Quoniam

Diversifying credit portfolios with factor investing

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Introduction

While factor investing approaches have been popular in the management of equity portfolios for decades, this trend has found its way into mainstream corporate bond management only in the past few years. Since then, however, there has been a steady uptick in interest, and the first pure credit factor searches by asset owners have taken place. We look at what factor investing is, what characterises factor portfolios, what impact these characteristics have on the performance of factor portfolios, and what the benefits are for investors who allocate part of their target credit exposure to dedicated factor strategies.

About Quoniam

Quoniam is a pioneer in quantitative asset management. Our goal is to create client-oriented investment solutions with a reliable alpha for institutional investors based on scientific findings and modern technology. As a partner-led company with more than 140 employees in Frankfurt and London, we manage approximately 28 billion euros in equity, fixed income, and multi-asset strategies. Our success is rooted in the efficient processing of the increasing amount of capital market data and information and employing this data to facilitate reliable investment decisions. We operate independently and seek innovative solutions. Simultaneously, our entrepreneurial freedom is grounded in a solid financial foundation owing to our affiliation with Union Investment Group. We passionately strive to create value for our clients and to make positive contributions to society. We are committed to the Principles for Responsible Investment and aim to globally promote sustainable investment.

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Factor investing and its characteristics

What is factor investing?

Factor investing in credit describes an approach to constructing corporate bond portfolios that are exposed to a combination of factors associated with expected excess returns over the market. There are three steps to constructing a factor portfolio:

- First, factors are identified based on economic theory and empirical evidence; these factors systematically outperform broad market benchmarks. Well-known factors in this regard include value, momentum, and carry. Other factors, such as quality, may not be associated with excess returns over the market, but may lower the overall risk profile of the combined signal.

- Second, these factors are combined into a blended multi-factor signal that captures the issuer's simultaneous exposure to these factors. A factor approach needs to combine factors and weights that lead to an optimal factor diversification and a balanced multi-factor signal that, simultaneously, works under the real-world restriction of limited liquidity and limits portfolio turnover.

- Third, a portfolio construction method needs to be chosen that translates these signals into portfolios under the practical restrictions (such as investment guidelines and risk characteristics of the chosen benchmark).

While the choice of factors and their definitions vary across different factor approaches, there are several aspects that find consensus among factor-investing managers. The following figure describes important factors for investment grade (IG) credit. For a more thorough discussion of our factor investing philosophy, please refer to our peer-reviewed paper, 'Factor Investing in Credit'.1

Fixed income factor definitions

VALUE cheap bonds outperform expensive bonds. We consider the standardised difference between the market spread and proprietary fair value spread estimate as the value signal. We run a multivariate regression using composite variables to arrive at a fair value estimate.

MOMENTUM issuers with strong recent performance of their equity will have a better bond performance in the future. We use equity momentum for corporate bonds because studies show that there is a lead-lag relationship between stocks and corporate bonds, and that equity momentum has predictive power for bond downgrades.

CARRY bonds with higher spreads and steeper credit curves yield higher returns. We merge the spread and spread rolldown into a single signal. Accordingly, we focus not only on higher yields, but also on the additional higher rolldown returns of bonds at steeper parts of the curve.
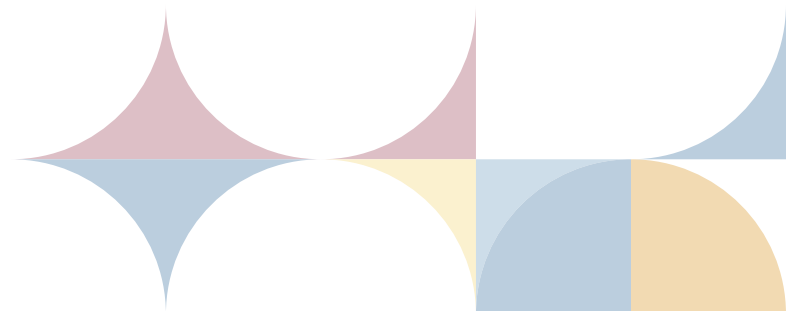
What are the properties of factor portfolios?

As factor investing has certain properties that distinguish it from traditional fundamental investing, factor portfolios also have specific features that distinguish them from other approaches. These features are summarised as follows:

- Factor investing values the entire investment universe in an identical and coherent manner, thereby identifying mispricing and opportunities, and mitigating human bias. Thus, the approach works best in large universes, such as global investment grade (IG), Euro IG, and global high yield, with hundreds of issuers issuing several thousand bonds. Factor models rank all these bonds and issuers and allow for the construction of large, diversified portfolios by choosing from multiple above-average forecasts. Hence, factor portfolios are characterised by multiple small active positions, which diversify and mitigate the role of company-specific risks.

- Since the main source of outperformance in factor portfolios is the selection of bonds and issuers with above-average exposure to the selected factors, there are usually no significant deviations from the benchmark in terms of risk. Risks include duration and curve positioning, credit risk, and structural positioning, such as active sector weights. As such, bond selection should be the single, most important, contributing factor to the relative performance of multi-factor approaches.

- Finally, as factor signals change over time, the approach requires active management and regular rebalancing of positions. Bonds need to be divested in the event of worsening forecasts and included when forecasts improve. If factor models are calibrated in a way that they incorporate real-world restrictions on liquidity and turnover, factor approaches should work with reasonable turnover.

What is the impact on the performance of factor portfolios?

From the above arguments, several performance characteristics of multi-factor portfolios that should hold for typical factor approaches can be derived.

- **Low tracking errors:** Idiosyncratic issuer risk tends to be highly diversified and does not strongly affect portfolio performance. Moreover, the risk characteristics of bond portfolios closely follow their benchmarks. Hence, performance should focus on capturing the factor risk premia in the market, which makes it stable and consequently lowers tracking errors. Thus, this approach is expected to yield a high information ratio.

- **Low drawdowns:** Compatible with low tracking errors, the potential for large drawdowns is also more limited. Since the duration and beta of the portfolio tend to be close to the benchmark, large market movements are less likely to translate into large deviations from the benchmark performance to any side, including the downside.

Performance independent of market direction: Factor strategies aim to capture factor premia in the market by overweighting bonds with large factor exposure and underweighting those with low factor exposure. While factors such as carry tend to be associated with increased risk, other factors such as equity momentum are usually lower risk factors. The combined multi-factor signals have very balanced risk characteristics. Therefore, factor strategies aim to capture alpha in all market environments and add value, regardless of whether spreads are tightened or widened by investing in the best factor mix.
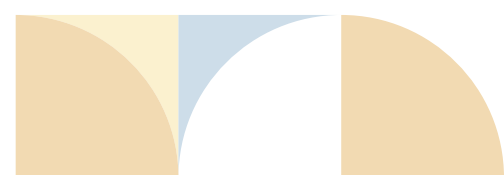
How can investors profit from investing in factor strategies?

These theoretical considerations point toward a considerable diversification benefit for investors when they allocate part of their credit exposure to factor strategies. By definition, fundamental strategies do not make use of systematic factors in their portfolios, excluding carry, as our study shows. Therefore, investors can access different sources of outperformance when employing both fundamental and factor strategies in their overall credit allocation. This means that if an investor chooses a fundamental and a quantitative manager who outperform the market over time, the combined alpha of the two mandates should be more stable, as the sources of performance are likely to have low correlations.

Moreover, because the factor strategy should be uncorrelated with the direction of credit spreads, allocating to it will lower the dependency of the investor's outperformance on spread movements. This makes an investor portfolio more robust to large spread increases during crises. Likewise, the addition of factor strategies to the overall credit allocation reduces the tracking errors and drawdowns of investors' credit portfolios. While these diversification benefits should be available to investors employing factor approaches in theory, the availability of empirical data on multi-factor portfolio performance allows for the verification of these theoretical assertions with real-world data.

Outline and data

This study aimed to empirically confirm or reject certain previously derived theoretical assertions. Specifically, we answered the following questions.

- How does multi-factor credit differ in its characteristics from the fundamentally managed credit in existing funds?

- How does combining the two approaches alter an investor's overall portfolio performance features?

- What makes multi-factor credit work differently than fundamental credit?

To investigate the diversification benefits provided by factor strategies, we used performance data from the Morningstar fund database for both the global IG credit and Euro IG credit categories. We defined peer groups for global and Euro fundamental strategies that are both representative and make for a fair comparison. Table 1 outlines the methodology used to clean the data.
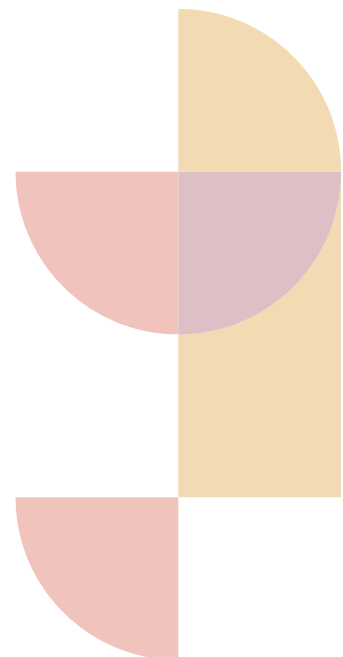
Table 1: Data selection and cleaning for the empirical investigation

| Euro credit IG and Global credit IG funds in the Morningstar database	**Exclusions:**
	· Quantitatively managed strategies
	· Funds with a history of less than five years and a NAV below EUR/USD 100 million at the end of May 2021
	· Total return strategies (funds with money market benchmarks or benchmark-free management)
	· Funds with (partly) non-credit benchmarks
	· Strategies with restrictions of the maturity spectrum or credit universe (short duration, non-financial, etc.)
	· Funds that are explicitly labelled as 'sustainable'
	Selection:
	· If the asset manager has more than one suitable fund, we select the largest one
	· Institutional share class
	· Euro-denominated share class for Euro credit, Euro hedged for global credit
	· All performance numbers are in Euros
	Modifications:
	· Fees are added to the fund performance to display it on a gross basis
	· The fund's relative performance (alpha) is calculated against the benchmark stated in the prospectus

The applied criteria yielded a sample of 43 fundamentally managed Euro IG credit funds and 24 global IG credit funds. We note that the condition that every fund in the sample has at least five years of data could potentially introduce survivorship bias into the performance numbers of the fundamentally managed universe, as funds that may have failed within the timeframe due to poor performance are excluded from the analysis. This implies that the average performance an investor incurred by investing in the fundamentally managed fund universe over the investigation period is likely to be lower.
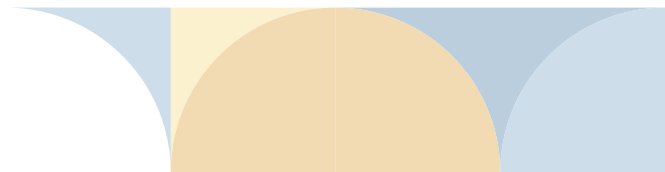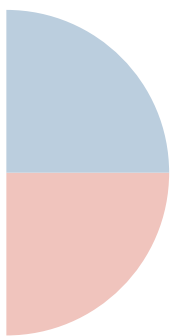
Empirical results

We investigated all portfolios for the period of 31 May 2016 to 31 May 2021. We chose a five-year investigation period, as this is a popular timeframe for professional investors to analyse the characteristics of funds. As this period includes rallies (2019 or the year starting in Q2/2020) and crisis periods (the end of 2018 or March 2020), we consider the period to be sufficiently long and heterogeneous enough to allow for conclusions with sufficient confidence that the effects picked up are representative of the respective strategies.

We constructed three different peer group portfolios among the fundamentally managed funds:

- Portfolio 1 consists of all fundamental funds.

- Portfolio 2 is a subset consisting of the ten largest funds in the universe using the end-of-sample net asset value (NAV) of the funds.

- Portfolio 3 is a portfolio of the ten best-performing funds measured by the fund alpha against their respective benchmarks.

Note on Portfolio 3: While this portfolio can be interesting in the analysis of characteristics and correlations, an examination of the performance will be biased given that the best funds are selected with hindsight. Any conclusions drawn from the analysis of this subset do not result in an investable portfolio strategy.

Moreover, when we combine individual funds into portfolios, we weigh them by the fund's NAV at the end of the sample period, as opposed to an equal weighting scheme. This weighting approach better reflects the average market returns, as the largest funds have the greatest share in the sample. When we repeated the analysis using an equal weight for all individual funds, the outcomes for global IG remained qualitatively unchanged. In the Euro universe, we encounter an unusual situation in which the largest fund in the sample (comprising almost 20% of the overall fund market capitalisation) is simultaneously the best-performing fund. This leads to an upward bias in fund size-weighted numbers.

For the multi-factor strategies, we used Quoniam composite data for Euro IG and global IG (EUR hedged) composites. We chose the composite closest to the construction rule of the peer group that exists during the five-year sample period (for example, we chose a Euro composite without non-financial and maturity-restricted funds, comparable to the selection of the peer group).

Sample characteristics

In the following graphs, we present several descriptive statistics for the different portfolios. Figure 1 shows the average annual alphas and tracking errors of the multi-factor and fundamental credit strategies. Figure 2 plots the worst monthly alphas for each of the four portfolios incorporated in our study.
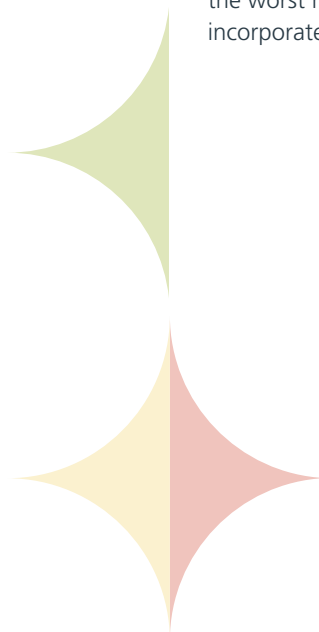
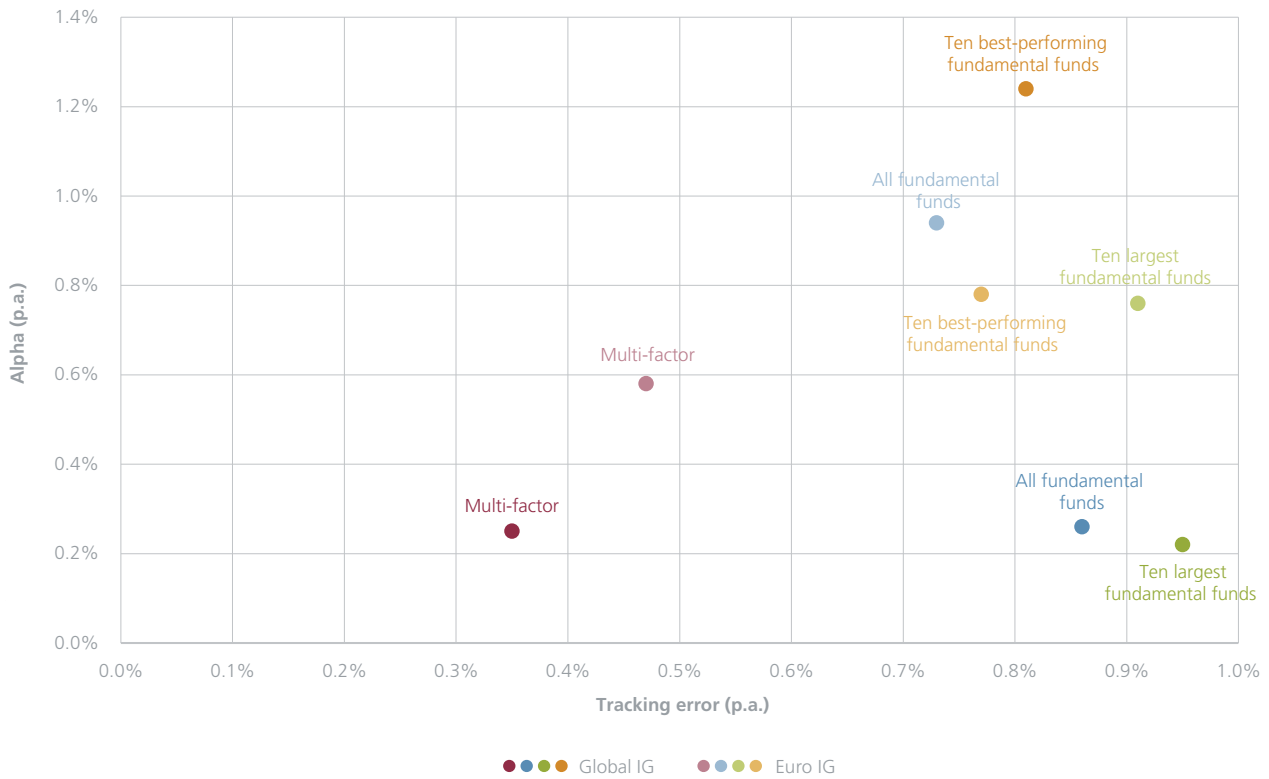**Figure 1: Alpha and tracking error of the strategies**

Figure 1 indicates that the global IG multi-factor strategy has a similar alpha to the portfolios of all fundamental funds and the ten largest funds. However, the tracking error is less than half that of the fundamental peers. For the broader universe, more risk taking does not lead to more returns. The portfolio of the ten best-performing fundamental funds stands out in terms of the alpha, but this is not surprising as we chose the ten best managers with hindsight, highlighting the best performance possible for this portfolio construction method. Interestingly, the portfolio with the ten best performers has a somewhat lower tracking error than the two other fundamentally managed portfolios, while it is still more than twice the tracking error of the multi-factor strategy.

For Euro IG, the best-performing portfolio has the highest tracking error. Similar to the global IG sample, the multi-factor strategy has the lowest tracking error. All alphas are higher for Euro IG than for global IG, indicating that at least during the sample period, outperformance in Euro IG was easier to achieve for all managers. The performance numbers of the fundamentally managed sample are overstated by the weighting method, as the largest fund is simultaneously the best-performing one, elevating all fundamental average performance numbers, as outlined above.

Figure 2: Worst monthly alphas
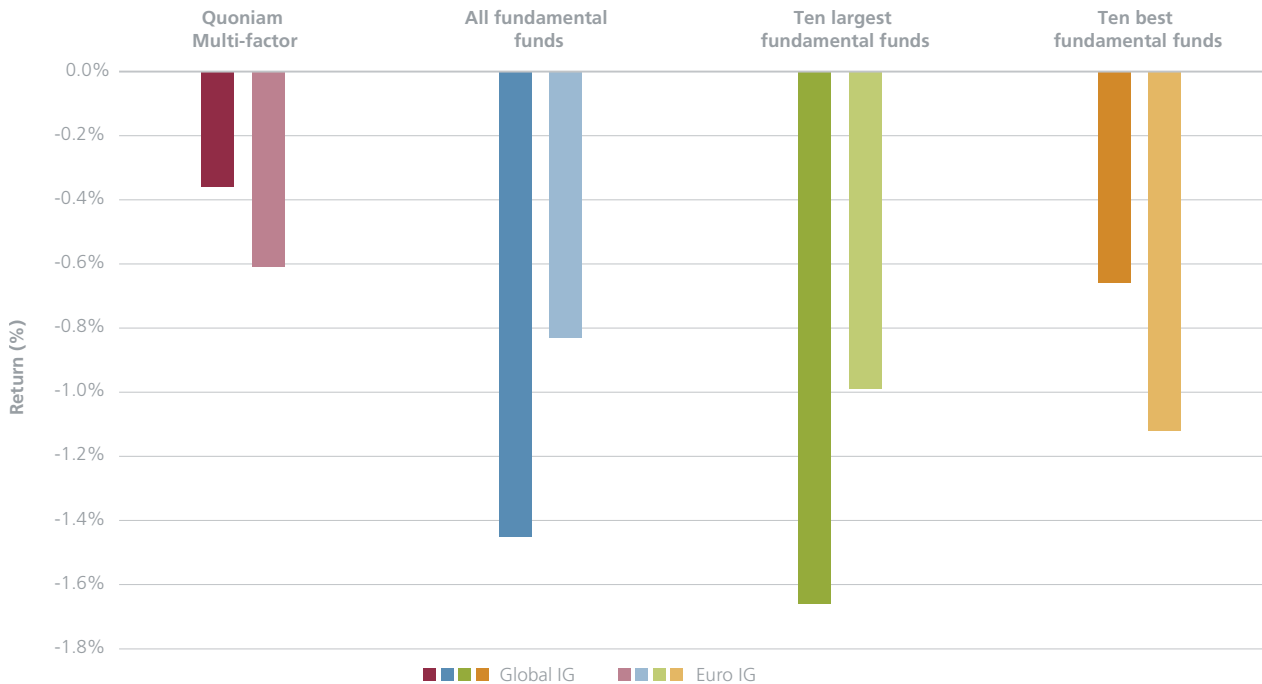
This graph displays the worst monthly alpha for each of the four portfolios in the analysis: the multi-factor strategy, all fundamental peers, the ten largest, and the ten best-performing fundamentally managed funds in the universe. All funds are displayed separately for Euro IG and global IG.
Source: Morningstar, Quoniam Asset Management GmbH.

Figure 2 presents a similar pattern in terms of the maximum monthly alpha drawdowns: The global IG portfolios with all fundamental funds and with the ten largest funds have the worst monthly alpha in the –1.5% area, whereas for the best funds, it is –0.66%. The multi-factor strategy shows a much lower drawdown with the worst monthly relative performance of –0.36%. For Euro IG, the multi-factor portfolio still has the lowest monthly drawdown, although it is larger than for global IG, and the differences compared to the fundamental funds are lower but still meaningful. Contrary to global IG, the best-performing portfolio in Euro IG has the largest monthly drawdown, implying considerable risk-taking.

Correlation between fund outperformance and spread direction

After establishing characteristic numbers for both Quoniam's systematic multi-factor approach and the fundamentally managed peer group, we now turn toward the potential to outperform the market in different spread environments.

A systematic factor approach aims to harvest risk premia that exist in the cross-section of bond returns by picking bonds with higher factor exposure and subsequent better performance. This approach should work in all market environments, and performance should therefore depend less on the direction of credit spreads. We investigated this performance characteristic and compared it with that of our sample of fundamentally managed credit funds.

To analyse the correlation between fund performance and the credit market, we first plotted the monthly fund alphas against the average monthly spread change in the credit market. We used the Bloomberg global IG and Bloomberg Euro IG benchmarks and plotted the change in option-adjusted benchmark spreads as a proxy for market direction.

The following graph depicts the monthly fund alphas relative to the direction of the market for the multi-factor strategy and the three fundamentally managed global credit portfolios consisting of all funds in the universe, the ten largest, and the ten best-performing funds. Both alphas and spread changes are expressed as percentages.

Figure 3: Correlation between the fund alpha and the spread change

Panel A: Global IG credit

Panel B: Euro IG credit
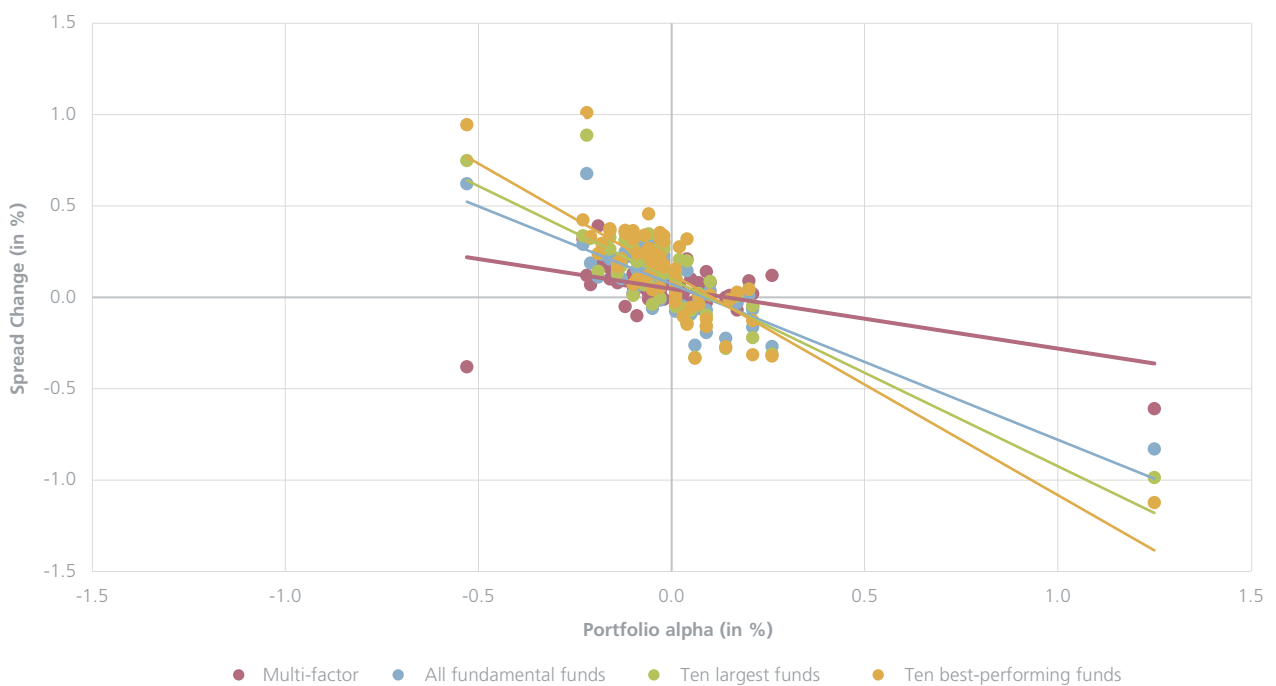
Source: Bloomberg L.P., Quoniam Asset Management GmbH, May 2016 – May 2021

The correlation analysis between the fund alpha and the spread change reveals that fundamentally managed credit funds, both Global and Euro IG, add alpha in months when credit excess returns are strong (rallies, spread tightening) and underperform in months when credit performance is weak (crisis, spread widening).

In contrast to the correlations for the fundamental portfolios, the multi-factor strategy has a much lower correlation with the market. The global IG multi-factor performance is uncorrelated with the market, with a flat trend line slope. The monthly alphas exhibit no pattern whether the market is in crisis mode or in a strong rally. Interestingly, for the period under consideration, the worst monthly performance takes place in the month with the strongest spread tightening, in stark contrast to the fundamental peers. For Euro IG, the picture is similar, with a slight correlation with the market visible by the downward slope of the regression line, but the relationship is much milder than for the fundamental peers. Given that carry is part of the signal blend, a modest relationship with market direction may be expected. Further, the differences between global IG and Euro IG for the systematic strategy are not strong and might not be systematic in nature.

We acknowledge that the spread changes during the investigation period are characterised by two outliers: one on the positive side and one on the negative side. Hence, any estimated trend line may be heavily influenced by these two observations. The relationship between fund performance and market direction in the two individual months may be random and not representative of the strategy. Therefore, we repeated the analysis without the two extreme observations for all portfolios involved.

Figure 4 indicates that excluding extreme observations did not significantly alter the picture. There is still a strong correlation between market direction and relative fund performance for portfolios of fundamentally managed funds. The three portfolios are closer to each other in their characteristics, without outlier observations, suggesting that the main performance difference comes from these two months. Likewise, there is still far less correlation between market direction and the relative performance of the multi-factor strategy, with the trend line of the quantitative strategy still much flatter than those of the fundamental peers.
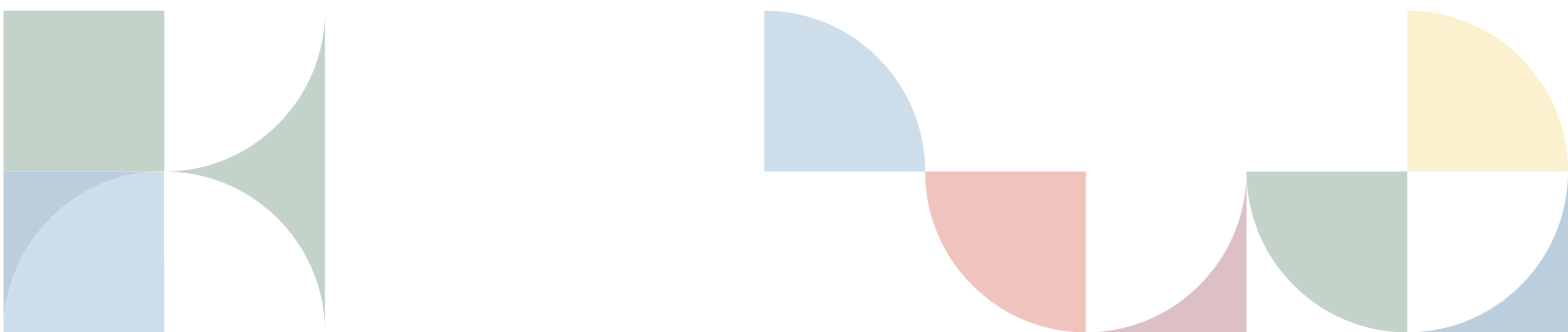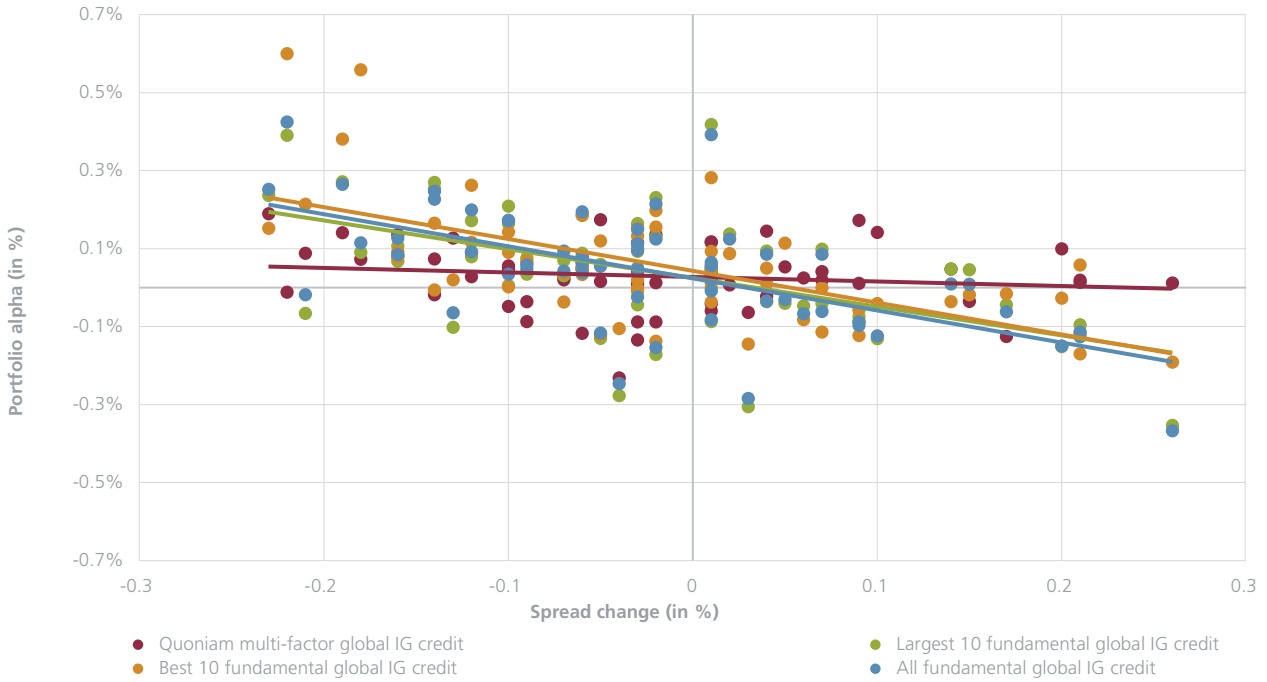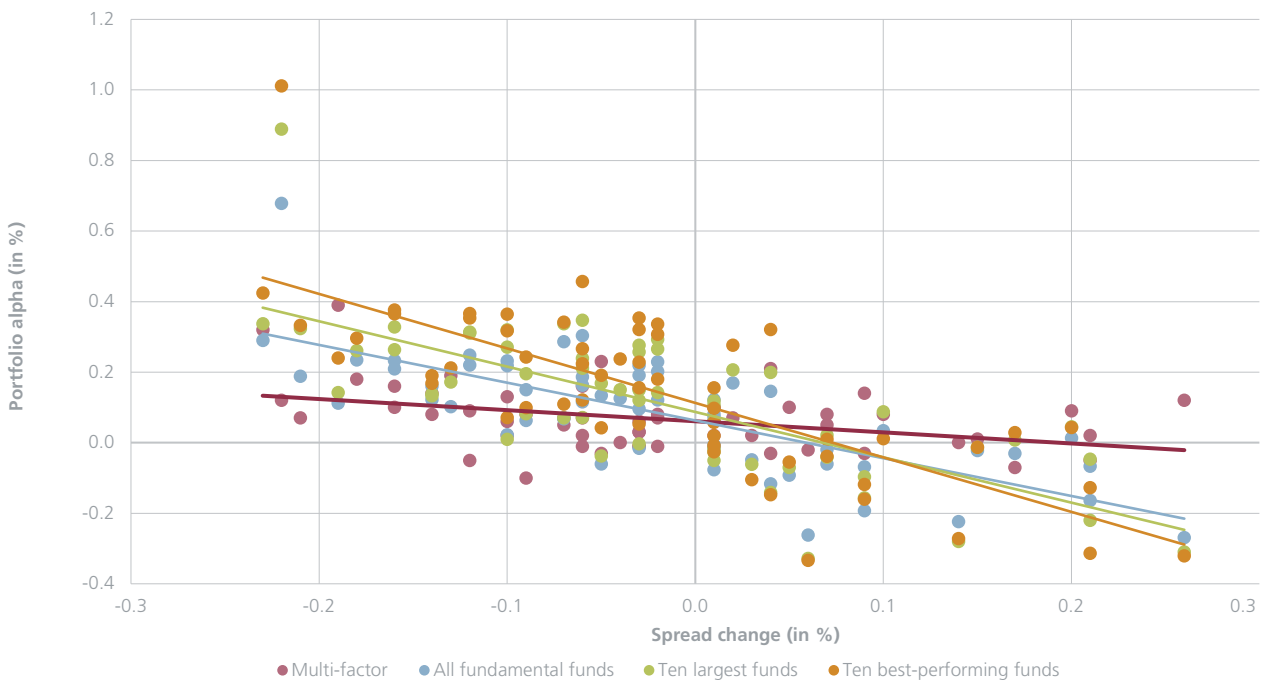
Figure 4: Correlation between the fund alpha and the spread change, excluding outliers for global IG

Panel A: Global IG credit

Panel B: Euro IG credit

Source: Bloomberg L.P., Quoniam Asset Management; May 2016 – May 2021

To underpin the impressions from the last two graphs, we calculated the average market betas of the different multi-factor and fundamental portfolios by determining the slopes of the regression lines in Figures 3 and 4, as presented in the following table. To align the positive alpha with positive market sentiment, we multiplied the results by –1. Therefore, a one-to-one relationship between falling spreads and a positive alpha results in a beta of 1.

The table quantifies the impression given by a graphical illustration of the market dependency of the alpha series.

In global IG, the systematic approach has a beta of just 0.04 for the entire sample, whereas the fundamental portfolio of all funds has a beta of 1.04. For the subset of the ten largest and best funds, this beta stands at 1.12 and 0.79, respectively, which indicates strong co-movement with credit spreads.

Table 2: Market beta of the multi-factor strategy and fundamental peer groups, including and excluding the outlier months March and April 2020

Panel A: Global IG credit

Portfolio	Market beta 06/16–05/21	Market beta 06/16–05/21 (without 03 and 04/2020)
Multi-factor	0.04	0.12
All fundamental funds	1.04	0.82
Ten largest fundamental funds	1.12	0.74
Ten best fundamental funds	0.79	0.82

Panel B: Euro IG credit

Portfolio	Market beta 06/16–05/21	Market beta 06/16–05/21 (without 03 and 04/2020)
Multi-factor	0.33	0.31
All fundamental funds	0.85	1.07
Ten largest fundamental funds	1.02	1.29
Ten best fundamental funds	1.21	1.54

The table shows slopes of the regression lines in figures 3 and 4 multiplied by -1. The second column includes five years from June 2016 to May 2021, whereas the third column presents the same numbers without March and April 2020 (outliers in the sample).
Source: Morningstar, Bloomberg LP, and Quoniam Asset Management GmbH.

For Euro IG, the numbers are slightly higher for the fundamental funds, with betas ranging from 0.85 for the entire sample to 1.21 for the best-performing funds. The multi-factor strategy has a beta of 0.33, and therefore depends far less on the market direction than its fundamental peers. Hence, there is a systematic difference in the dependency of fund alphas on the market direction between factor investing strategies and fundamental strategies in credit.

Interestingly, the outcomes changed when the two most extreme observations of the sample period were excluded. For global IG, the beta of the systematic strategy remains very low but increases somewhat to 0.12. The opposite is true for the fundamental portfolio of all funds, with the beta remaining very high but dropping to approximately 0.8.

Contrariwise, for Euro IG, the beta of the systematic strategy decreases slightly to 0.31, whereas for the fundamentally managed funds, the numbers explode to values between 1.07 for the entire sample and 1.54 for the portfolio of the best fundamental funds. This indicates that, for Euro IG, the actual beta is even higher and is lowered by the two crisis months. Overall, however, for both global IG and Euro IG, the multi-factor strategy has a dramatically lower spread beta than its fundamental peers.

The correlation between the fund alpha and spread change provides the first evidence that systematic strategies can diversify institutional investors' overall portfolios.

Correlation between fundamentally and quantitatively managed funds

The fact that systematic credit factor portfolios have a different exposure to credit spread changes than the fundamentally managed credit funds does not necessarily mean that both categories are uncorrelated. Correlation can come from other forms of exposure such as duration, sector, and curve positioning, or similar exposure. Thus, we next focused on the alpha correlation between the systematic and fundamentally managed credit funds.

The following graph plots Quoniam's performance, measured by monthly alphas, against the monthly alphas of the fundamentally managed peer group. A horizontal regression line indicates no correlation between the two investment styles, whereas a strongly upward (downward) sloping line suggests a strongly positive (negative) relationship.

As evident from Figure 5, there is little correlation between Quoniam's multi-factor strategy and the fundamental peer group for global IG. There is only a modestly positive slope in the regression line of the entire fundamental universe and the ten largest funds. The line displaying the relationship between Quoniam's alpha and the ten best-performing fundamental funds in the universe is completely flat, implying that no correlation exists between the best-performing fundamental funds and the multi-factor strategy. For Euro IG, the regression line is slightly upward-sloping, but the correlations are not large. The data show that no other aspects, such as sector tilts or duration positioning, introduce a positive correlation between the systematic and fundamental approaches.
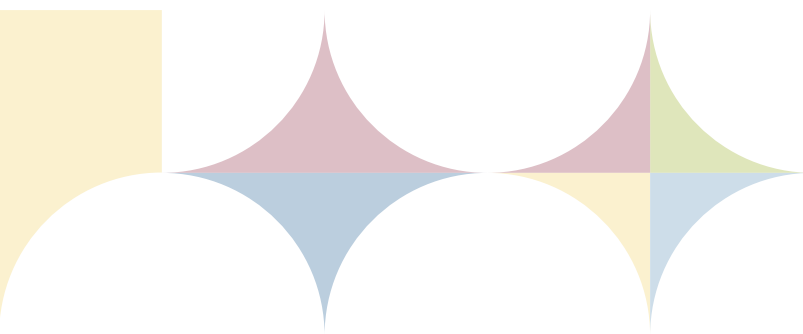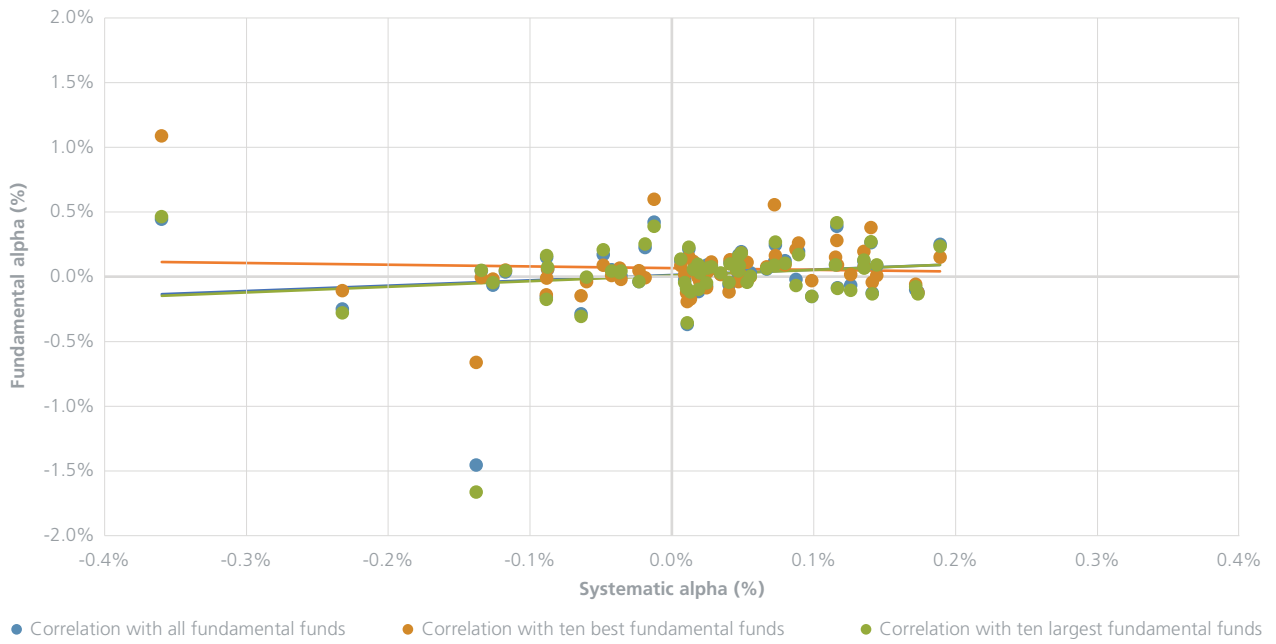
Figure 5: Correlation between the fund alphas of Quoniam's multi-factor strategy with fundamentally managed portfolios for Global IG

Panel A: Global IG credit

● Correlation with all fundamental funds   ● Correlation with ten best fundamental funds   ● Correlation with ten largest fundamental funds

Panel B: Euro IG credit

● All fundamental funds   ● Ten largest funds   ● Ten best-performing funds
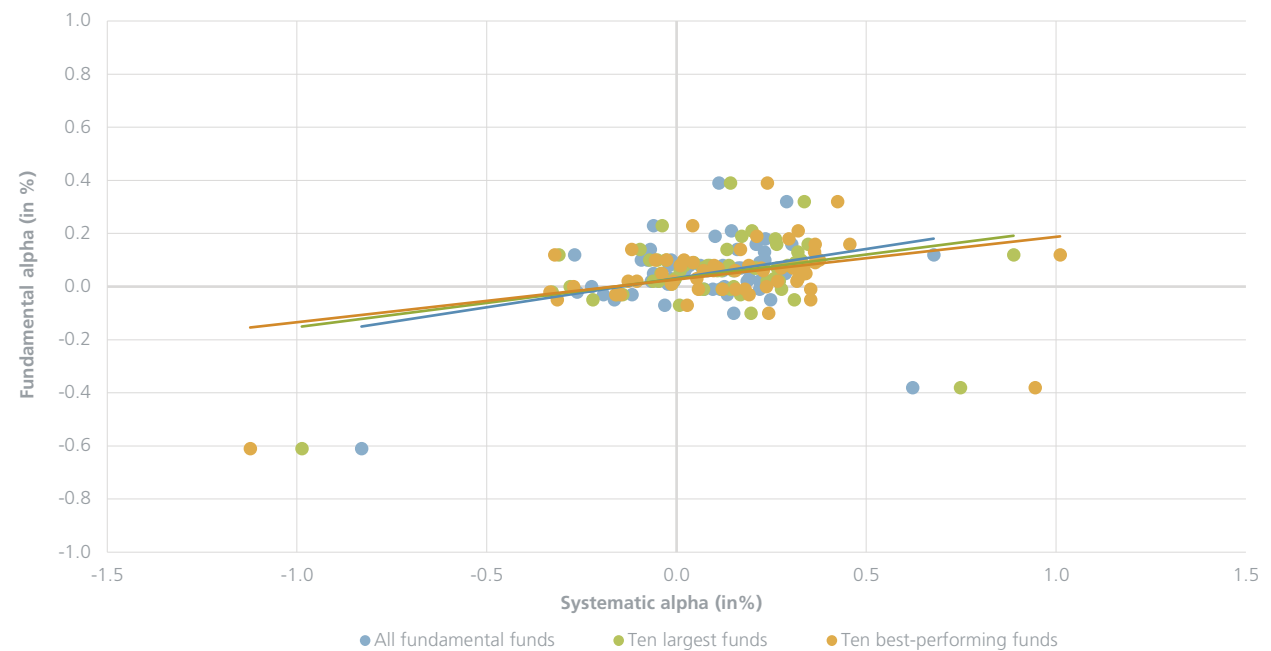
Source: Morningstar, Quoniam Asset Management GmbH, June 2016 – May 2021.

Again, we supported the findings from the previous figures by calculating the alpha correlation between Quoniam's multi-factor global IG strategy and the different fundamentally managed peer groups, as well as among the different fundamental peer groups themselves. Since the ten largest and ten best-performing fundamental funds are part of the universe of all fundamental funds, we explicitly excluded the respective subset from the universe of all funds when computing the correlation between all fundamental funds and the respective fundamental subset.

The table portrays a clear difference in the return patterns of the systematic strategy and various combinations of fundamentally managed portfolios. For global IG, the factor strategy has a low correlation with the universe of all fundamentally managed funds and the ten largest funds at 16% each. Interestingly, the correlation with the ten best-performing fundamental funds is even slightly negative at −6%, pointing toward strong diversification benefits from a combination of systematic and fundamental strategies. For Euro IG, the correlation is somewhat higher at approximately 35%, which still leaves room for considerable diversification potential.

Table 3: Correlation of the alphas of the multi-factor strategy and fundamental peer groups

Panel A: Global IG credit

Portfolio	Multi-factor	All fundamental funds	Ten largest fundamental funds	Ten best fundamental funds
Multi-factor	X			
All fundamental funds	16%	X		
Ten largest fundamental funds	16%	65%	X	
Ten best fundamental funds	-6%	64%	72%	X

Panel B: Euro IG credit

Portfolio	Multi-factor	All fundamental funds	Ten largest fundamental funds	Ten best fundamental funds
Multi-factor	X			
All fundamental funds	34%	X		
Ten largest fundamental funds	34%	92%	X	
Ten best fundamental funds	35%	93%	99%	X

Alpha correlation (Pearson correlation coefficient) between different portfolios in the investigation. The respective correlations between all fundamentally managed funds on one side and the two subsets of the ten largest and ten best fundamentally managed funds on the other side are calculated by stripping out the subset from the overall universe. Source: Morningstar, Quoniam Asset Management GmbH.

Conversely, the correlation of the ten largest and ten best-performing funds with the respective remainder of the universe is high at 65% and 64%, respectively, for global IG, and above 90% for Euro IG. While these subsets of the fundamental universe are not perfectly correlated, the correlation is still high enough to question any significant diversification benefits between the various combinations of fundamental funds, particularly in the Euro IG universe. The data favour the addition of a systematic portfolio to a fundamentally managed portfolio to achieve a higher level of diversification.

Characteristics of combined portfolios

The previous sections indicate that, contrary to traditional fundamental strategies, the multi-factor strategy has a low correlation with the direction that credit spreads take and with different fundamentally managed portfolios. However, asides diversification, the magnitude and properties of the alpha, and tracking errors of various combinations of fundamental and systematic portfolios should be considered as well. We address this matter in the following section.

Specifically, we created portfolios by merging the quantitative factor portfolio with different fundamentally managed portfolios at varying weights and examined the overall alpha of the combined portfolio. To achieve this, we started with the different fundamentally managed portfolios and reduced their weights in five percentage point steps while increasing the weight of the multi-factor portfolio by the same amount. We investigated how the addition of a multi-factor portfolio changes the overall fund alpha characteristics. The following graphs show the alphas and tracking errors of the combined portfolios:

As seen in the graph, the curves appear differently depending on which fundamentally managed fund universe the systematic strategy is combined with. However, certain key features remain identical. The first obvious insight is that the addition of a quantitative multi-factor strategy significantly reduces the overall tracking error.

In global IG, the minimal tracking error is reached in a portfolio combination with a share of 90% systematic credit for the entire universe of fundamentally managed funds, 95% for the subset of the ten largest funds, and 80% for the subset of the ten best-performing funds. For these combinations, the tracking error is reduced by 59–64%.
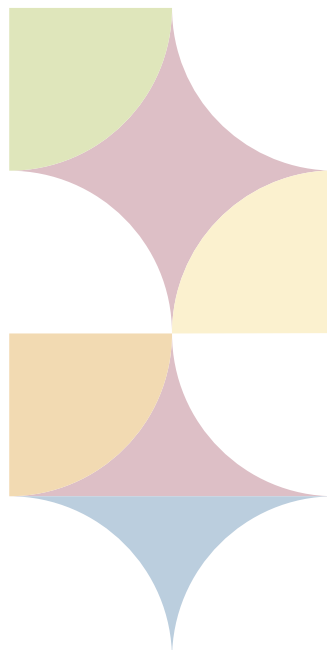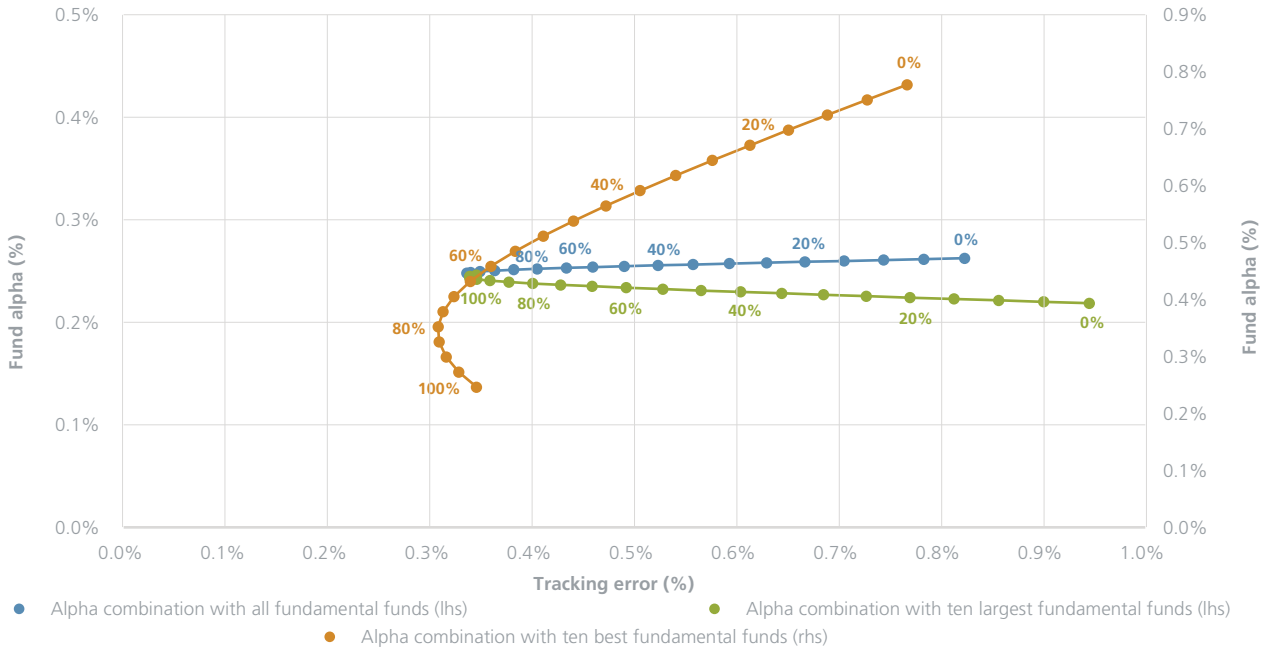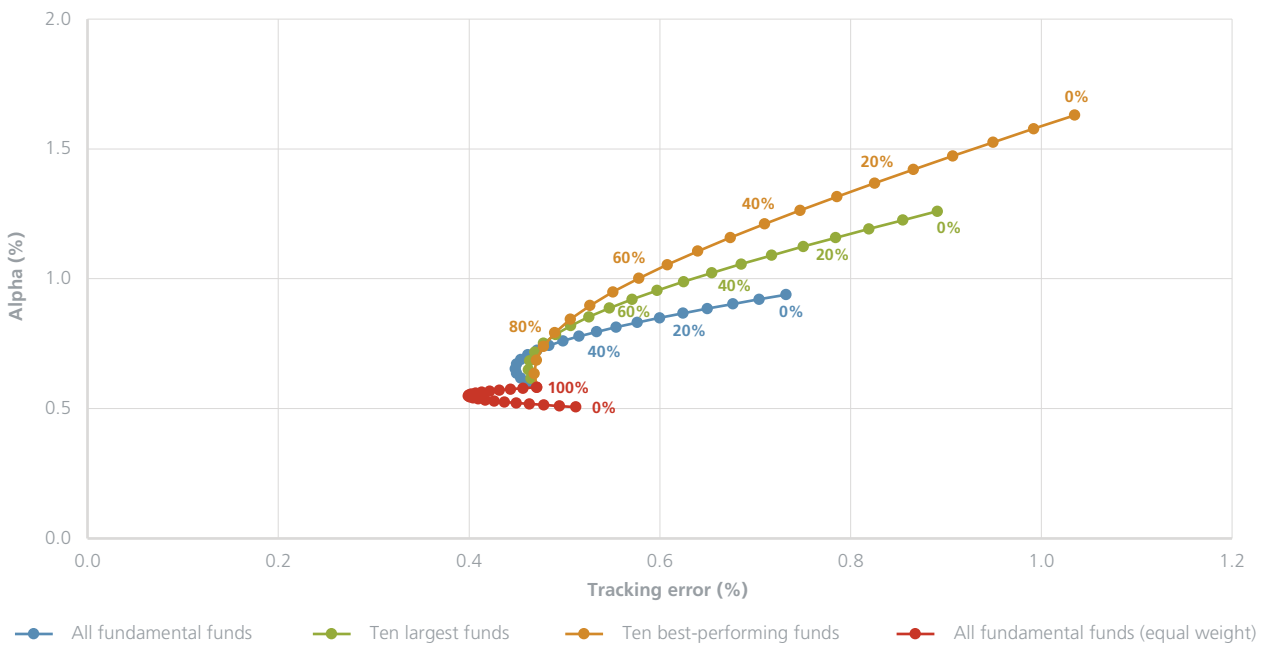
Figure 6: Risk-return characteristics of combined multi-factor and fundamental portfolios

Panel A: Global IG credit

Panel B: Euro IG credit

The graph shows the alphas and tracking errors of the combined multi-factor and fundamental portfolios with weights moving in 5 percentage point steps. The fundamental portfolios are weighted portfolios of all funds, the ten largest funds (both alphas on the left-hand scale) and the ten best funds (alpha on the right-hand scale for global IG). The percentage numbers display the share of the multi-factor portfolio in the combined portfolio.
Source: Morningstar, Quoniam Asset Management GmbH.

For Euro IG, the risk-minimal combination is between 80% and 85%, depending on the strategy, leading to a tracking error reduction of 39% to 44%. Therefore, the numbers clearly show significant diversification potential that can be harvested by adding systematic factor strategies to fundamentally manage credit portfolios.

For implementable fundamental strategies, this diversification benefit does not come at the expense of performance reduction. The impact on the overall alpha is negligible in combination with the universe of all investigated fundamentally managed global IG credit funds and the ten largest of these funds. For the former, a 61% reduction in tracking error is achieved with a 1.5 basis point reduction in annual alpha for the combination with the lowest tracking error. For the latter, the combination with the lowest tracking error, a 64% reduction even yields 2.5 basis points more alphas than the investment in the ten largest funds of the peer group. For the ten best-performing funds, the picture appears different. However, this is no surprise as these funds are selected according to their past performance. Clearly, this is not a realistic investable strategy using information available at the time of the original investment.

For Euro IG, the numbers are different given the specifics of the sample outlined above, with the largest fund comprising almost 20% of the universe while simultaneously being the best-performing one. To mitigate this effect, we included the universe of all funds with equal weights for all 43 funds in the universe. The relative performance of this portfolio is eight basis points lower than that of the multi-factor portfolio, but its tracking error lies between that of the other fundamental portfolios and the systematic strategy. The tracking error-minimal combination consists of 55% systematic credit and 45% of the fundamental portfolio, while an investor earns higher performance with a simultaneous 21% overall tracking error.

Thus, there is a strong case for systematic credit as a diversifying source in a traditional corporate bond portfolio. It brings stability to performance in periods of market turmoil, significantly reduces tracking errors in the overall portfolio, and is very weakly correlated with traditionally managed credit funds.

What kinds of factor exposure do different strategies exhibit?

The last remaining issue regards the source of the difference in performance. Why do multi-factor credit strategies have characteristics unlike those of the fundamental peer group? Ideally, this matter could be clarified by calculating a performance attribution for all portfolios in the investigation. Unfortunately, this is not possible because fund holdings are only available at certain points in time, and the trades between holding dates are unknown, which makes this analysis impossible.

As an alternative, we used the fund holdings at the end of our sample period (31 May 2021) to calculate the exposure of the portfolios to different available factors. We focused on the fundamental portfolio of the ten best-performing funds for both the global IG and Euro IG samples, as this should provide good insight into the return sources of the most successful fundamental strategies. We compared these funds with a quantitatively managed multi-factor strategy. For all portfolios, we computed instances of factor exposure for every individual bond in the portfolios and aggregated the instances to arrive at an aggregate factor exposure for ten best-performing funds. We then aggregated these instances of fund exposure using fund NAVs as a weighting scheme.

The instances of factor exposure measure the portfolio loading on value, momentum, and carry, as outlined in the first section of this paper, as well as the combined multi-factor signal. Additionally, we looked at the portfolio loadings on quality, as defined by Henke Kaufmann et al. (2020). While quality is not systematically associated with a risk premium in IG credit, the overall quality of the portfolio may nevertheless influence the portfolio's characteristics in both spread rallies and market downturns. All else being equal, investors are likely to prefer a portfolio with higher quality to a portfolio with lower quality.

Figure 7 depicts the average portfolio exposure to the individual factors, as well as the combined multi-factor signal for the quantitative factor portfolio and a fundamentally managed portfolio consisting of the ten best-performing funds. Panel A outlines the results for global credit, and Panel B demonstrates the outcomes for Euro credit.

Figure 7: Factor exposure of fundamentally managed and multi-factor portfolios

Panel A: Global IG credit
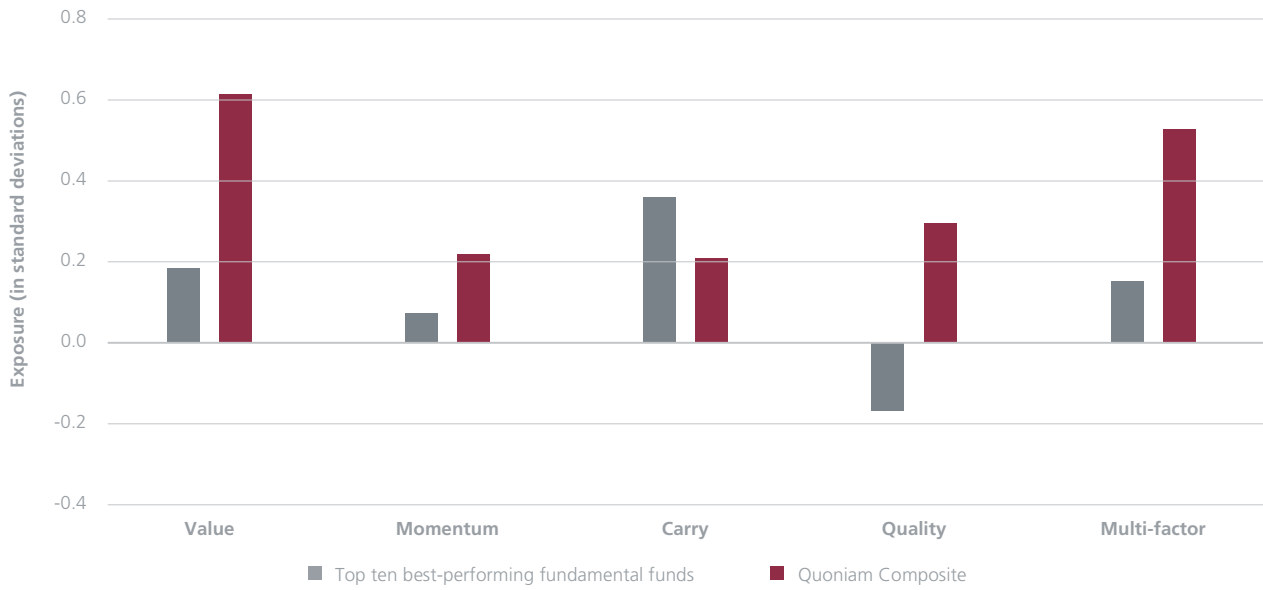
Panel B: Euro IG credit
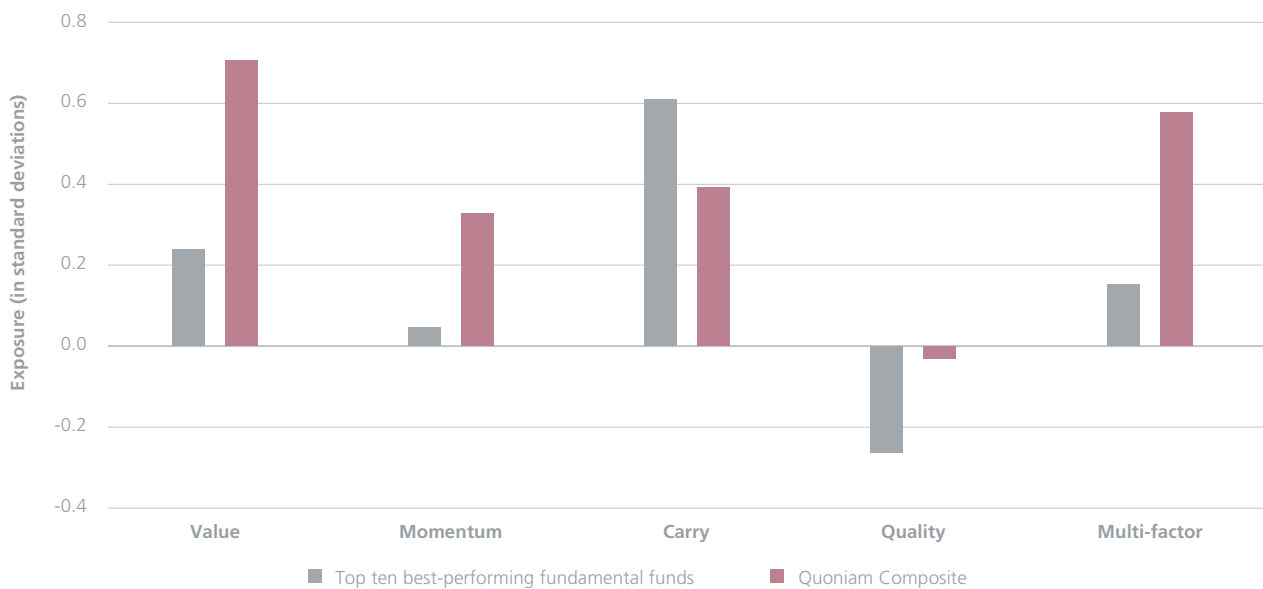
The graph presents instances of factor exposure (measured in standard deviations versus the fund benchmark) on 31 May 2021 for a portfolio of the ten best-performing fundamentally managed credit funds from the period of June 2016 to May 2021, as well as Quoniam's factor portfolios. Source: Morningstar, Quoniam Asset Management GmbH.

The findings indicate significant differences between the multi-factor and fundamentally managed portfolios. First, the factor portfolio loads strongly on factors such as value and momentum, as well as on the multi-factor signal, which is the alpha signal that the strategy implements. The fundamentally managed portfolios have a weak loading on value at around 0.2 standard deviations above the market benchmark, no discernible loading on momentum, and a statistically insignificant loading on the multi-factor signal. This is no surprise, as these strategies do not aim to implement factor exposure, but rather seek outperformance from different sources. The outcomes are similar for both Euro IG and global IG credit.

Second, there is a strong difference in exposure to the carry factor. In both strategies, the fundamentally managed portfolios have a higher carry than the multi-factor strategy. For global IG, the carry loading of the fundamentally managed portfolio stands at 0.36 standard deviations above the benchmark, versus 0.21 for the factor strategy. In Euro IG, it is at a high 0.61 standard deviations versus 0.39 for the multi-factor portfolio. It is obvious that the fundamentally managed portfolios have a higher risk exposure that translated into favourable returns during the period under consideration, but also explains the higher tracking errors of these portfolios, as well as their stronger correlation with the market direction.

Third, the average quality of bonds in the multi-factor portfolio is significantly higher than that in the fundamentally managed portfolios. In global IG, it is at 0.3 standard deviations above the benchmark, whereas it is 0.17 standard deviations below the benchmark for the fundamental strategy. The difference is somewhat smaller—but still significant—for the Euro IG strategy, where the multi-factor portfolio has roughly the same quality as the benchmark, and the fundamentally managed portfolio is 0.26 standard deviations below the benchmark.

An important reason for the last two observations is the high share of bonds rated below IG in the fundamental portfolios. On average, 11.9% (global IG) and 13.7% (Euro IG) of the fundamental portfolios are high, which explains both the above-average carry of the portfolios and the below-average quality.

Overall, the multi-factor portfolio has consistent exposure to systematic factors and aims to capture the risk premiums associated with these factors. Unlike the factor strategy, the fundamentally managed portfolios, on average, primarily load on the carry factor, have an overweight in bonds of companies with below average quality in their portfolios, and have very little loading on all other factors.

The results are limited to one point in time and therefore do not capture the fluctuations in instances of factor exposure. However, the data indicate that instances of considerably high yield exposure are present for most funds most of the time. Thus, we are confident that the findings provide a representative overview of the average exposure investors can receive by investing in credit portfolios with different management styles.
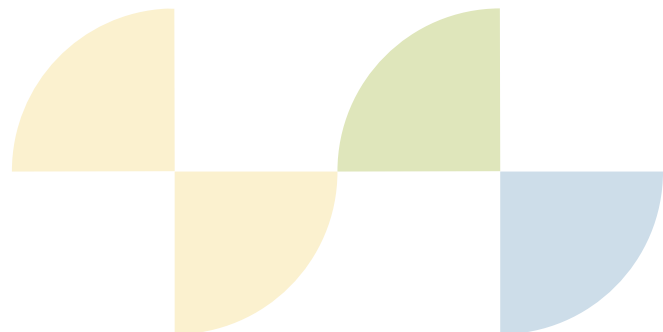
Conclusion

Why should investors consider including systematic factor strategies in their credit allocations? What can they expect from such a multi-factor approach, and what distinguishes this approach from traditional fundamental analysis and portfolio construction? We used an extensive sample of global IG and Euro IG credit funds from a fundamental peer group to compare the characteristics of these funds with Quoniam's multi-factor approach using five years of data.

The results reveal significant differences between the two approaches:

- Fundamentally managed funds tend to have a much stronger correlation with the direction of spread changes in the market. These funds outperform in falling-spread environments and underperform when spreads rise. Conversely, the multi-factor strategy has a much lower correlation with market direction.

- Portfolios following these two different management styles tend to have lowly correlated alphas. Hence, a combination of these two strategies can offer diversification benefits to investors.

- The combination of fundamentally managed and quantitative funds tends to significantly reduce the tracking error of the combined portfolio without significantly reducing the overall performance characteristics.

- The factor portfolio loads on various systematic factors and the combined multi-factor signal aligned with its strategy. On average, fundamental portfolios only load on the carry factor and have considerably lower quality exposure than their respective benchmarks. This is partially driven by the high yield allocation of portfolios of more than 10% on average.

In sum, while fundamental and quantitative approaches each have their merits and can outperform their benchmarks over extended periods of time, the sources of this outperformance are different, which leads to very different alpha and tracking error characteristics. Investors can capitalise on these diversification benefits by adding a multi-factor strategy to their fundamentally managed credit allocation. Over time, this will lead to a more stable overall credit portfolio performance and capture new sources of outperformance.

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