Factor interactions with credit markets

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Research Signals

IHS Markit provides financial information across numerous markets, including bond, equity, options, securities lending and credit default swap (CDS), allowing for evaluation of firm pricing across its various underlying securities. The Research Signals factor library taps upon several of these markets to construct equity and CDS indicators that include cross-asset measures. In this report we investigate the impact on equity momentum and short sentiment factor performance when outlook is more closely aligned in particular with credit markets. Some of the findings include:

- In US markets, combining momentum signals from both credit and equity markets on average enhances individual factor performance
- In European markets, a joint portfolio of credit risk and price momentum outperforms single factor portfolios, particularly by isolating low momentum stocks with high credit risk
- Stocks with outlier credit risk and costs to borrow shares demonstrate outperformance (or underperformance) on average when compared with the respective groups based solely on the individual characteristics

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Data and methodology

Given Research Signals' extensive factor suite derived from numerous markets including equity, credit, securities lending and options, we study interactions between CDS pricing and several external market factors. To begin with, the tremendous growth of the CDS market has given rise to interest in the relationship between CDS spreads and stock prices (Lee, et al., 2016), which we investigate here. We also extend our analysis to interactions between CDS and securities lending markets.

For a brief review of our CDS spread offerings, our credit factor library houses trading and risk management signals designed specifically around the CDS market, and includes signals that score mispricing between the credit, equity and options markets (see Credit factor suite, August 2012). We also include several CDS-based risk measures in our equity factor library, capturing the relationship between equities and CDS as cross-asset signals (see Credit default swap pricing and equity returns, November 2012).

Credit Risk, which draws directly on the CDS spread level, is the focal point of our CDS-based indicators for equity markets. It captures the level of credit risk priced in the credit market. An important detail with respect to this factor is that not all companies have traded credits and thus coverage is limited in our US Total Cap (98% of cumulative market cap) and Developed Europe (95% of cumulative market cap for each member country) universes, averaging around 530 and 260 names, respectively, since June 2004.

Beginning with Credit Risk, we compare individual factor performance with that of factors utilizing pricing signals from the equity and short interest market. First, for equity markets, 12-Month Active Return with 1-month Lag is a common measure of stock price momentum and provides a good indicator of equity investor sentiment. Next, in securities lending markets, the cost that short sellers pay to borrow a particular stock is measured by Implied Loan Rate and is of particular interest to both long/short and long only managers to gauge shorting sentiment. Lastly, we focus on the momentum in the underlying factors, in particular, Credit Revisions – 3 Month and Monthly Change in Implied Loan Rate.

For our analysis, we compute quintile ranks of Credit Risk, where lower risk is assigned to the top quintile (Q1) and vice versa for Q5. The remaining factors are also ranked across the same set of stocks which have available Credit Risk scores. We then intersect Q1 and Q5 names with the like members from Credit Risk and the alternative factors, which results in relatively smaller portfolio sizes as detailed below. Average returns for the joint Q1 and Q5 universes are reported for the period spanning June 2004 through August 2017, based on factor data availability.

Portfolio returns are computed as the equal-weighted Q1 and Q5 average monthly returns along with the Q1-Q5 spread. Returns are then averaged across the analysis period. We also report the standard deviation and information ratio (IR) which is the average divided by the standard deviation, capturing risk-adjusted performance. The hit rate is another robustness check which identifies the percentage of months with positive returns.

US results

We begin with a review of results in US markets. We report the factor combinations below where we found improved results over the individual factor performance and the remaining combinations are included in the Appendix.

Our investigations of factor interactions found little information content in direct factor interactions between the credit, equity and securities lending markets and further investigation of factor spread correlations (not shown here) reveals relatively high co-movement between Credit Risk and the direct factors. However, momentum in the underlying factors was a more informative signal. In particular for the credit markets, we thus focus on Credit Revisions – 3 Month, which measures the change in the level of credit risk priced in the credit market over the past three months. This short-term momentum signal gauges revisions in investors' view on a firm's risk of default.

Beginning with factor combinations from credit and equity markets, we report on the interaction between the changes in credit spread (Credit Revisions – 3 Month) and changes in equity price (12-Month Active Return with 1-month Lag) since June 2004. Table 1 summarizes individual and joint factor performance for Q1 and Q5 absolute returns and spreads and Figure 1 displays cumulative spread returns over the analysis period. For buy-rated Q1 names, the joint portfolio returned 1.42% on average`compared with 1.20% and 0.94%, respectively, for the individual factors. What is more, the risk-adjusted return for the long-only joint portfolio attained a superior IR of 0.24.

Sell-rated Q5 names also recorded weaker performance in the joint portfolio (0.75%), contributing to an average Q1-Q5 spread of 0.68%, doubling that of Credit Revisions – 3 Month (0.33%) and 80 basis points in excess of 12-Month Active Return with 1-month Lag (-0.12%). Thus, combining momentum signals from both credit and equity markets, in other words, identifying names with decreasing (increasing) credit risk and higher (lower) stock price momentum, on average enhances individual factor performance.

Table 1

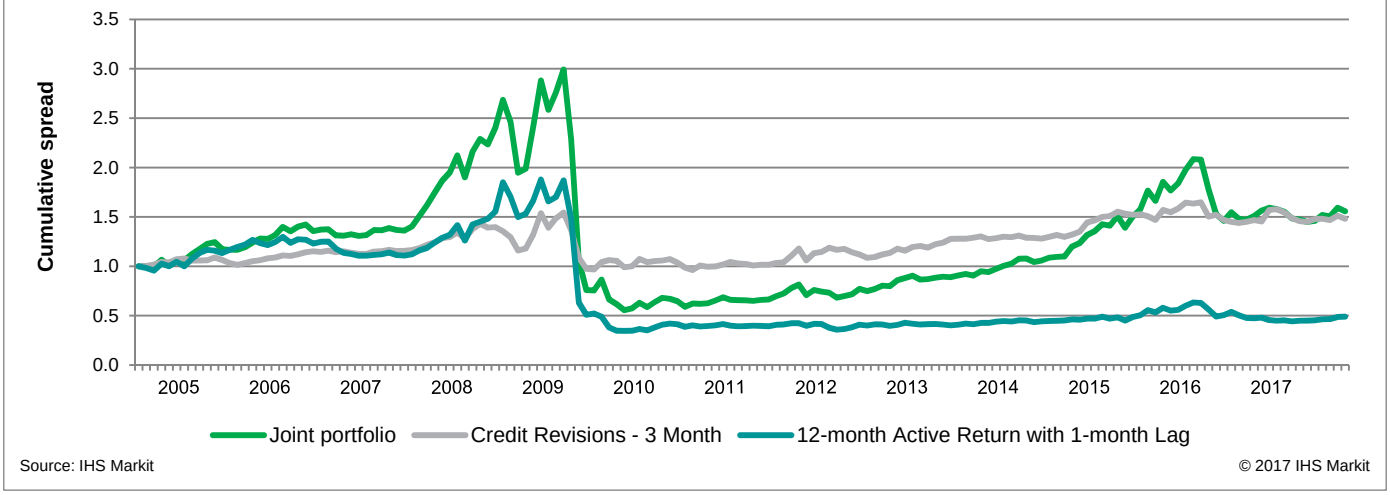
US Total Cap Credit Revisions – 3 Month and 12-Month Active Return with 1-month Lag portfolios, Jun 2004 – Aug 2017

Factor	Average	Standard deviation	IR	Hit rate	Minimum	Stock count
Credit Revisions – 3 Month						
Q1	1.20%	6.12	0.20	62%	-19.83%	
Q5	0.87%	8.02	0.11	59%	-31.91%	
Q1-Q5 spread	0.33%	4.00	0.08	60%	-20.38%	506
12-Month Active Return with 1-month Lag						
Q1	0.94%	5.16	0.18	64%	-19.84%	
Q5	1.05%	9.02	0.12	55%	-28.72%	
Q1-Q5 spread	-0.12%	7.20	-0.02	58%	-57.36%	506
Joint portfolio						
Q1	1.42%	6.02	0.24	61%	-15.00%	
Q5	0.75%	10.56	0.07	54%	-34.44%	
Q1-Q5 spread	0.68%	8.14	0.08	60%	-53.75%	130

Source: IHS Markit

Figure 1

US Total Cap joint portfolio and factor cumulative Q1-Q5 return spreads



Source: IHS Markit

Next, we review Credit Revisions – 3 Month and Monthly Change in Implied Loan Rate. Performance statistics are tabulated in Table 2 and time series of cumulative spreads are presented in Figure 2. Based on factor availability, the time period covered includes January 2011 through August 2017.

Little differentiation was observed between Q1 average returns for individual factors and the joint portfolio. However, the Q5 average return of the joint portfolio lagged and the hit rate (correctly) dropped to 54%, indicating some signal improvement by isolating names with increasing credit risk and costs to borrow shares. Consequently, the joint portfolio Q1-Q5 spread improved to 0.71% on average (58% cumulative), compared with 0.50% (44% cumulative) for Credit Revisions – 3 Month and -0.04% (-4% cumulative) for Monthly Change in Implied Loan Rate. Thus, a portfolio using Monthly Change in Implied Loan Rate as a stock picking signal should also evaluate momentum in credit markets, particularly in considering names to avoid or sell.

Table 2

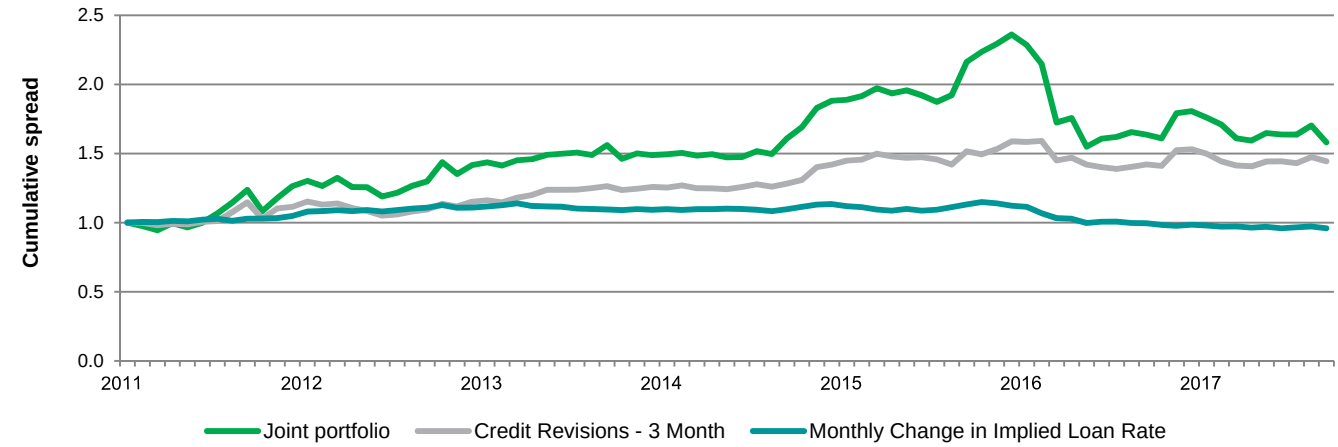
US Total Cap Credit Revisions – 3 Month and Monthly Change in Implied Loan Rate portfolios, Jan 2011 – Aug 2017

Factor	Average	Standard deviation	IR	Hit rate	Minimum	Stock count
Credit Revisions – 3 Month						
Q1	1.16%	4.47	0.26	60%	-9.35%	
Q5	0.65%	5.48	0.12	60%	-15.53%	
Q1-Q5 spread	0.50%	2.97	0.17	59%	-10.17%	472
Monthly Change in Implied Loan Rate						
Q1	0.99%	3.94	0.25	61%	-9.74%	
Q5	1.03%	4.06	0.25	61%	-11.18%	
Q1-Q5 spread	-0.04%	1.20	-0.04	49%	-4.12%	472
Joint portfolio						
Q1	1.12%	5.28	0.21	63%	-12.04%	
Q5	0.41%	6.72	0.06	54%	-18.33%	
Q1-Q5 spread	0.71%	5.15	0.14	60%	-19.72%	97

Source: IHS Markit

Figure 2

US Total Cap joint portfolio and factor cumulative Q1-Q5 return spreads



Source: IHS Markit

European results

Next, we review results in developed European markets. The first combination we consider is the intersection of Credit Risk and 12-Month Active Return with 1-month Lag factor ranks (Table 3). While we find little change between the average Q1 return for the individual factors (Credit Risk: 0.85%; 12-Month Active Return with 1-month Lag: 0.99%) and the joint portfolio (0.88%), the long-only joint portfolio benefits from an improved hit rate of 65%, with a

drawdown of just -11.85%, far superior to the levels associated with Credit Risk (-18.40%) and 12-Month Active Return with 1-Month Lag (-19.48%).

In addition, the intersection of the two factors more successfully isolated names which underperformed with an average Q5 return of -0.03%, compared with 0.71% for Credit Risk and 0.54% for 12-Month Active Return with 1-month Lag. Q5 names to avoid in the joint portfolio also tended to be more volatile with a Q5 standard deviation of 9.19, exceeding the counterparts of the underlying factors.

The resulting spread for the joint portfolio improved to 0.91%, more than doubling the spread of the top factor, 12-Month Active Return with 1-month lag (0.44%). On a cumulative return basis (Figure 3), the joint portfolio returned 133%, outpacing both 12-Month Active Return with 1-month Lag (51%) and Credit Risk (3.5%). The overall implication is that the combination of pricing information from both credit and equity markets provides a stronger signal, particularly for low momentum names with the highest credit risk.

Table 3

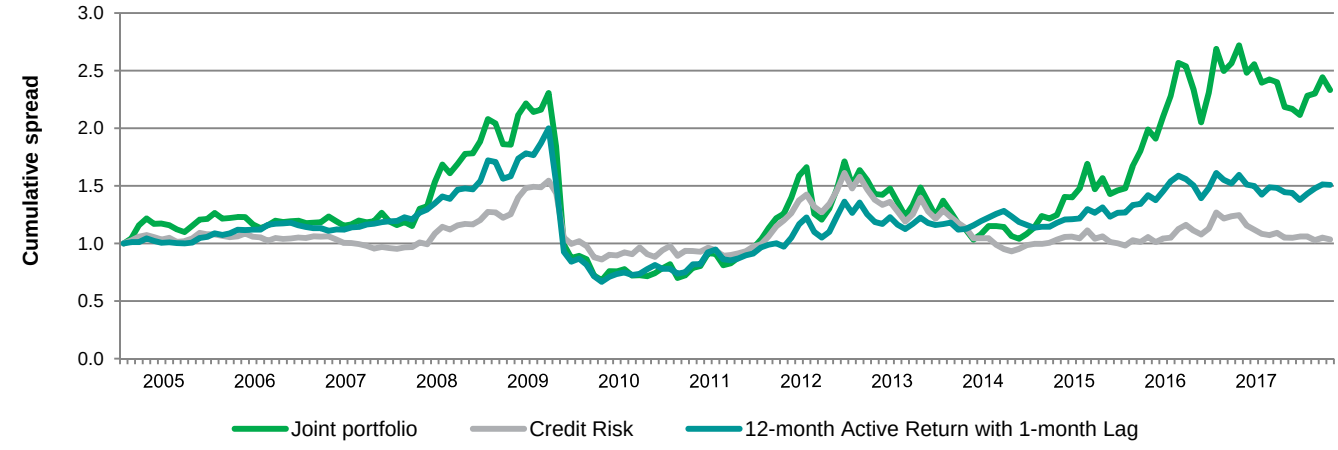
Developed Europe Credit Risk and 12-Month Active Return with 1-month Lag portfolios, Jun 2004 – Aug 2017

Factor	Average	Standard deviation	IR	Hit rate	Minimum	Stock count
Credit Risk						
Q1	0.85%	4.85	0.17	61%	-18.40%	
Q5	0.71%	8.27	0.09	54%	-29.90%	
Q1-Q5 spread	0.14%	4.83	0.03	50%	-26.87%	263
12-Month Active Return with 1-month Lag						
Q1	0.99%	5.56	0.18	61%	-19.48%	
Q5	0.54%	8.54	0.06	52%	-29.13%	
Q1-Q5 spread	0.44%	5.74	0.08	60%	-38.97%	263
Joint portfolio						
Q1	0.88%	3,80	0.23	65%	-11.85%	
Q5	-0.03%	9.19	0.00	52%	-23.16%	
Q1-Q5 spread	0.91%	8.27	0.11	58%	-46.10%	67

Source: IHS Markit

Figure 3

Developed Europe joint portfolio and factor cumulative Q1-Q5 return spreads



Source: IHS Markit

Moving from the equity market, we now turn to another related market to evaluate interactions between credit and securities lending markets. In this case, we study Credit Risk and Implied Loan Rate joint portfolios (Table 4), where data availability begins in September 2006 and again runs through August 2017.

Average returns for buy-rated Q1 names in the joint portfolio came in at 0.81%, surpassing that of Credit Risk (0.62%) and Implied Loan Rate (0.51%). Robustness is confirmed with positive performance in nearly two-thirds of months and a drawdown of just -8.13%, less than half that were recorded by the individual factors.

At the opposite extreme, average returns to sell-rated Q5 names in the joint portfolio resided in negative territory (-0.10%), while the individual factor returns were much closer to the Q1 levels. In turn, the resulting Q1-Q5 spread for the joint portfolio reached 0.91%, compared with lower results for Credit Risk (0.11%) and Implied Loan Rate (0.12%). On a cumulative basis (Figure 4), this translates to a full-period return spread of 105% for the joint portfolio, compared with more neutral spreads of 3.7% and 8.5% for the individual factors, respectively. Accordingly, the empirical results suggest a synergistic relationship for the traits of both low credit risk and low cost to borrow as well as high credit risk and expensive to borrow shares.

Table 4

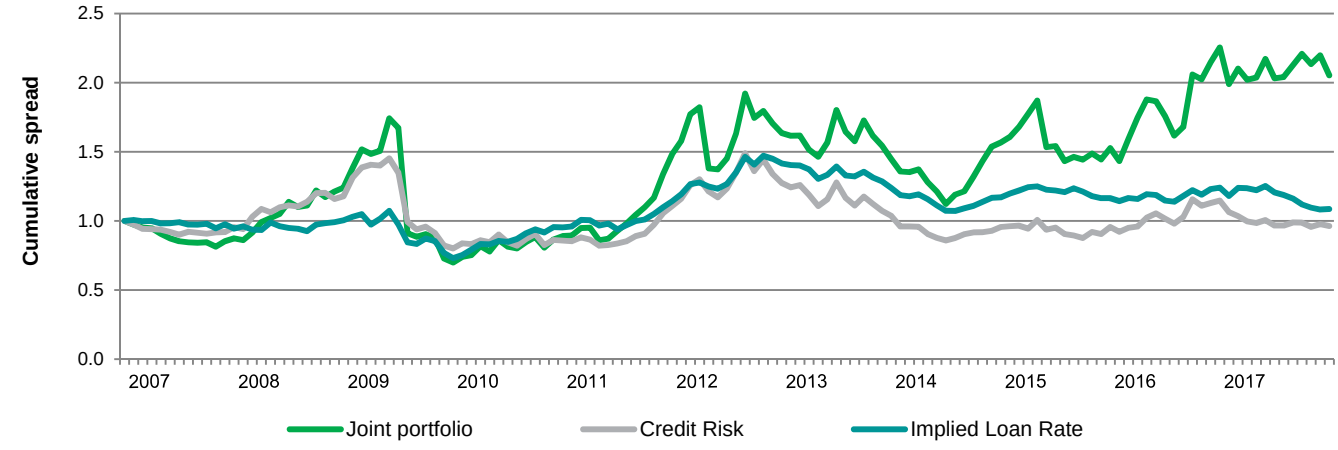
Developed Europe Credit Risk and Implied Loan Rate portfolios, Sep 2006 – Aug 2017

Factor	Average	Standard deviation	IR	Hit rate	Minimum	Stock count
Credit Risk						
Q1	0.62%	5.14	0.12	58%	-18.50%	
Q5	0.51%	8.82	0.06	50%	-30.00%	
Q1-Q5 spread	0.11%	5.19	0.02	50%	-26.35%	261
Implied Loan Rate						
Q1	0.51%	5.49	0.09	55%	-21.95%	
Q5	0.39%	7.65	0.05	53%	-24.43%	
Q1-Q5 spread	0.12%	3.42	0.04	48%	-13.20%	261
Joint portfolio						
Q1	0.81%	3,29	0.25	64%	-8.13%	
Q5	-0.10%	9.24	-0.01	48%	-20.05%	
Q1-Q5 spread	0.91%	8.13	0.11	58%	-45.55%	65

Source: IHS Markit

Figure 4

Developed Europe joint portfolio and factor cumulative Q1-Q5 return spreads



Source: IHS Markit

We round out our European markets analysis with a brief review of Credit Risk and Demand Supply Ratio joint portfolios (Table 5) in order to compare results with Implied Loan Rate. Demand Supply Ratio is the more commonly followed Short Sentiment factor and measures the amount of stock borrowed relative to the lendable inventory. Again for the combination with a Short Sentiment factor, results span the period from September 2006 through August 2017.

First we note that individual factor performance for Demand Supply Ratio is similarly aligned with Implied Loan Rate, though with a slight advantage to the former based on average monthly return spreads of 0.44% and 0.12%, respectively. While joint portfolio results are also closely matched, we report a monthly average return spread of 0.78% for this more commonly followed Short Sentiment signal, just marginally weaker than that of Implied Loan Rate (0.91%).

Table 5

Developed Europe Credit Risk and Demand Supply Ratio portfolios, Sep 2006 – Aug 2017

Factor	Average	Standard deviation	IR	Hit rate	Minimum	Stock count
Credit Risk						
Q1	0.60%	5.13	0.12	58%	-18.61%	
Q5	0.51%	8.83	0.06	50%	-30.00%	
Q1-Q5 spread	0.09%	5.20	0.02	51%	-26.49%	261
Demand Supply Ratio						
Q1	0.74%	5.72	0.13	56%	-21.10%	
Q5	0.30%	7.84	0.04	51%	-24.20%	
Q1-Q5 spread	0.44%	3,31	0.13	59%	-9.37%	261
Joint portfolio						
Q1	0.71%	3,32	0.21	61%	-9.53%	
Q5	-0.07%	8.59	-0.01	49%	-20.83%	
Q1-Q5 spread	0.78%	7.31	0.11	55%	-34.34%	70

Source: IHS Markit

Conclusion

Our factor suite for the CDS market opens up unique and insightful opportunities for cross-asset signals for the predictability of stock prices. In this report, we investigate the relationship between CDS spreads and signals from related markets including equities and securities lending.

Beginning with US markets, our empirical results indicate that momentum in the underlying factors studied was a more predictive signal. The joint portfolio formed by Credit Revisions – 3 Month and 12-Month Active Return with 1-month Lag saw stronger monthly Q1-Q5 spreads on average of 0.68%, doubling that of the former (0.33%) and 80 percentage points in excess of the latter (-0.12%), with expanded results for both Q1 and Q5 stocks.We also examined Credit Revisions – 3 Month and Monthly Change in Implied Loan Rate, where we found an average monthly Q1-Q5 spread of 0.71%, compared with 0.50% and -0.04%, respectively, for the individual factors.

In developed European markets, the intersection of Credit Risk and 12-Month Active Return with 1-month Lag ranks results in improved average Q1-Q5 spreads of 0.91% monthly, compared with 0.14% and 0.44%, respectively, for the individual factors. The enhanced spread was particularly driven by the joint portfolio's success at isolating names that underperformed.

The combination of Credit Risk with the price that short sellers pay to borrow shares, namely Implied Loan Rate, resulted in an average monthly Q1-Q5 spread of 0.91%, exceeding levels of 0.11% and 0.12% for the respective underlying factors, driven by improvements in both the Q1 and Q5 portfolios. Similar results were posted by the more commonly followed Short Sentiment indicator Demand Supply Ratio.

Appendix

Table A1

US Total Cap Credit Risk and 12-Month Active Return with 1-month Lag portfolios, Jun 2004 – Aug 2017

Factor	Average	Standard deviation	IR	Hit rate	Minimum	Stock count
Credit Risk						
Q1	0.92%	3.59	0.26	68%	-16.35%	
Q5	1.20%	9.02	0.13	59%	-29.68%	
Q1-Q5 spread	-0.28%	6.41	-0.04	48%	-46.16%	533
12-Month Active Return with 1-month Lag						
Q1	0.91%	5.13	0.18	64%	-19.79%	
Q5	0.99%	8.60	0.12	57%	-28.88%	
Q1-Q5 spread	-0.08%	6.72	-0.01	58%	-53.15%	533
Joint portfolio						
Q1	0.77%	4.41	0.18	62%	-15.30%	
Q5	0.80%	11.02	0.07	55%	-27.98%	
Q1-Q5 spread	-0.03%	9.67	0.00	55%	-66.12%	132

Source: IHS Markit

Table A2

US Total Cap Credit Risk and Implied Loan Rate portfolios, Sep 2006 – Aug 2017

Factor	Average	Standard deviation	IR	Hit rate	Minimum	Stock count
Credit Risk						
Q1	0.93%	3.83	0.24	67%	-16.66%	
Q5	1.16%	9.67	0.12	58%	-29.52%	
Q1-Q5 spread	-0.23%	6.87	-0.03	50%	-45.28%	530
Implied Loan Rate						
Q1	1.05%	5.43	0.19	65%	-20.27%	
Q5	1.05%	7.05	0.15	58%	-25.81%	
Q1-Q5 spread	0.00%	2.35	0.00	49%	-9.39%	530
Joint portfolio						
Q1	0.87%	4.13	0.21	67%	-16.22%	
Q5	1.18%	11.38	0.10	54%	-25.83%	
Q1-Q5 spread	-0.31%	8.73	-0.04	54%	-44.18%	129

Source: IHS Markit

Table A3

Developed Europe Credit Revisions – 3 Month and 12-Month Active Return with 1-month Lag portfolios, Jun 2004 – Aug 2017

Factor	Average	Standard deviation	IR	Hit rate	Minimum	Stock count
Credit Revisions – 3 Month						
Q1	0.87%	5.48	0.16	60%	-13.65%	
Q5	0.62%	6.61	0.09	59%	-23.97%	
Q1-Q5 spread	0.25%	3.91	0.06	55%	-12.09%	252
12-Month Active Return with 1-month Lag						
Q1	0.94%	4.41	0.21	64%	-13.59%	
Q5	0.46%	7.63	0.06	52%	-21.51%	
Q1-Q5 spread	0.48%	6.14	0.08	59%	-42.09%	252
Joint portfolio						
Q1	0.74%	5.52	0.13	55%	-18.65%	
Q5	0.33%	8.86	0.04	50%	-22.17%	
Q1-Q5 spread	0.41%	7.97	0.05	63%	-38.63%	62

Source: IHS Markit

Table A4

Developed Europe Credit Revisions – 3 Month and Monthly Change in Implied Loan Rate portfolios, Jan 2011 – Aug 2017

Factor	Average	Standard deviation	IR	Hit rate	Minimum	Stock count
Credit Revisions – 3 Month						
Q1	0.81%	4.83	0.17	61%	-11.77%	
Q5	0.80%	5.62	0.14	60%	-14.64%	
Q1-Q5 spread	0.02%	4.03	0.00	50%	-8.16%	238
Monthly Change in Implied Loan Rate						
Q1	0.92%	4.04	0.23	65%	-9.76%	
Q5	0.81%	4.28	0.19	61%	-11.25%	
Q1-Q5 spread	0.11%	1.90	0.06	54%	-8.58%	238
Joint portfolio						
Q1	0.69%	5.00	0.14	58%	-13.64%	
Q5	0.75%	6.63	0.11	56%	-13.77%	
Q1-Q5 spread	-0.06%	5.34	-0.01	50%	-28.32%	49

Source: IHS Markit

References

Lee, Jongsub, Andy Naranjo and Stace Sirmans (2016). Related securities and the cross-section of stock return momentum: Evidence from credit default swaps (CDS). Working paper.

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