Corporate sector timing using equity momentum

- In *Equity Momentum in Credit (EMC)*, 18 August 2017, we found a strong relationship between the recent equity price returns of an issuer and the subsequent performance of its corporate bonds.
- In this report, we show that equity momentum signals have also been useful in timing allocation across corporate bond sectors.
- An allocation strategy that systematically buys sectors with strong equity momentum outperformed the index by 2.38%/yr (US IG), 4.04%/yr (US HY), and 1.77%/yr (Euro IG) in the past 10 years, with information ratios above 1 before transaction costs.
- We also decompose the performance of the issuer-level Equity Momentum in Credit (EMC) Strategy into sector-timing and issuer-selection components and show that the sector timing component contributed about 30% to strategy performance in the past 10 years.

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Introduction

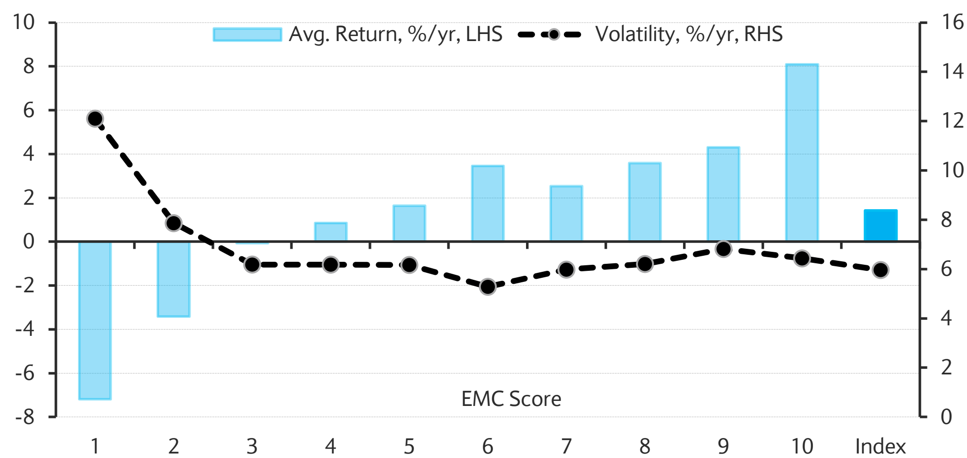
In our report *Equity Momentum in Credit (EMC)*, 18 August 2017, we found a strong relationship between the recent equity price returns of an issuer and the subsequent performance of its corporate bonds. This motivated the introduction of our Equity Momentum in Credit (EMC) Scorecard which scores credit issuers from 1 to 10 according to relative equity momentum[1].

EMC scores have been useful in helping to predict performance of corporate bonds. Figure 1 shows average performance of US investment-grade corporate bonds sorted by EMC scores. Portfolios are formed at the beginning of each month and excess returns are recorded in the following month.

The relationship between EMC scores and subsequent performance of corporate bonds has been almost monotonic in the past 10 years. The average excess return[2] of the portfolio of bonds with the lowest equity momentum (EMC = 1) was -7.2%/yr, while the portfolio with best momentum (EMC = 10) had an average return of 8.10%/yr. In comparison, the average excess return of the Bloomberg Barclays US Corporate Bond Index was 1.43%/yr in the same period.

FIGURE 1

Average excess returns and volatilities of corporate bonds grouped by EMC Scores, November 2007 – October 2017



Source: Bloomberg Barclays Indices, Barclays Research

Equity returns used to derive EMC scores are not normalised within individual sectors. As a result, sector average EMC scores can vary significantly depending on industry-specific conditions. Could equity momentum provide a useful signal for timing corporate bond sector allocation? In the next sections, we disentangle effects of issuer selection and sector allocation in the performance of the EMC strategy and then study a momentum-based sector allocation strategy using Level 3 classification of Bloomberg Barclays corporate bond indices.

[1] For a recent update of the EMC scorecard performance, please see *Equity Momentum in Credit (EMC) Scorecard - October 2017*, 1 November 2017.

[2] All returns in this publications are calculated in excess of duration-matched treasury bonds, as per Bloomberg Barclays index conventions

Attributing performance of the EMC strategy

Our original Equity Momentum in Credit (EMC) framework assigns scores to individual issuers according to equity momentum without controlling for industry sectors. As a result, a portfolio based on the EMC scorecard is not sector neutral but can overweight sectors with strong equity momentum and underweight sectors with weak or negative momentum, thereby creating an implicit sector allocation overlay. Can we attribute the EMC strategy performance to sector rotation and issuer selection components?

In order to do this we create a sector-neutral version of the EMC strategy with issuers sorted by equity momentum *within* individual sectors. In each sector the strategy buys bonds of issuers in the Top 20% (Q5) and sells bonds in the Bottom 20% (Q1) of equity momentum. Figure 2 shows the performance of this EMC strategy within eight industry sectors derived from Level 3 classification of the Bloomberg Barclays bond indices[3].

FIGURE 2

Performance of the EMC strategy within individual sectors, November 2007 to October 2017

	US IG: Top (Q5) – Bottom (Q1)			Euro IG: Top (Q5) – Bottom (Q1)			US HY: Top (Q5) – Bottom (Q1)		
Sector	Avg. Return %/yr	Volatility %/yr	IR	Avg. Return %/yr	Volatility %/yr	IR	Avg. Return %/yr	Volatility %/yr	IR
Basic & Cap. Goods	6.97	3.96	1.76	4.32	3.20	1.35	10.96	5.27	2.08
Cons. Cyclical	7.96	5.84	1.36	3.68	3.16	1.17	17.77	13.84	1.28
Cons. Non-Cyclical	3.56	1.84	1.93	1.91	1.36	1.41	5.94	4.55	1.31
Comm. & Tech	7.05	4.61	1.53	2.90	2.63	1.10	13.54	7.73	1.75
Transport & Energy	7.83	3.92	2.00	2.35	2.99	0.79	15.96	8.58	1.86
Utility	3.62	2.22	1.63	0.92	2.40	0.38	6.89	6.38	1.08
Banks & Brokerage	6.83	10.38	0.66	5.48	4.95	1.11	30.22	31.58	0.96
Financial Other	10.19	9.24	1.10	4.95	5.40	0.92	17.09	19.89	0.86

Source: Bloomberg Barclays Indices, **Barclays Research**

The performance of the issuer selection strategy based on equity momentum has been strong across all sectors and index universes. Information ratios of our hypothetical long-short portfolios are slightly weaker for Banks & Brokerage in US IG, Transportation & Energy and Financials in Euro IG, and Financials in US HY. Strategy returns have been lower for less cyclical sectors, such as Consumer Non-Cyclical and Utility across all three universes.

We form top and bottom momentum portfolios within sectors and aggregate them across sectors, using sector weights of the respective benchmark indices to obtain a sector-neutral EMC strategy.[4] The difference in returns between the unconstrained EMC strategy and its sector-neutral equivalent can be attributed to sector rotation. We can also calculate volatilities and information ratios of these return differences (contributions) to assess the significance of the effect. Figure 3 reports the contribution of sector allocation to the performance of the unconstrained EMC strategy in the three corporate bond universes: US IG, US HY, and Euro IG.

[3] The choice of these eight sectors is motivated by the need to have a sufficiently diverse set of issuers in each sector throughout the history of our analysis.

[4] Sector-specific top and bottom momentum portfolios in the sector-neutral EMC are aggregated using index sector weights, so that long and short legs of the strategy have identical allocations across sectors. However, they can still have different sector DTS contributions.

FIGURE 3

Contribution from sector allocation to the performance of the EMC strategy, November 2007 to October 2017

		Top (Q5) over Bottom (Q1)			Top (Q5) over Index		
		EMC Unconstrained	EMC Sector-Neutral	Contrib. from Timing Sector Allocation	EMC Unconstrained	EMC Sector-Neutral	Contrib. from Timing Sector Allocation
US IG	Avg. Return, %/yr	10.03	6.98	***3.05***	3.98	3.01	***0.97***
	Volatility, %/yr	5.30	3.92	***2.20***	2.26	1.42	***1.40***
	IR	1.89	1.78	***1.39***	1.76	2.11	***0.69***
Euro IG	Avg. Return, %/yr	5.67	4.21	***1.46***	2.64	1.94	***0.70***
	Volatility, %/yr	3.45	2.91	***1.49***	1.38	0.93	***0.88***
	IR	1.65	1.45	***0.98***	1.91	2.09	***0.79***
US HY	Avg. Return, %/yr	18.73	13.20	***5.52***	9.76	6.38	***3.38***
	Volatility, %/yr	9.84	5.60	***4.93***	6.24	3.19	***4.40***
	IR	1.90	2.36	***1.12***	1.56	2.00	***0.77***

Source: Barclays Research

Contributions from sector rotation to the performance of the top quintile EMC portfolios over benchmark indices were all positive: 0.97%/yr for US IG, 0.70%/yr for Euro IG, and 3.38%/yr for US HY over the past ten years. These contributions represent 24 to 35% of the total outperformance over the index.

Equity momentum in corporate sector timing

The exercise of attributing EMC strategy performance to issuer selection and sector rotation, conducted in the previous section, indicates that equity momentum appears to be useful for sector rotation. In this section, we calculate equity momentum signals for a larger set of industry sectors, construct a corresponding sector allocation strategy and evaluate its performance against benchmark indices.

We start with an illustration that equity momentum can vary significantly across sectors as shown in Figure 4. Panel A shows equity momentum[5] across sectors in the US IG and Euro IG universes as of 31 October 2017, while Panel B shows equity momentum by sector of the US HY index. Differences can be substantial. For example, equity momentum signals of the Technology sectors in US and Euro IG are +4.3%/m and +3.3%/m respectively, while equity momentum of the Financing sectors were -5.9%/m and -9.9%/m respectively at the end of October[6].

[5] The equity momentum signal considered here is the average of issuer stock price returns over one, three and six month horizons normalised by the lengths of the respective periods. The same methodology is used in the *EMC Scorecard*.

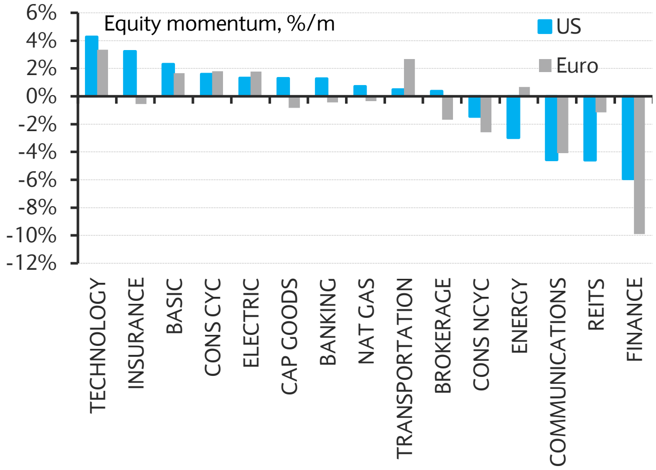
[6] One should expect a higher variation of equity momentum across sectors during turbulent periods.

FIGURE 4

Equity momentum of Class 3 sectors as of 31 October 2017

PANEL A

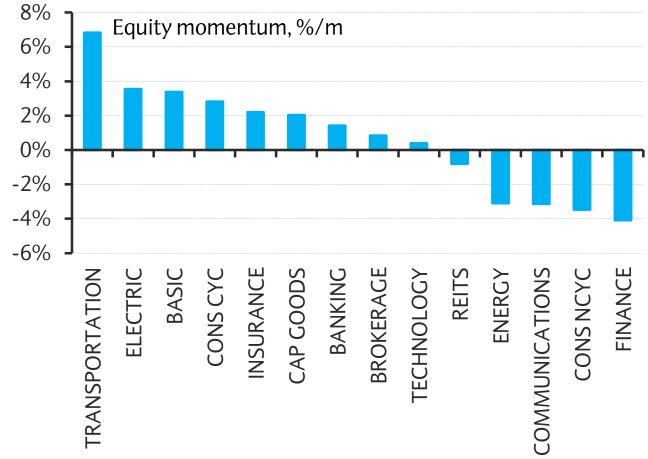
US and Euro Investment Grade



Source: Bloomberg Barclays Indices, Barclays Research

PANEL B

US High Yield



Source: Bloomberg Barclays Indices, Barclays Research

Does equity momentum signal help predict subsequent excess returns of the sector? To address this question, we sort sectors by equity momentum at the beginning of each month and then measure returns in the subsequent month. Figure 5 plots the average equity return (horizontal axis) and subsequent bond excess returns for each sector cell. The rightmost dot in the scatter chart represents the highest equity momentum sector in any given month.

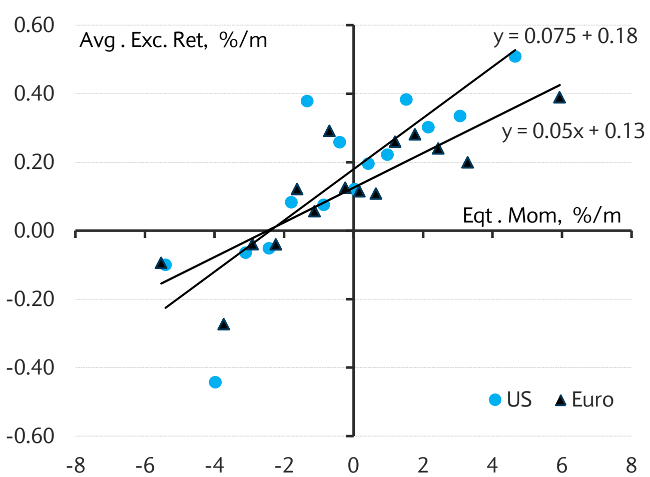
Panels A and B of Figure 5 show that average excess returns tend to increase with equity momentum with each 1%/m of additional equity momentum translating into an extra 5-8bp of bond returns. This relationship has been stronger in US HY (Panel B) and weaker in the Euro IG market (Panel A).

FIGURE 5

Average excess returns of corporate sectors sorted by equity momentum, November 2007 to October 2017

PANEL A

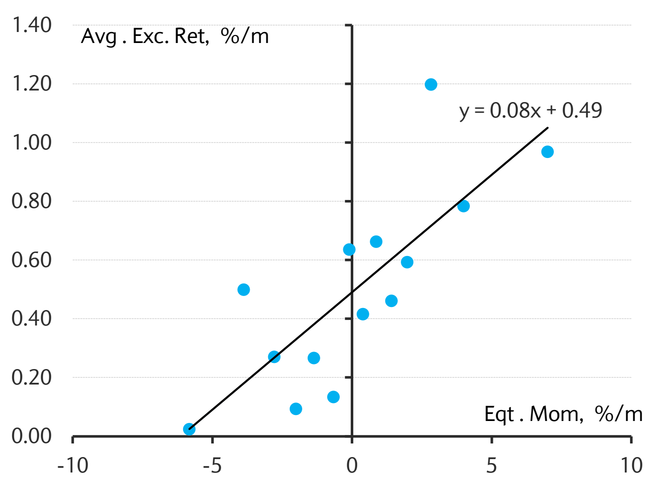
US and Euro Investment Grade



Source: Bloomberg Barclays Indices, Barclays Research

PANEL B

US High Yield



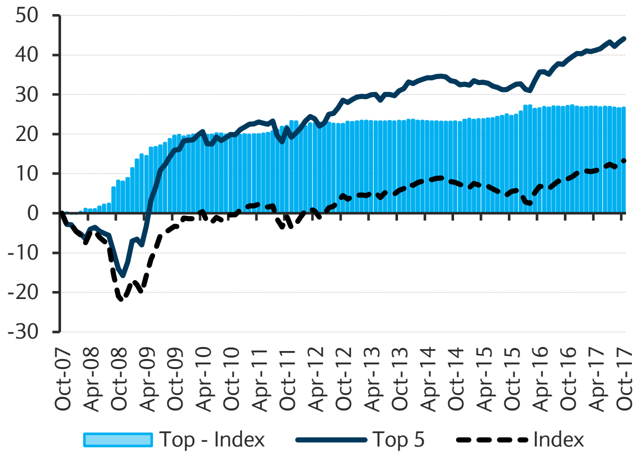
Source: Bloomberg Barclays Indices, Barclays Research

FIGURE 6

Cumulative excess returns over index of top five sector portfolios based on equity momentum

PANEL A

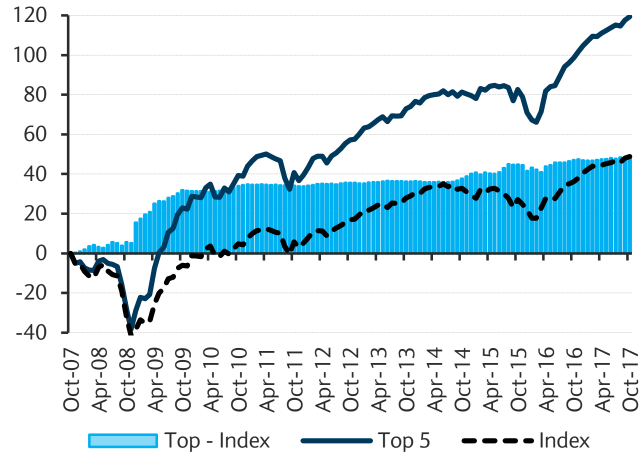
US Investment Grade



Source: Bloomberg Barclays Indices, Barclays Research

PANEL B

US High Yield



Source: Bloomberg Barclays Indices, Barclays Research

How would a sector allocation strategy based on equity momentum have performed historically? For this, we form a market-weighted portfolio of the top five sectors (out of 15) in terms of equity momentum at the beginning of each month and measure its subsequent performance[7]. The portfolio is rebalanced every month.

Figure 6 plots cumulative excess returns of portfolios invested into the top five sectors along with those of the respective indices. Panel A relates to the US IG and Panel B to the US HY market. In both cases the sector timing strategy outperforms the underlying index consistently over the ten years of our analysis, with much of the outperformance observed in 2008 and 2009.

Figure 7 shows annual outperformance of these sector timing portfolios over their respective indices. Panel A shows annual outperformance in US IG and Euro IG markets. Returns were high during volatile periods such as the global financial crisis (2008 and 2009), the Euro sovereign crisis (2011), and the energy crisis (2015-2016). In contrast, strategy returns were small during benign periods. A similar pattern can be observed in Panel B, which relates to the US HY market. This is not surprising, because returns of different sectors are likely to diverge during turbulent periods.

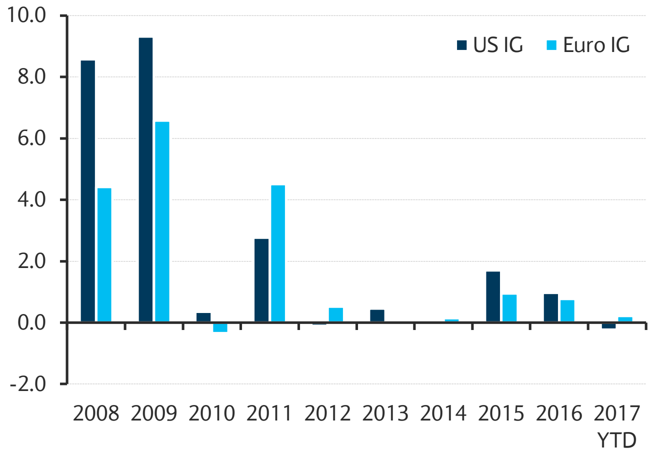
[7] Note that in contrast to the performance attribution exercise, where we used 8 customised sectors, here we use 15 Class 3 industry sectors, out of which we select top 5 by equity momentum every month. We could use a more granular sector partition was possible here because the allocation exercise was implemented at the macro-level, so that we did not need to pick individual issuers within each sector.

FIGURE 7

Annual excess returns over index of top five sector portfolios based on equity momentum

PANEL A

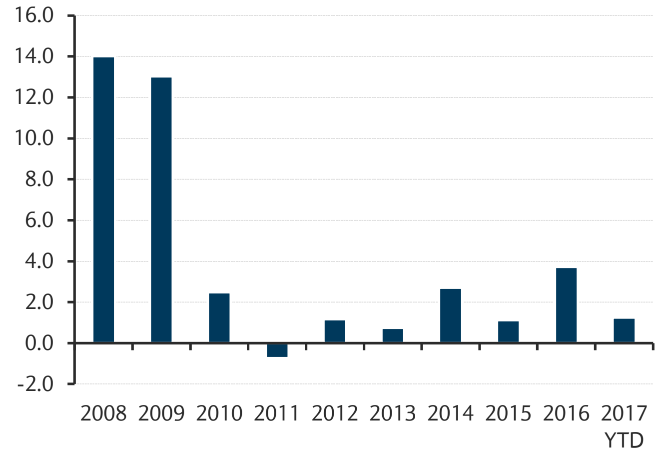
US and Euro IG



Source: Bloomberg Barclays Indices, Barclays Research

PANEL B

US HY



Source: Bloomberg Barclays Indices, Barclays Research

Figure 8 compares the performance of market capitalisation-weighted portfolios that invest in either the top or the bottom five sectors based on equity momentum. The last two columns report the outperformance of the top portfolios over the bottom ones and over respective indices. In all three markets, this sector allocation strategy has been profitable in the past ten years. Portfolios of the top five sectors outperformed their respective indices by 2.38%/yr (US IG), 1.77%/yr (Euro IG), and 4.04%/yr (US HY) with information ratios above 1. Investors, however, need to exercise some caution when implementing these strategies as the returns could be significantly reduced by transaction costs.

FIGURE 8

Performance of sector-based portfolios, November 2007 to October 2017

		Index	Top 5	Bottom 5	Top 5 - Bottom 5	Top 5 - Index
US IG	Avg. Exc. Return, %/yr	1.43	3.81	-0.86	4.67	***2.38***
	Volatility, %/yr	5.96	5.47	6.74	3.57	***1.97***
	Max. Drawdown, %	-22.34	-15.74	-28.63	-1.73	***-1.04***
	IR	0.24	0.70	-0.13	1.31	***1.21***
Euro IG	Avg. Exc. Return, %/yr	1.04	2.82	-1.03	3.85	***1.77***
	Volatility, %/yr	4.09	3.72	5.03	2.80	***1.63***
	Max. Drawdown, %	-16.15	-10.97	-23.50	-3.08	***-1.80***
	IR	0.26	0.76	-0.20	1.38	***1.09***
US HY	Avg. Exc. Return, %/yr	4.71	8.75	1.01	7.75	***4.04***
	Volatility, %/yr	12.00	13.25	12.51	6.57	***3.83***
	Max. Drawdown, %	-41.55	-38.28	-46.71	-6.57	***-2.81***
	IR	0.39	0.66	0.08	1.18	***1.05***

Source: Bloomberg Barclays Indices, Barclays Research

Conclusion

Although initially designed as an issuer signal, Equity Momentum in Credit (EMC) hasalso been useful for timing corporate bond sector allocation.

A portfolio strategy that systematically invests in sectors with strong equity momentum outperformed the index by 2.38%/yr (US IG), 4.04%/yr (US HY), and 1.77%/yr (Euro IG) in the past ten years, with information ratios above 1 before transaction costs.

A 1%/month increase in equity momentum added 5-8bp/month to subsequent performance of a credit sector on average over the past ten years.

We also attribute the performance of the EMC strategy to issuer-selection and sector rotation and find that sector rotation contributed about 30% of the overall performance.

References

Polbennikov S. and A. Desclée, *Equity Momentum in Credit (EMC)*, *Barclays Research*, 18 August 2017

Polbennikov S. and A. Desclée, *Equity Momentum in Credit (EMC) Scorecard – October 2017*, *Barclays Research*, 1 November 2017

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