
<b>How are opportunities identified</b>	Seek small companies or companies with a nimble structure and efficient operations, who can take advantage of new technologies or opportunities where larger more rigid companies cannot.
<b>What valuation methods are used</b>	Smaller companies may have negative cash flow especially if they are in the growth stage and so are often valued on residual income, price to book or price to sales ratios.
<b>Typical Sector Exposure</b>	All sectors.
<b>Source of Returns</b>	Capital growth tends to be the primary source of return as companies reinvest their earnings in the hope of generating higher growth. Companies tend to be viewed as higher risk as a result of this and thus investors demand a higher return.

Let's take an example of two companies: a widget maker and a start-up company that makes self-driving cars. The widget market is stable and demand grows in line with the global economy. Self-driving cars however are a new and untested product. The potential growth in demand is significantly higher but so are the risks. One would expect better returns from the start up if successful, due to this significantly higher risk. The widget maker on the other hand can only grow at the same pace as the global economy in the medium to long term but is less risky and therefore a lower return is to be expected.

# SIZE FACTOR

Figure 4: Size Factor (Rebased to 100%)



Source: Bloomberg & MSCI

## SIZE FACTOR MSCI WORLD

Total returns are based on net dividends reinvested. Net returns will take into consideration tax rates that would apply on any dividends received which will vary depending on the investor's taxable rate. You should consult your tax advisor for the rules that apply in your individual circumstances.

The performance in Figure 4 is based on the following Indices: MSCI World Mid Cap Equal Weighted Index & MSCI World Index.

Size as a factor has outperformed the broader market significantly over time although it is subject to higher volatility and drawdowns than the larger capitalisation companies, that form the biggest weights in the market index.

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## MINIMUM VOLATILITY FACTOR



# MINIMUM VOLATILITY FACTOR

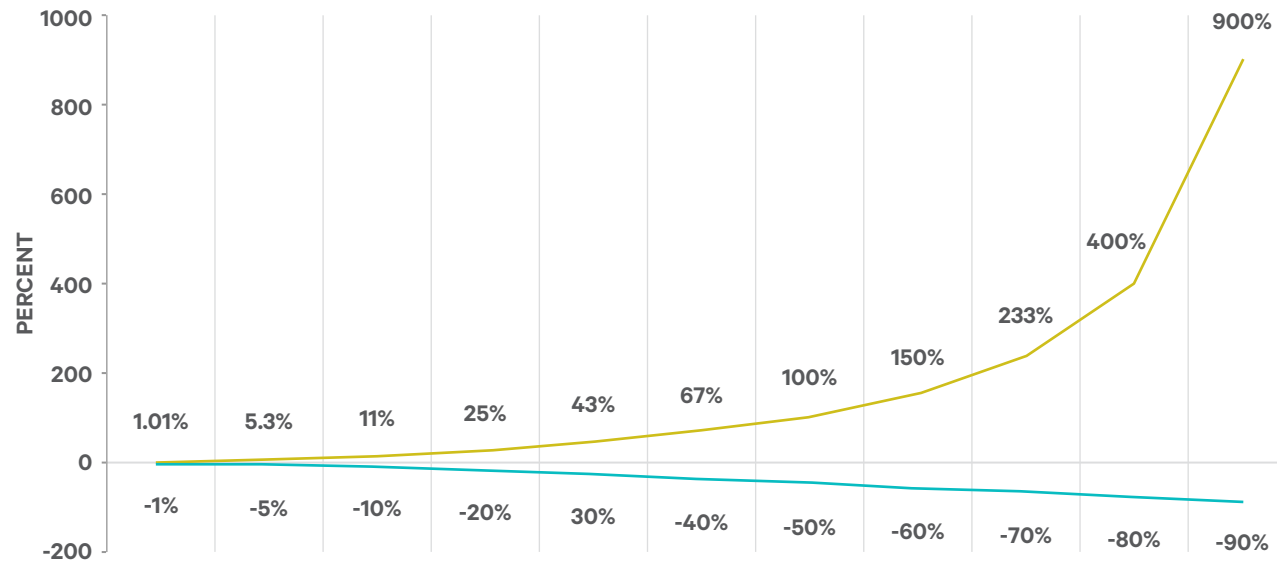
<b>What does the strategy invest in</b>	Minimum volatility managers select stocks that are less volatile in terms of their share price movements. They seek to construct portfolios that capture the market return over the long term but with lower than typical market risk.
<b>How are opportunities identified</b>	Defensive/ Minimum volatility strategies identify stocks which tend to have more predictable sources of revenue, operate in stable industries and are less vulnerable to large swings in their share price. These types of factor managers take into account the volatility of stocks, as well as the correlations between them in constructing lower risk portfolios.
<b>What valuation methods are used</b>	These strategies have a lower allocation to the higher growth, more volatile segments of the market. By excluding these companies, minimum volatility portfolios tend to be more attractively priced than the broad market index.
<b>Typical Sector Exposure</b>	Defensive/Minimum volatility strategies tend to have a value tilt with a higher allocation to defensive sectors such as Consumer Staples, Utilities, Health Care and a lower allocation to Information Technology, Energy and Materials.
<b>Source of returns</b>	Traditional finance theory suggests that higher risk is rewarded with higher returns. However, evidence has shown that high-risk stocks, as measured by the volatility of their share prices, have substantially underperformed lower risk stocks.

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The risk profile of a stock can change over time. Therefore, relying on historical, quantitative measures of risk alone may not be sufficient in constructing lower risk portfolios. Changes in market dynamics or in the regulatory environment may change the risk profile of a stock. As an example, following the Deepwater Horizon oil spill in 2010, energy company British Petroleum moved from being a stable, low-risk stock to one experiencing very volatile movements in its share price. An approach that assesses risk from both qualitative and quantitative perspectives should be applied in constructing defensive/low volatility portfolios.

# MINIMUM VOLATILITY FACTOR

Figure 5: Impact of minimising drawdowns



**GAIN REQUIRED TO RECOUP LOSS**   **LOSS EXPERIENCED**

The performance of low risk stocks is helped by their focus on minimising drawdowns. This is due to the fact that the higher the loss experienced, the greater the percentage increase required to recoup the loss. Figure 5 highlights the benefit of minimising drawdowns over the longer term. For example, a loss of 40% requires a subsequent gain of 67% to get back to the initial level. In comparison, a loss of 20% requires just a 25% gain to get back to the initial level.

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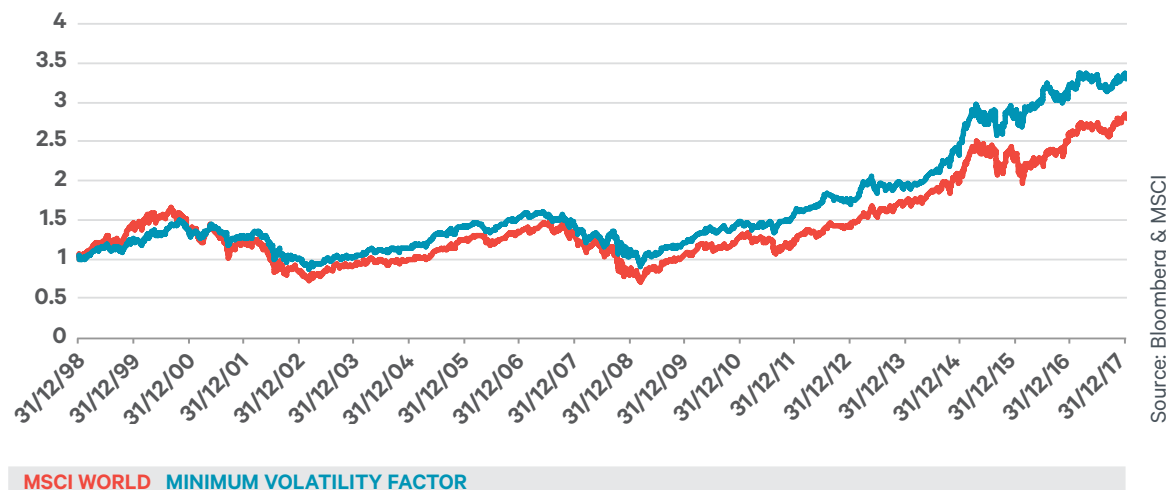
The US technology focused NASDAQ index peaked in March 2000 at 5,048 before declining by 78% to 1,114 in September 2002. To get back its previous high required a return of 355% and this was not achieved until April 2015. This illustrates the fact that the greater the percentage loss experienced the higher the return required to get back to the initial level.

Source: Nasdaq – figures quoted are price return excluding dividends.

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# MINIMUM VOLATILITY FACTOR

Figure 6: Minimum Volatility Factor (Rebased to 100%)



Total returns are based on net dividends reinvested. Net returns will take into consideration tax rates that would apply on any dividends received which will vary depending on the investor's taxable rate. You should consult your tax adviser for the rules that apply in your individual circumstances.

The performance shown in Figure 6 is based on the following Indices: MSCI World Minimum Volatility Index & MSCI World Index.

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\*Benchmarks as a Limit to Arbitrage: Understanding the Low-Volatility Anomaly” by Baker, Bradley and Wurgler. Financial Analysts Journal, January/February 2011

The ‘Low-Volatility Anomaly’ refers to the tendency for lower risk stocks as measured by share price volatility to outperform higher risk stocks that experience greater fluctuations in price. The persistent outperformance of low risk stocks has been proven across markets and over the long term\*. It is referred to as an anomaly as it contradicts traditional finance theory which states that only by taking higher risks can investors realise above average returns.

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# 06

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## VALUE FACTOR



# VALUE FACTOR

## What does the strategy invest in

Companies that have drifted below their intrinsic value or are priced at a value that is close to or below their assets minus their liabilities (also known as book value). These companies may be out of favour or experiencing lower growth than the market as a whole.

## How are opportunities identified

Look for companies that trade on cheap multiples such as Price to Earnings, Price to Book and/or have a high dividend yield. This can require extensive examination of financial statements.

## What valuation methods are used

Value companies are often valued by comparing their market price against the value of their book value (their assets minus their liabilities), they may also be valued as the breakup or liquidation value. Generally managers will build in a margin of safety\* to their estimates.

## Typical Sector Exposure

Energy, materials, financials and other cyclical sectors that can perform very differently under different economic conditions.

## Source of returns

When the stock is re-evaluated by the market and returns to its intrinsic value, these stocks may also provide a healthy dividend stream which can augment the return. Active investors may push for asset sales or a change in strategy that would revitalise the company.

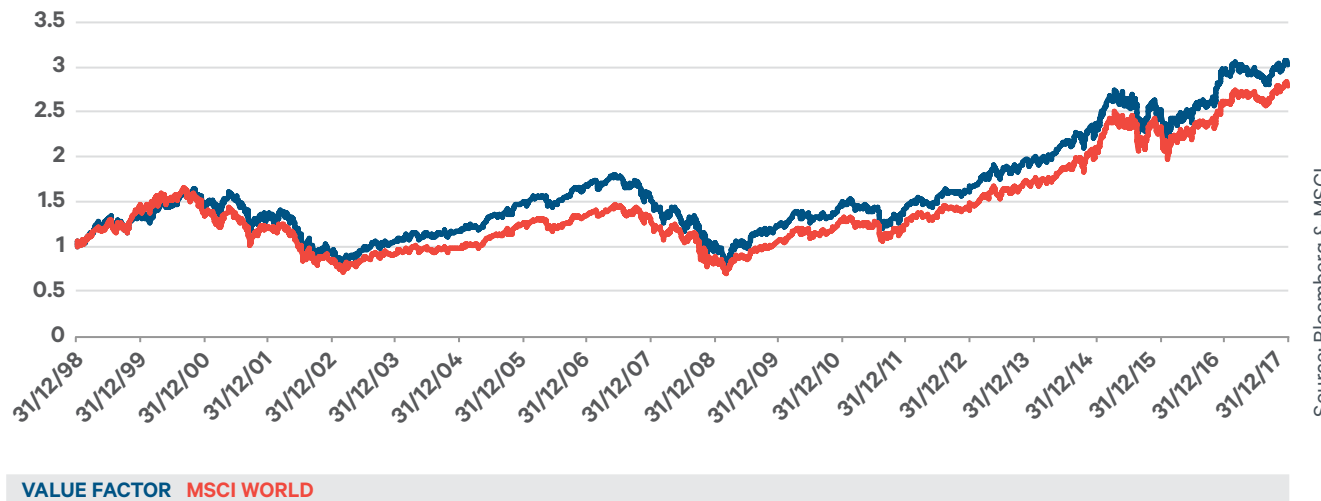
“The value investing philosophy eschews short-term considerations and gets you thinking most about fundamentals, as if you actually owned the business itself, not just its stock”

- Charles Brandes, Chairman, Brandes Investment Partners

\*See Glossary

# VALUE FACTOR

Figure 7: Value factor (Rebased to 100%)



Source: Bloomberg & MSCI

VALUE FACTOR MSCI WORLD

Total returns are based on net dividends reinvested. Net returns will take into consideration tax rates that would apply on any dividends received which will vary depending on the investor’s taxable rate. You should consult your tax advisor for the rules that apply in your individual circumstances.

The performance shown in Figure 7 is based on the following Indices: MSCI World Value Index & MSCI World Index.

Value investing is not for the faint of heart as value as a factor tends to underperform for long periods of time, reversals in this trend are often fast and difficult to predict. The benefit of having a structural allocation to value should not be understated, while the benefit of also holding other factors is to offset periods of value underperformance.

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# 07

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## MOMENTUM FACTOR





# MOMENTUM FACTOR

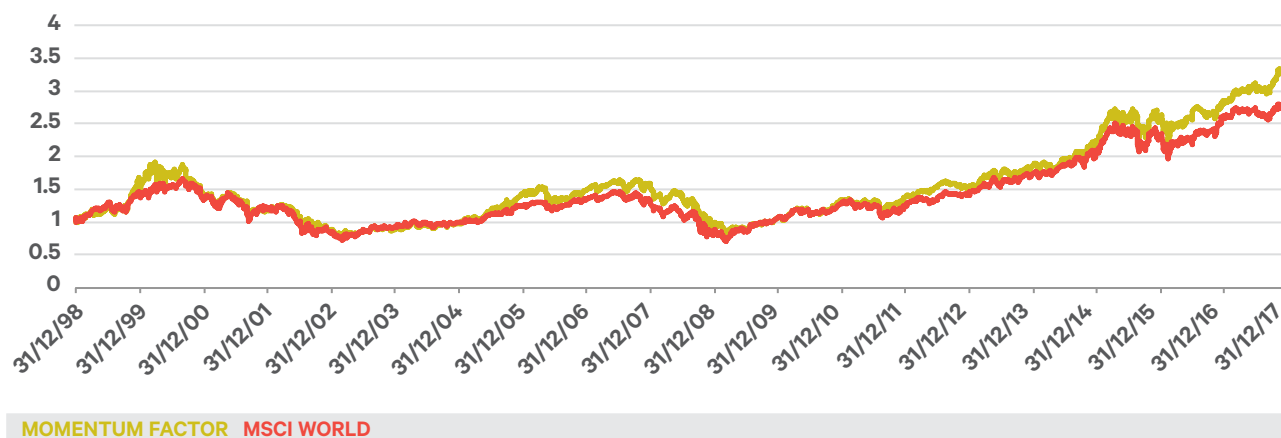
<b>What does the strategy invest in</b>	The momentum effect refers to the tendency for stocks that have performed well in the recent past to continue to appreciate and for stocks that have performed poorly to continue to do so. Momentum investors follow a relatively simple strategy that involves purchasing stocks that have risen in value and selling those stocks that have experienced recent price declines.
<b>How are opportunities identified</b>	Opportunities are identified by examining patterns of recent price movements and by constructing portfolios in favour of those stocks that have risen in price.
<b>What valuation methods are used</b>	Momentum strategies tend to have higher valuations - compared to the broader market - given they buy stocks that have risen in price. They seek to buy high and sell higher.
<b>Typical Sector Exposure</b>	Momentum strategies tend to have relatively high turnover as portfolios are positioned in favour of stocks that have risen in price. Sector exposures are not persistent and vary depending on which sectors have experienced recent price appreciation.
<b>Source of returns</b>	The performance of a momentum strategy can be explained by the under-reaction of investors to new information and the herding behaviour of investors. Momentum strategies focus less on the underlying fundamentals of a stock, and instead seek to take advantage of behavioural characteristics of market participants ('following the crowd').

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The MSCI World Momentum Index is constructed to replicate the performance of an equity momentum strategy by emphasising stocks with high price momentum. Over the long term, this has outperformed the broad market index, as shown by the relative performance of both since 1999.

# MOMENTUM FACTOR

Figure 8: Momentum Factor (Rebased to 100%)



Source: Bloomberg & MSCI

MOMENTUM FACTOR MSCI WORLD

Total returns are based on net dividends reinvested. Net returns will take into consideration tax rates that would apply on any dividends received which will vary depending on the investor’s taxable rate. You should consult your tax advisor for the rules that apply in your individual circumstances.

The performance shown in Figure 8 is based on the following Indices: MSCI World Momentum Index & MSCI World Index.

Momentum investing is prone to large swings in performance as investors can change their mind very quickly. For example during the technology bubble in the late 90’s technology stocks went on a long winning streak only for them to come crashing back to earth once investors realised that their valuations had become too high.

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# APPENDIX

	2017	2016	2015	2014	2013
MSCI World Index	7.9%	11.4%	11.0%	20.2%	21.9%
MSCI World Sector Neutral Quality Index	10.5%	7.7%	15.5%	23.6%	21.6%
MSCI World Value Index	3.4%	16.6%	6.8%	19.0%	22.0%
MSCI World Momentum Index	16.4%	7.9%	16.4%	20.7%	22.0%
MSCI World Minimum Volatility Index	2.9%	10.7%	17.1%	26.9%	13.5%
MSCI World High Dividend Yield Index	4.5%	13.5%	8.6%	17.6%	17.5%
Nasdaq Index	13.8%	12.3%	19.3%	30.9%	34.2%
MSCI World Mid Cap Equal Weighted Index	8.7%	12.0%	11.1%	16.7%	21.2%
S&P 500	6.9%	15.3%	12.9%	29.5%	26.7%
BP	5.3%	34.2%	-3.4%	-5.1%	17.9%

Source: Bloomberg & MSCI

All figures shown are in Euro terms.

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# CONTRASTING FACTOR PERFORMANCE OVER TIME

2009	2010	2011	2012	2013	2014	2015	2016	2017
Size 37.8%	Size 28.7%	Minimum Volatility 10.7%	Developed & EM 14.6%	Value 22.0%	Minimum Volatility 26.9%	Minimum Volatility 17.1%	Value 16.6%	Momentum 16.4%
Developed & EM 31.8%	Momentum 22.8%	Income 8.1%	Developed World 14.4%	Momentum 22.0%	Quality 23.6%	Momentum 16.4%	Income 13.5%	Quality 10.5%
Income 30.1%	Developed & EM 21.4%	Quality 7.1%	Value 14.2%	Developed World 21.9%	6 Factor Portfolio 20.8%	Quality 15.5%	Size 12.0%	Developed & EM 9.3%
Quality 29.1%	6 Factor Portfolio 20.5%	Momentum 5.7%	Size 13.4%	Quality 21.6%	Momentum 20.7%	6 Factor Portfolio 12.6%	Developed & EM 11.7%	Size 8.7%
Developed World 27.3%	Developed World 20.4%	6 Factor Portfolio 3.7%	Income 11.1%	Size 21.2%	Developed World 20.2%	Size 11.1%	6 Factor Portfolio 11.5%	Developed World 7.9%
6 Factor Portfolio 24.9%	Minimum Volatility 20.1%	Value -2.0%	6 Factor Portfolio 11.0%	6 Factor Portfolio 19.7%	Developed & EM 19.3%	Developed World 11.0%	Developed World 11.4%	6 Factor Portfolio 7.7%
Value 24.3%	Quality 18.7%	Developed World -2.1%	Quality 11.0%	Developed & EM 18.1%	Value 19.0%	Developed & EM 9.3%	Minimum Volatility 10.7%	Income 4.5%
Minimum Volatility 13.4%	Value 17.7%	Developed & EM -4.0%	Momentum 10.1%	Income 17.5%	Income 17.6%	Income 8.6%	Momentum 7.9%	Value 3.4%
Momentum 9.3%	Income 14.9%	Size -7.0%	Minimum Volatility 6.1%	Minimum Volatility 13.5%	Size 16.7%	Value 6.8%	Quality 7.7%	Minimum Volatility 2.9%

Source: Bloomberg

EM: Emerging Markets. All figures shown are in Euro terms.

Total returns are based on net dividends reinvested. Net returns will take into consideration tax rates that would apply on any dividends received which will vary depending on the investor's taxable rate. You should consult your tax adviser for the rules that apply in your individual circumstances.

Minimum Volatility: MSCI World Minimum Volatility Index, Quality: MSCI World Quality Sector Neutral Index, Value: MSCI World Value Index, Developed World: MSCI World Index, Momentum: MSCI World Momentum Index, Size: MSCI Mid Cap Equal Weighted Index, Developed and EM: MSCI All Country World Index, Income: MSCI World High Dividend Yield Index, 6 Factor Portfolio: Equally weighted portfolio of Income, Quality, Size, Momentum, Minimum Volatility and Value

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# GLOSSARY

<b>Exchange Traded Fund (ETF)</b>	ETFs trade on an exchange – like a share – but are similar to a fund as they tend to consist of holdings in a number of underlying investments. The primary difference is that ETFs can be bought and sold throughout the trading day, whereas funds are only priced once per day. ETFs tend to be lower cost than traditional active funds. Due to this and their more attractive liquidity, they have grown in popularity in recent years.
<b>Price Return</b>	The capital gains component of the return on a security or index, price return excludes any dividend payments.
<b>Total Return</b>	The return on a security or index with dividends reinvested.
<b>Margin of Safety</b>	A margin of safety is a buffer that an investor will give themselves prior to investing. For example an investor may not buy a stock until they believe the market price is 20% below their own price estimate.
<b>Drawdown</b>	The peak to trough decline of an investment, this measure assumes that the investor bought the investment at the very peak of the market and sold the investment at the bottom of the market. This is a commonly used measure of risk when assessing funds and ETFs.
<b>Dividend Discount Model</b>	An analyst will predict the future dividend stream of a company and value a company based on this predicted income stream.
<b>Residual Income</b>	Investors expect a reward for holding equity and one way to look at this is to consider a fixed charge against a company's assets. I.e. investors may expect a return of 7% per annum on the company's assets. If the company can earn profits in excess of this they are said to generate residual income that is income in excess of the amount expected by their shareholders.
<b>Intrinsic Value</b>	Intrinsic value is considered to be the fundamental value of a company - as opposed to the market value - based on fundamentals such as the dividend discount model.
<b>Market Value</b>	Simply the number of shares issued by the company multiplied by the price of each share.

# IMPORTANT INFORMATION

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Wealth Management, Financial Planning, Investments and Pensions

**Dublin Office**

Davy House  
49 Dawson Street  
Dublin 2, Ireland

T +353 1 679 7788  
dublin@davy.ie

**Belfast Office**

Donegall House  
7 Donegall Square North  
Belfast BT1 5GB  
Northern Ireland

T +44 28 90 310 655  
belfast@davy.ie

**Cork Office**

Hibernian House  
80A South Mall  
Cork  
Ireland

T +353 21 425 1420  
cork@davy.ie

**Galway Office**

1 Dockgate  
Dock Road  
Galway  
Ireland

T +353 91 530 520  
galway@davy.ie

**London Office**

Dashwood House  
69 Old Broad Street  
London EC2M 1QS  
United Kingdom

T +44 207 448 8880  
london@davy.ie

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