ROBECO
The Investment Engineers

Conservative Equities

The long-run value of Conservative Equities

- Conservative Equities outperforms low volatility indices in the long run
- Most added value when value & momentum factors are strong
- Stable performance over the business cycle, especially during recessions

What makes a good low volatility strategy for long-term investors? Since 2006, we have designed our Robeco Conservative Equities strategy to achieve a maximum absolute return per unit of absolute risk, by focusing not just on low volatility but also on several other proven factors, including value.

In this research note, we dig deeper and investigate the strategy's drivers of returns over time by first looking at the long-term investment results and then analyzing this performance based on factor performance and the business cycle.

Long-term performance and downside risk

Over the past 25 years, low volatility stocks have delivered market-like returns, with lower downside risk. Using data dating back to 1994, we compare the global market portfolio (MSCI World Index) with a global low volatility portfolio (MSCI World Minimum Volatility Index) and the Robeco Global Conservative Equities strategy (Robeco Conservative). The MSCI World Minimum Volatility Index has been live for more than ten years (since April 2008) and the Robeco Conservative strategy has been live for more than 12 (since October 2006). Both series are partially backfilled with simulations for the earlier period. Performance figures for the Robeco fund are net of transaction costs, while those of the MSCI indices are gross of transaction costs.

Table 1 shows that low volatility stocks delivered an 8.4% return per annum, versus 6.9% for the market. Low volatility stocks offered a smoother ride, as risk was

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significantly reduced by about 30%. Volatility was 25% lower and downside beta 34% lower, compared to the market. The risk-adjusted outperformance (alpha) was 2.8% per annum, statistically significant with a t-value of 2.61.

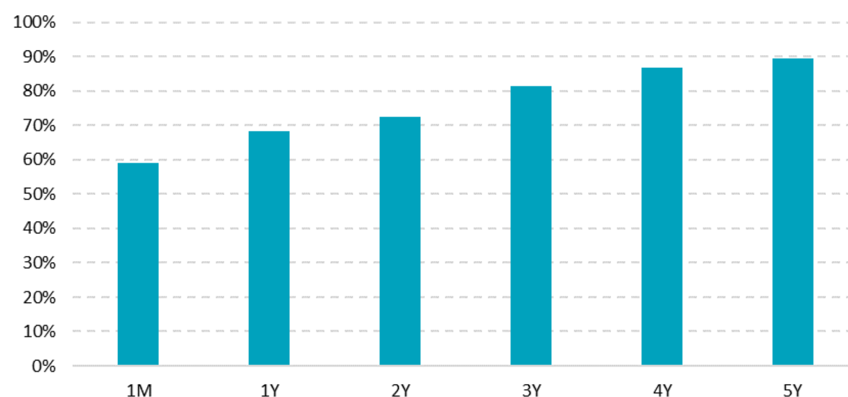
Table 1 | Performance statistics Robeco Conservative Equities and MSCI World Minimum Volatility Index

Performance	MSCI World	MSCI World Min. Vol.	Robeco Conservative
Average	6.9%	8.4%	10.9%
Standard deviation	14.6%	11.0%	11.2%
Probability of loss (1 year)	25%	20%	17%
Average loss (1 year)	-17%	-13%	-12%
Sharpe ratio	0.47	0.76	0.98
Alpha (CAPM)	-	2.8%	5.1%
t-stat alpha		(2.61)	(4.42)

Source: Robeco, MSCI. Returns of the MSCI World Minimum Volatility Index (EUR-optimized) net returns in EUR. Period June 1994-December 2018. The starting date is determined by the MSCI Factor Indices. Results obtained in the past are no guarantee for the future..

The Robeco Conservative Equites strategy did better than the two indices, both in terms of returns and return per unit of risk. Over the full sample period, the strategy generated the highest absolute return: 10.9% versus 8.4% for the MSCI World Minimum Volatility Index, and 6.9% for the MSCI World Index. This higher return was achieved with a similar level of risk. The drawdown risk was slightly better, while the volatility was slightly higher. The strategy's alpha was 5.1%, much higher than the 2.8% alpha of the MSCI World Minimum Volatility Index. The alpha of Conservative Equities is statistically significant, with a t-value (4.42) far above the 1.96 and 3.00 critical thresholds.[1]

Figure 1 | Hit ratio of Robeco versus MSCI World Min. Vol. Index



Source: Robeco, MSCI. Returns of the MSCI World Minimum Volatility Index (EUR-optimized) net returns in EUR. Period June 1994-December 2018. The starting date is determined by the MSCI Factor Indices. Results obtained in the past are no guarantee for the future.

Over the long term, Conservative Equities managed to beat the MSCI World Minimum Volatility Index by 2.5% per year (10.9% versus 8.4%). However, it should be noted that the strategy is not designed to consistently outperform the index (or any other active strategy) every single year or every multi-year period. The investment goal is an absolute target: to achieve high returns with low absolute risk. Therefore, the relative performance may not necessarily be consistent over time. And while hit ratios may be good (69% on an annual basis and 89% on a five-year basis), they mean that even on a longer-term five-year basis, there is an 11% chance that the Conservative Equities strategy will lag the Minimum Volatility Index. This happened during the recent 2013-2018 period (-0.8% annualized), but it also happened earlier, during the 2005-2009 period. Figure 2 illustrates how the average five-year relative return cyclically varies between +8% and -1% over time.

[1] To minimize the risk of false positives due to 'factor-fishing' or 'p-hacking' academic researchers such as Harvey argue that the critical t-value should be at least 3.0.

Figure 2 | Conservative Equities vs. MSCI World Minimum Volatility: five-year performance (annualized)

Source: Robeco, MSCI.

Since inception, the Conservative Equities strategy has used factors such as value and momentum in the investment process. Therefore, we now wanted to decompose the performance by explicitly taking factors other than low volatility into account. For this, we used other widely used MSCI single-factor indices based on value, high dividend, quality and momentum. Since the added value is time-varying and shows a cyclical pattern, we also analyzed the performance of Conservative Equities and single factors in the different business cycles.

Control for structural factor effects

Other factors besides low volatility can give investors higher risk-adjusted long-term returns. Table 2 shows the total return of Conservative Equities, the MSCI World Minimum Volatility Index, the market and an equal-weighted factor mix of four MSCI indices: Value, Momentum, Quality and High Dividend. The return is decomposed into three parts: market return, factor alpha and strategy alpha.

The market equity premium was 6.87% for this period. Therefore, the return attributable to market exposure was 4.51% for Conservative Equities and 4.53% for the Minimum Volatility Index (which both have a beta of 0.61) and 6.38% for the Factor mix (which has a beta of 0.93). This means that the total added value of the factors in the mix was 2.95% for this sample period. However, a more critical test of the added value of a strategy or index is to look at the contribution of the single factors that are known to generate additional returns. This raises the bar but is easier said than done, since it unrealistically assumes that investors already have frictionless access to these four factor premiums, without transaction costs or management costs. Still, it provides a deeper insight. The Minimum Volatility Index provided positive exposure to the different return factors, which explains part of the performance. At the same time, it was able to contribute 1.51% of additional alpha. This shows the strength of this defensive investment style.

Table 2 | Return decomposition of Robeco Conservative Equities and MSCI indices

Return decomposition	Robeco Cons.	Min. Vol. Index	Factor mix	Market
Market return	4.51%	4.53%	6.38%	6.87%
Factor alpha	2.93%	2.33%	2.95%	-
Strategy alpha	3.46%	1.51%	-	-
Total return	10.90%	8.38%	9.31%	6.87%

Source: Source: Robeco, MSCI. Period June 1994-December 2018. Index returns are net returns in EUR. The factor mix is an equal weighted average of four global developed indices: MSCI World Value Weighted, MSCI World Momentum, MSCI World Quality and MSCI World High Dividend. MSCI World Minimum Volatility Index is EUR-optimized. Robeco is the Global Conservative developed strategy net of transaction costs. Results obtained in the past are no guarantee for the future.

For Robeco Conservative Equities, 2.93% of the performance could be explained by the portfolio's exposure to these single factors. Thus, it offers full exposure to both the MSCI World Minimum Volatility Index as a means to reduce risk and full exposure to the factor mix as a means to enhance returns. Still, 3.46% of the total return cannot be explained by either market or factor exposure; this alpha can be attributed to positive interaction effects and the use of proprietary Robeco factor definitions.[2]

Conservative performance and factor cycle

Robeco Conservative Equities has more efficient factor exposure than the MSCI World Minimum Volatility Index. The differences in factor exposure are most pronounced for value and momentum. Therefore, we have investigated the performance of Conservative Equities depending on the return of the value factor, as measured by the MSCI World Value Weighted Index. The full 1994-2018 sample is split into two equal parts, based on the monthly relative performance of the value factor versus the broad market: 'value weak' and 'value strong'.

Table 3 | Conservative Equities return conditional on Value performance

Scenario	Value weak	Value strong
% observations	50%	50%
Robeco Conservative Return	10.5%	11.3%
MSCI Min. Vol. Return	9.6%	7.2%
Hit rate (monthly data)	57%	61%
Robeco -/- Min. Vol.	+0.8%	+4.2%

Source: Robeco, MSCI. Period June 1994-December 2018. Index returns are net returns in EUR. Returns conditional on relative monthly performance of MSCI World Value Weighted Index. Results obtained in the past are no guarantee for the future.

Table 3 shows that the added value of Conservative Equities versus the MSCI World Minimum Volatility Index is above 4% when value is strong, but less than 1% when value is weak. The monthly hit rates are 57% and 61%, respectively, and the expected alpha is positive in both cases. This means that even when value is weak, Conservative Equities is likely to outperform. Clearly, however, the strategy adds the most value when the value factor does well.

Since Conservative Equities also takes momentum into account, we analyze the performance of the strategy against how this factor performs. For this purpose, we look at the monthly relative performance of the MSCI World Momentum Index. Table 4 splits the full sample into four main scenarios, depending on the monthly performance of both the MSCI World Value Weighted Index and the MSCI World Momentum Index.

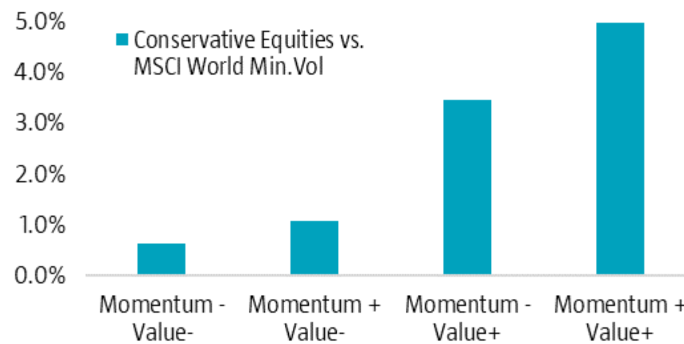
As expected, the most challenging environment is when both value and momentum show relatively weak performance. In this particular scenario, Conservative Equities slightly outperforms the MSCI World Minimum Volatility Index by 0.6%. When value is weak, but momentum is strong, the Conservative strategy outperforms even better, as the return difference goes up to +1.1%. The best scenario is when both factors perform well. In this case, the added value of Conservative Equities is +4.9% return per annum.[3]

Over the past five years, the percentage of observations was skewed to the left across the four scenarios. Value was weak 63% of the time in the past five years. Momentum sometimes compensated but was also often weak when value was strong. The respective probabilities for the four scenarios were 30%, 33%, 27%, and 10%. This means that the number of '+/+' months has been three times lower than the number of '-/-' months over the past five years.

Table 4 | Four scenarios based on the monthly performance of Value and Momentum

[2] Further reading: "A guide to low volatility investing", Robeco white paper, October 2018. "Expect the unexpected", Robeco white paper, October 2014. "Beauty and the beast of low volatility investing", Robeco white paper, February 2015.
[3] Value and momentum have an equal active risk contribution in the Robeco strategy. Still, in this analysis the performance of the value index has a stronger relationship with the relative performance of Conservative Equities than the momentum index. One reason for this is that the MSCI Value definition shows more similarities with our Conservative value variables, while the MSCI momentum factor deviates from a larger extent, as the latter includes only price momentum, while Robeco incorporates analyst revisions as well.

Scenario	Value - Momentum -	Value - Momentum +	Value + Momentum -	Value + Momentum +
% observations	25%	25%	25%	25%
Robeco Return	9.3%	11.7%	10.1%	12.6%
Min. Vol. Return	8.7%	10.6%	6.6%	7.7%
Hit rate (monthly)	56%	58%	62%	61%
Robeco -/- Min. Vol.	+0.6%	+1.1%	+3.4%	+4.9%



Source: Robeco, MSCI. Period June 1994-December 2018. Index returns are net returns in EUR. Returns conditional on relative monthly performance of MSCI World Value Weighted Index and MSCI World Momentum Index. Results obtained in the past are no guarantee for the future.

This value/momentum perspective helps to understand why Conservative Equities lagged the MSCI World Minimum Volatility Index in the more recent period, as shown in Figure 1.

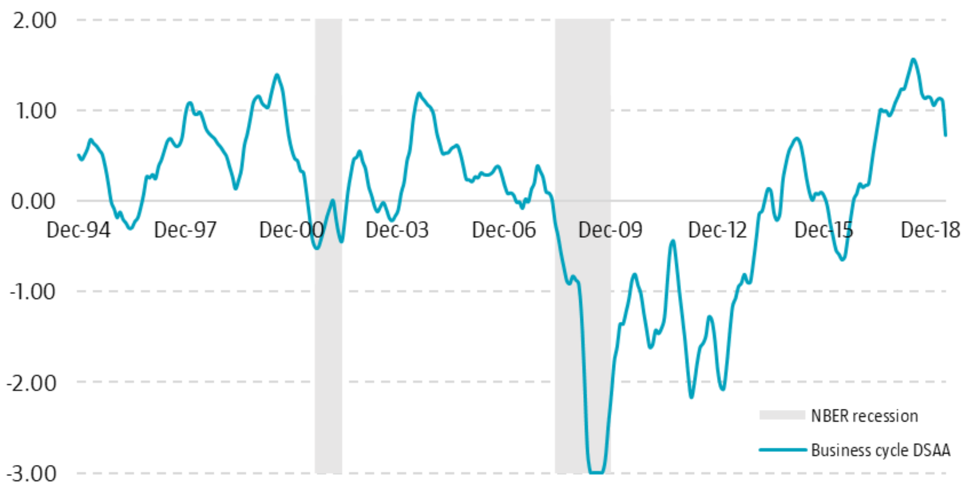
Factor performance and the business cycle

One question that often arises has to do with the performance of individual factors in different macroeconomic contexts. Of all the main factors, low volatility can most clearly be linked to certain economic scenarios. For example, when markets go down, low volatility stocks tend to reduce losses. Low volatility stocks also tend to do better during economic downturns.

It is therefore interesting to analyze the performance of individual factors during the different phases of the business cycle. For this purpose, we use the Dynamic Strategic Asset Allocation (DSAA) business cycle indicator, as proposed in the study 'Dynamic Strategic Asset Allocation', published in 2011.[4] This DSAA indicator is a standardized measure that combines four cyclical variables: credit spread, earnings yield, industrial production and unemployment rate. The original DSAA indicator used a 60-year sample period stretching from 1948 to 2007.

Figure 3 | DSAA business cycle and NBER recessions

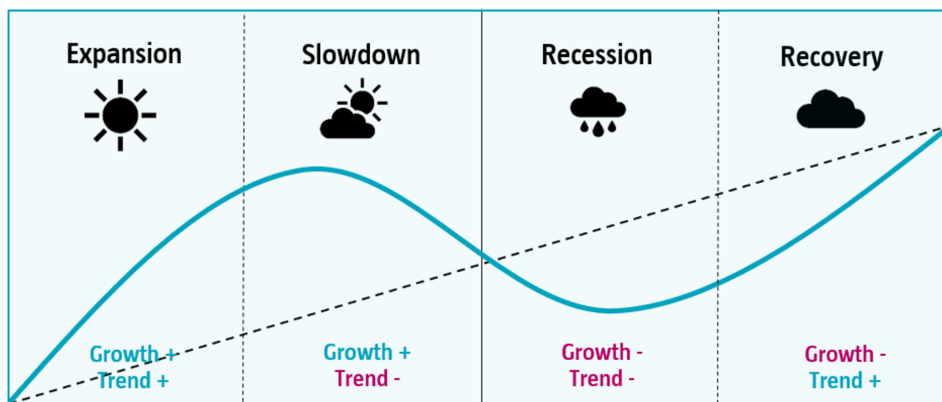
[4] Sample of original study is 1948-2007. Blitz and Van Vliet, 2011, Dynamic Strategic Asset Allocation: Risk and Return across the Business Cycle, Journal of Asset Management. https://link.springer.com/article/10.1057/jam.2011.12



Source: Robeco and Blitz and Van Vliet (2011), extended from 2008 onwards.

Figure 3 shows this business cycle indicator for the 1994-2018 period. The period after 2008 provides out-of-sample data for the model. The DSAA indicator correctly predicted the 2008-2009 recession. But it also wrongly, albeit briefly, pointed to a recession in 2015. Based on this indicator, the sample can be split into four different phases of the business cycle: expansion, slowdown, recession and recovery. These four stages are based on the level (positive/negative) of the DSAA indicator and on its one-year change (positive/negative).

Figure 4 | Four phases of the business cycle



Source: Robeco

Figure 4 illustrates these four phases of the business cycle. Since growth slows down more quickly than it picks up, the likelihood of each scenario is respectively 39%, 21%, 26% and 14%. As discussed in Blitz and Van Vliet (2011), low and falling scores (indicating a recession) have historically coincided with formal recessions in the US.

Table 5 aims to provide more insight into the different phases of the business cycle. For example, according to this methodology, the economy was in an expansion phase for the past couple of years and switched to a slowdown in 2019. This is not surprising. The last formal US recession was more than nine years ago, and many investors worry about future growth. In fact, a recent BCG study reveals that 73% of investors expect a US recession within the next 24 months.[5]

Table 5 | Recent phases in the business cycle

[5] "Investors brace for a downturn and look to the long term" BCG survey study January 2019.

Period	IP change 12M	12M Trend	Scenario
Start 2017	0.8	1.5	Expansion
Start 2018	1.6	0.7	Expansion
Start 2019	0.7	-1.0	Slowdown

Source: Robeco

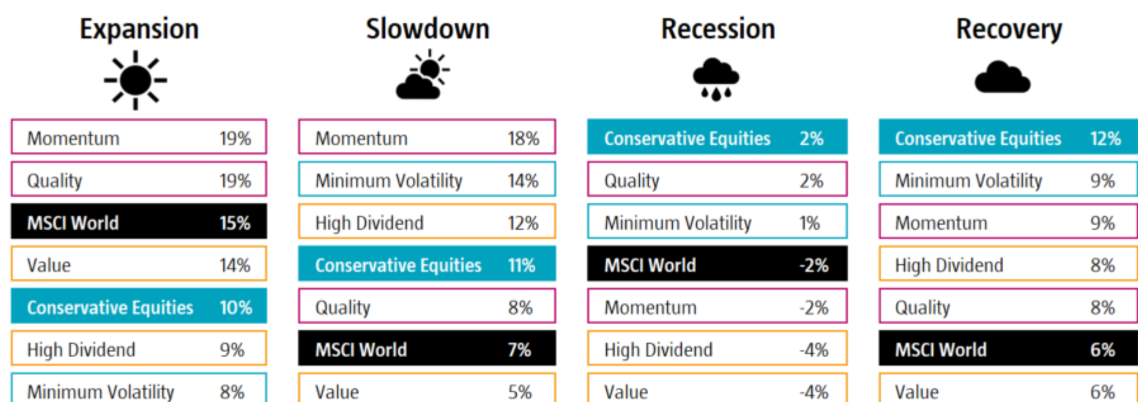
Of course, this methodology is not perfect. Signals can reverse quickly, and it is sometimes quite difficult to determine when a certain stage ends and another one starts. At the beginning of 2016, for example, the DSAA model pointed to a recession. Later on, the prediction switched to a slowdown instead, and then to a recovery. At the end of that same year, the model was pointing to an expansion. Still, DSAA provides a structured framework to differentiate the different stages of business cycles, based on multiple metrics with over 70 years of data. Therefore, this indicator is helpful to describe the performance of an investment strategy in different macroeconomic contexts. For example, one can describe how value stocks perform during recessions. DSAA provides another way to look at returns, not by grouping them based on years or decades, but according to the stage of the business cycle.

Outperforming in three out of four stages

Figure 5 shows the annualized performance of the different MSCI indices and the Robeco Conservative Equities strategy during the four stages of the business cycle. The sample starts in October 2006, coinciding with the launch of our Conservative Equities strategy.[6] Conservative Equities outperformed the MSCI World and MSCI World Minimum Volatility Indices in three out of four stages of the business cycle.

During periods of economic growth, expansion and slowdown, momentum had the highest return of all single-factor indices. Value lagged the broad market during these good times. Conservative Equities only lagged the market during expansions. As expected, defensive stocks did relatively well during the recession. Low volatility and quality reduced losses during this challenging period. Conservative Equities profited from its low-risk exposure and reduced losses significantly, despite its exposure to momentum. Finally, during recovery times, low volatility stocks showed modest outperformance. Still, Conservative Equities benefited from its multi-factor exposure during this phase of the business cycle, leading to an even better performance.

Figure 5 | Factor performance in four phases of the business cycle



Source: Robeco MSCI Sample Oct 2006–Dec 2018. Four phases of the business cycle defined in Blitz and Van Vliet (2011), using credit spread, EY, IP and unemployment rate. Results obtained in the past are no guarantee for the future.

Compared to a generic low volatility strategy, Conservative Equities added value in three out of four stages: expansion, recession and recovery. During the recession and subsequent recovery, Conservative Equities benefitted from its exposure to factors like momentum and high dividend. During expansion times, Conservative Equities profited from its

[6] When data starting from 1994 are used, we find a similar pattern. Returns of the MSCI factor indices are higher and are mostly based on simulations, so we choose the more prudent sample. Also we perform analysis for European data, which again gives similar results. Finally, the appendix shows results for the US going back to 1948.

positive momentum exposure. Only during times of economic slowdown, when value and high-dividend factors performed weakly, did Conservative Equities underperform a generic low volatility strategy.

While predicting the business cycle is challenging, timing factor performance is just as difficult, and a dynamic strategy has several drawbacks.[7] For example, the distribution of returns is quite wide in each phase of the cycle. A more prudent option is to avoid making any prediction and to include multiple factors, such as value and momentum, in a defensive strategy to strengthen performance throughout the business cycle. Some factors help during economically challenging periods, while other factors, like momentum, can help during good times. Figure 5 shows that the performance of Conservative Equities is pretty stable over the business cycle.

Strong performance during periods of economic contraction is important to preserve capital. Keeping up during good times is important for long-term capital growth. It is very difficult to predict which style will do best in the coming years. Therefore, if one is expecting the best but preparing for the worst, the Robeco Conservative Equities strategy is a viable mean of hedging this dual expectation.

Discount versus Low Volatility indices

Our analyses have focused on global developed markets. Table 6 also shows detailed results for other markets. At the beginning of 2019, the different Conservative Equity strategies are priced an average of 24% below their respective MSCI Minimum Volatility indices based on P/E, and 29% based on net payout yield. The valuation difference or 'margin of safety' is smallest in Europe and highest in emerging markets. As shown in Figure 5, this tilt towards factors such as P/E (value) and net payout (high dividend and quality) could be helpful during periods of economic contraction.

Table 6 | Margin of safety of Robeco Conservative Equities versus Minimum Volatility

Start 2019	Price earnings			Net Payout Yield		
	Robeco Conservative	MSCI Min. Volatility Index	Margin of saftey	Robeco Conservative	MSCI Min. Volatility Index	Margin of safety
Global Developed	15.9	19.7	19%	3.8%	2.9%	24%
Global All Countries	15.3	19.7	22%	4.1%	2.8%	32%
North America	16.7	21.3	22%	3.7%	2.7%	27%
Europe	14.7	18.0	18%	4.4%	3.8%	14%
Emerging Markets	9.4	14.8	36%	5.0%	2.5%	50%
Average	14.4	18.7	24%	4.2%	2.9%	29%

Source: Robeco, MSCI

Expect the best but prepare for the worst

In the long run, Conservative Equites strategies offer the highest risk-adjusted returns compared to the market and all major single-factor indices, including a low volatility index. Still, the strategy's relative performance remains erratic over time and there is a significant chance that Conservative Equities will underperform a low volatility index on a one-year (31%) or a five-year basis (11%).

Conservative Equities adds the most (least) value when the value factor performs well (poorly). This added value varies from more than 4% per year to below 1% in scenarios with the strongest and weakest value performance. Factor performance can be linked to the four phases of the business cycle. Defensive factors tend to do better during economic downturns. It is difficult to predict single-factor performance, as well as the direction of the economy. Conservative Equities has proved pretty robust throughout the business cycle. The strategy is therefore a viable choice for long-term investors and those who 'expect the best but prepare for the worst'.

[7] "Factor investing challenges: factor timing", Robeco white paper, October 2017.

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Appendix: Robustness tests

Business cycle data from Blitz and Van Vliet (2011) go back to 1948. This enables us to carry out an out-of-sample test of the factor performance in different phases of the business cycle. For this purpose, we use publicly available US data from the data library of Kenneth French and low volatility data from the Robeco website. Small caps are the 30% stocks with the lowest market capitalization, value, high dividend and momentum stocks are above NYSE median stocks and top 30% score on book-to-price, dividend and 12-1-month price momentum. Low volatility stocks are the 100 stocks with the lowest three-year volatility.

US Indices 1948-2018	Expansion	Slowdown	Recession	Recovery
Market	8.2%	0.1%	9.8%	4.2%
Small caps	8.8%	1.7%	2.6%	6.3%
Value	11.5%	2.1%	15.7%	7.0%
High Dividend	9.6%	2.6%	9.9%	6.9%
Momentum	12.7%	3.6%	4.3%	6.5%
Low volatility	7.3%	2.6%	9.4%	6.7%

Source: Robeco, Kenneth French data library

The appendix table shows the US results for period 1949-2018. The results are roughly in line with the global factor returns for the period 2006-2018. The main difference is that equity returns are higher during recessions and value return is stronger across the cycle. This means that these results are ambiguous, and no strong conclusions should be drawn. What is more robust for both samples is that momentum is strong during periods of expansion. Also, low volatility consistently lags the market during expansions and is strong in recovery periods.

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Some Funds referred to in this marketing material have been registered with the UAE Securities and Commodities Authority (the Authority). Details of all Registered Funds can be found on the Authority's website. The Authority assumes no liability for the accuracy of the information set out in this material/document, nor for the failure of any persons engaged in the investment Fund in performing their duties and responsibilities.

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Robeco is subject to limited regulation in the UK by the Financial Conduct Authority. Details about the extent of our regulation by the Financial Conduct Authority are available from us on request.

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The sale of the Fund qualifies as a private placement pursuant to section 2 of Uruguayan law 18,627. The Fund must not be offered or sold to the public in Uruguay, except in circumstances which do not constitute a public offering or distribution under Uruguayan laws and regulations. The Fund is not and will not be registered with the Financial Services Superintendency of the Central Bank of Uruguay. The Fund corresponds to investment funds that are not investment funds regulated by Uruguayan law 16,774 dated September 27, 1996, as amended.

Additional Information concerning RobecoSAM Collective Investment Schemes

The RobecoSAM collective investment schemes ("RobecoSAM Funds") in scope are ub-Funds under the Undertakings for Collective Investment in Transferable Securities (UCITS) of MULTIPARTNER SICAV, managed by GAM (Luxembourg) S.A., ("Multipartner"). Multipartner SICAV is incorporated as a Société d'Investissement à Capital Variable which is governed by Luxembourg law. The custodian is State Street Bank Luxembourg S.C.A., 49, Avenue J. F. Kennedy, L-1855 Luxembourg. The prospectus, the Key Investor Information Documents (KIIDs), the articles of association, the annual and semi-annual reports of the RobecoSAM Funds, as well as the list of the purchases and sales which the RobecoSAM Fund(s) has undertaken during the financial year, may be obtained, on simple request and free of charge, via the website www.robecosam.com or www.funds.gam.com.

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