

QUANTITATIVE RESEARCH

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Riding Industry Momentum Enhancing the Residual Reversal Factor

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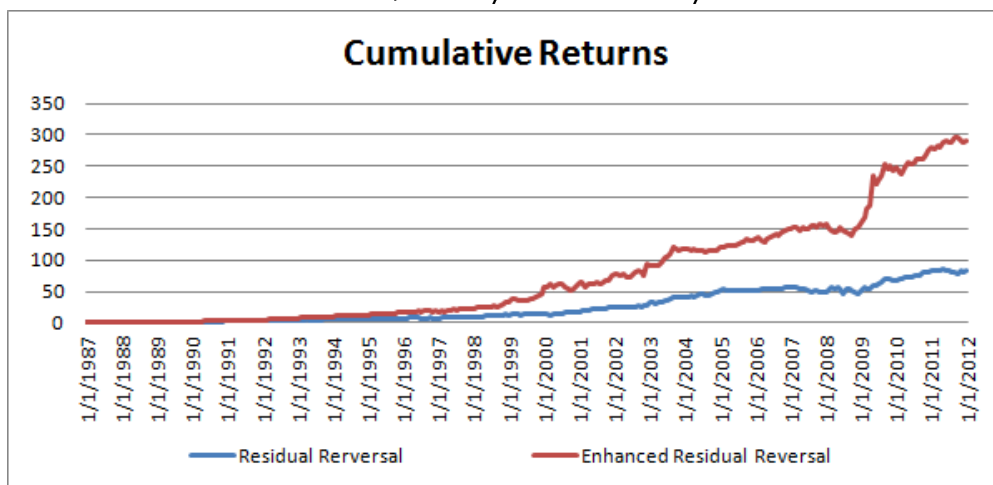
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Unlike individual stocks whose short-term returns tend to revert from one month to the next, industry portfolios exhibit return momentum even at a one-month horizon. Our analysis shows a long-short strategy that buys the top 20% of GICS® Industries with the highest past-month returns and sells the bottom 20% of GICS® Industries with the lowest previous month returns within the Russell 3000 earns a monthly return spread of 0.53% (with a T-stat of 2.03) from January 1987 through February 2012.

Given this return pattern difference at the stock and industry level, we examine a strategy that takes advantage of both industry level momentum and stock level reversal. We combine the residual reversal factor from our November 2011 report, "Factor Insight – Residual Reversal"¹ with an industry momentum score, and find that the factor performance is greatly enhanced in the Russell 3000 universe between January 1987 and February 2012 (Figure 1). The decile return spread is increased by 42 bps per month on average.

**Figure 1 Improving the Residual Reversal Factor with Industry Momentum
Russell 3000; January 1987 – February 2012**



Source: S&P Capital IQ Quantitative Research

We then extend our study to other developed countries and find similar results in Europe and the Asia-Pacific region excluding Japan. Industry momentum helps increase the information coefficient (IC) and return spread of the residual reversal factor in both regions.

¹ The residual reversal factor takes residual return over the past month from the Fama-French model using a rolling 36-month window and scales it by its 36-month standard deviation.

1 Winning Losers and Losing Winners

Since winning industries tend to outperform in the subsequent month, we expect stocks with low residual returns in these industries [i.e., losing stocks in winning industries] to benefit from industry trends as well as from stock level reversal effect, and vice versa for stocks with high residual returns in losing industries. To test this hypothesis, we first construct an industry momentum score for each stock: we rank cap-weighted monthly returns of all GICS® Industries, and each stock in the same industry takes the same industry rank as its industry momentum score. We then sort stocks into quintiles independently based on the residual reversal factor and industry momentum score, with stocks in the “Best” [“Worst”] quintile expected to outperform [underperform]. Table 1 shows the average number of stocks in each bucket as a result of this double sort for the Russell 3000 universe. We are particularly interested in the performance of stocks in the top left corner [winning stocks in losing industries] and those in the bottom right corner [losing stocks in winning industries].

**Table 1 Double Sort on Residual Reversal and Industry Momentum: Average Stock Counts
Russell 3000; January 1987 – February 2012**

Industry Momentum	Residual Reversal				
	Worst	2	3	4	Best
Worst	56	73	89	107	136
2	83	98	107	113	115
3	105	113	114	110	102
4	120	114	104	96	83
Best	128	94	78	66	56

Source: S&P Capital IQ Quantitative Research

Table 2 demonstrates the performance of Russell 3000 companies from January 1987 to February 2012 for the double sort. The 2nd, 3rd and 4th columns are average monthly IC, T-stat for the IC and the difference in monthly returns between low residual stocks and high residual stocks within each industry momentum quintile respectively. The last five columns display excess monthly returns of the five quintiles of the residual reversal factor. Looking at each row, we see that high residual stocks consistently underperform low residual stocks in every industry momentum quintile, as indicated by the statistically significant IC's. More importantly, stocks with low [high] residual returns in winning [losing] industries earn the highest [lowest] return among all the buckets, which confirms our expectation. The difference in returns between the two groups is 2.27% [1.08% vs. -1.19%] per month, statistically significant at the 1% level.

**Table 2 Double Sort on Residual Reversal and Industry Momentum: Monthly Performance
Russell 3000; January 1987 – February 2012**

Industry Momentum	Average IC	IC T-stat	Average Spread	Residual Reversal				
				Worst	2	3	4	Best
Worst	0.044	7.86	1.29%	-1.19%	-0.95%	-0.74%	-0.50%	0.10%
2	0.048	10.36	1.73%	-0.88%	-0.36%	-0.15%	0.03%	0.85%
3	0.046	9.71	1.47%	-0.41%	0.00%	0.11%	0.51%	1.06%
4	0.044	9.58	1.32%	-0.28%	0.06%	0.61%	0.64%	1.05%
Best	0.039	6.39	1.13%	-0.05%	0.27%	0.56%	0.71%	1.08%

Source: S&P Capital IQ Quantitative Research

2 Exploiting the Two Forces

To take advantage of both industry momentum and stock level reversal effect while avoiding limited number of holdings, we follow a simple path of exploiting the two forces: for each stock we rank its industry momentum score [in ascending order] and residual returns [in descending order] into percentile and then rank the product or sum of the two percentiles into deciles. We compare the combined signals' performance with that of the original residual reversal factor.

2.1 U.S Market

Table 3 shows the performance of the combined signals for Russell 3000 universe from January 1987 to February 2012. For comparison purpose, the performance of the residual reversal factor [RR] is listed in the first row. The last two columns show the difference in return spreads between the combined signals and the residual reversal factor and the one-tailed T-stat for the spread difference respectively. Both combined signals generate higher monthly spreads than the residual reversal factor. For example, the product of the two percentiles [the 2nd row] yields 1.97% per month, 42 bps higher than the residual reversal factor.

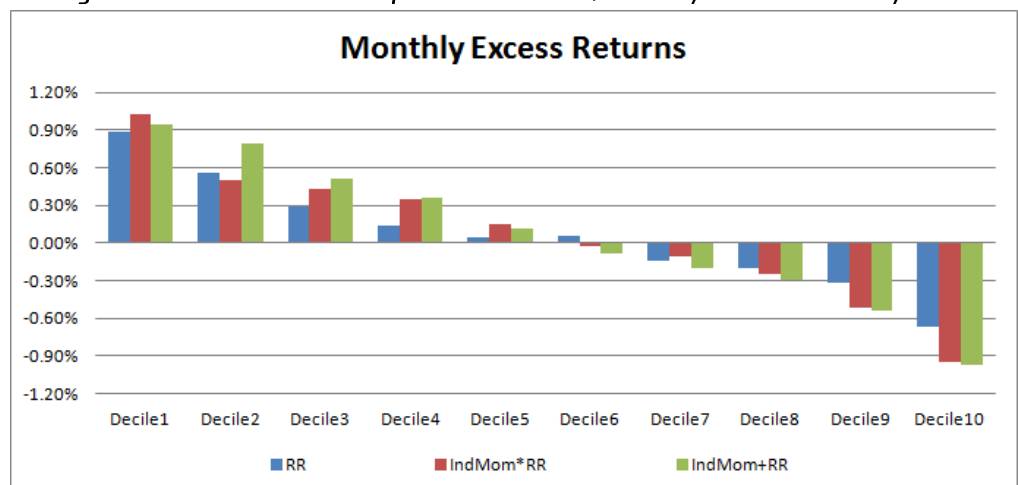
**Table 3 Summary Performance Statistics for Enhanced Residual Reversal Factors
Russell 3000; January 1987 – February 2012**

Factor	Average IC	IC T-stat	Average Decile Spread	Spread T-stat	Difference in Spreads	Difference in Spreads T-stat
RR	0.038	8.67	1.56%	7.14		
IndMom*RR	0.043	9.88	1.97%	8.07	0.42%	1.84
IndMom+RR	0.050	11.48	1.93%	8.59	0.37%	1.65

Source: S&P Capital IQ Quantitative Research

Figure 2 depicts monthly excess returns of each decile for the three factors listed in Table 3. The returns decrease monotonically from top to bottom deciles for the combined signals. Both the long side and the short side of the residual reversal factor are improved when it is combined with industry momentum.

Figure 2 Decile Returns Profile: Russell 3000; January 1987 – February 2012



Source: S&P Capital IQ Quantitative Research

It is worth noting that the improvement is concentrated in small cap stocks. Table 4 shows the same test for Russell 1000 and Russell 2000 universes separately. The combined signals generate more than 80bps higher return spreads than the residual reversal factor in the small cap universe, and the differences in spreads are statistically significant at the 1% level, while in the large cap universe, the improvements in return spread from the combined signals are not statistically significant.

**Table 4 Summary Performance Statistics for Enhanced Residual Reversal Factors
Russell 1000 & Russell 2000; January 1987 – February 2012**

Factor	Russell 1000			Russell 2000		
	Average IC	Average Decile Spread	Difference in Spreads	Average IC	Average Decile Spread	Difference in Spreads
RR	0.035***	0.98%***		0.037***	1.76%***	
IndMom*RR	0.033***	1.00%***	0.02%	0.052***	2.67%***	0.91%***
IndMom+RR	0.044***	1.19%***	0.21%	0.056***	2.59%***	0.84%***

***significant at the 1% level; **significant at the 5% level; *significant at the 10% level.

Source: S&P Capital IQ Quantitative Research

We perform an attribution analysis for the long/short portfolio constructed on the IndMom*RR signal using S&P Capital IQ's U.S Fundamental Medium Term Risk Model [Table 5]. Similar to the long/short portfolio based on the residual reversal factor, all the portfolio returns essentially come from stock specific returns.

**Table 5 Return and Risk Attribution for Long/Short Portfolio of Enhanced Residual Reversal
January 1992 – February 2012**

Factor	Portfolio Exposure	Portfolio Return*	Realized Contribution to Portfolio Risk	Realized Percent of Portfolio Risk	Realized Sharpe Ratio
Market	0.080	0.83%	5.91%	15.71%	0.14
Style	0.244	-0.51%	9.00%	36.38%	-0.06
Size	0.045	0.35%	1.65%	1.22%	0.21
Price Momentum	0.056	0.65%	-2.45%	-2.69%	-0.27
Earnings Quality	-0.022	-0.02%	3.69%	6.11%	-0.01
Analyst Expectation	0.030	0.27%	-0.93%	-0.39%	-0.29
Volatility	0.163	-0.93%	6.67%	20.01%	-0.14
Valuation	-0.133	-0.13%	4.75%	10.13%	-0.03
Historical Growth	0.145	-0.42%	3.21%	4.63%	-0.13
Capital Efficiency	-0.040	-0.28%	-2.43%	-2.64%	0.12
Industry	0.035	-0.06%	3.71%	6.18%	-0.02
Stock Specific		22.26%	9.64%	41.74%	2.31
Grand Total		22.51%	14.92%	100.00%	1.51

* Return periods greater than a year are annualized

Source: S&P Capital IQ Quantitative Research

2.2 Global Markets

Using Fama-French Developed Market Factors that were recently added to their data library, we extend our analysis to the regions outside the U.S and examine the relationship between stock-level reversal and industry-level momentum effects in each region. The three regions we study are: Europe [EU], consisting of developed countries in the BMI Europe universe; Asia-Pacific excluding Japan [APacXJP], which includes Hong Kong, Singapore, Australia and New Zealand; and Japan.

2.2.1 Residual Reversal Factor

We first examine the performance of the residual reversal factor in these regions (Table 6). The second column in the table shows the average number of stocks in each quantile over time for different markets. The last four columns display average monthly IC, T-stat for the IC, average equal-weighted return spread and T-stat for the spread respectively. In Europe and Japan, the residual reversal factor generates statistically significant IC's and return spreads, both at the 1% level. Its performance is not as strong in the Asia-Pacific area outside Japan, with a 0.40% monthly return spread that is not statistically significant.

**Table 6 Summary Performance Statistics for Residual Reversal Factor
Developed Markets; August 1994 – February 2012**

Region	Count	Average IC	IC T-stat	Average Return Spread	Spread T-stat
EU	130	0.040	7.44	1.16%	5.46
APacXJP	79	0.019	2.06	0.40%	1.21
Japan	108	0.067	7.93	1.45%	5.44

Source: S&P Capital IQ Quantitative Research

2.2.2 Industry Momentum

We then construct the industry momentum score following the same methodology used for the U.S market and test the performance of an industry momentum strategy in global markets. Specifically, we long [short] stocks in the high [low] momentum industries and equally weight the industries in top and bottom portfolios. The return spread of this strategy and the IR and T-stat of the spread are listed in Table 7.

**Table 7 Summary Performance Statistics for Industry Momentum Strategy
Developed Markets; August 1994 – February 2012**

Region	Return Spread	Spread IR	Spread T-stat
EU	0.75%	0.14	2.06
APacXJP	0.67%	0.12	1.80
Japan	0.17%	0.03	0.42

Source: S&P Capital IQ Quantitative Research

Industry momentum effect is evident in Europe and Asia-Pacific excluding Japan as demonstrated above. In Europe, for example, winning industries outperform losing industries by 75bps per month on average, and the return spread is statistically significant at the 1% level. On the other hand, Japan market doesn't yield statistically significant returns for this strategy, which is not

surprising given mounting research that documents weak performance of price momentum in Japan.

2.2.3 Enhanced Residual Reversal Factor

Finally, we combine the residual reversal factor with industry momentum in Europe and APacXJP markets as we did for the U.S. The performance of the combined signals is displayed in Table 8, with the first row showing the residual reversal factor (RR) performance for comparison purpose. The “Difference in Spreads” columns contain the difference in return spreads between the combined signals and the residual reversal factor. In both markets, the IC’s and return spreads are remarkably improved by combining the two effects. The enhancement is especially prominent in the APacXJP universe, where the combined signals’ return spreads are statistically significant at the 1% level, as compared to the 40bps return of the residual reversal factor, which is not statistically significant.

**Table 8 Summary Performance Statistics for Combined Signals
EU & APacXJP; August 1994 – February 2012**

Factor	Europe			Asia-Pacific excluding Japan		
	Average IC	Average Spread	Difference in Spreads	Average IC	Average Spread	Difference in Spreads
RR	0.040***	1.16%***		0.019***	0.40%	
IndMom*RR	0.054***	1.64%***	0.48%**	0.028***	0.95%***	0.56%**
IndMom+RR	0.059***	1.88%***	0.73%***	0.030***	0.78%***	0.38%

***significant at the 1% level; **significant at the 5% level; *significant at the 10% level.

Source: S&P Capital IQ Quantitative Research

3 Conclusions

In this report we explore the effect of industry momentum on stock level short-term price reversal. For the U.S market during the periods studied, we find that stocks with low residual returns consistently outperform those with high residual returns in each industry momentum quintile. The outperformance is more evident when we compare low residual stocks in winning industries to high residual stocks in losing industries, suggesting that industry momentum can enhance the residual reversal factor returns.

To take advantage of the industry momentum effect, we construct an industry momentum score and combine it with the residual reversal factor. The combined signal generates over 1.9% monthly return spread in the Russell 3000 universe from January 1987 through February 2012, approximately 40bps higher than the stand-alone residual reversal factor.

Finally, we test the same strategy in other developed markets outside the U.S. We find that industry momentum also exists in Europe and the Asia-Pacific area excluding Japan, and like in the U.S market, it helps improve the performance of the residual reversal factor in these regions.

REFERENCES

- Blitz, David, Huij, Joop, Lansdorp, Simon D. and Verbeek, Marno, Short-Term Residual Reversal [August 17, 2011]. Available at SSRN: <http://ssrn.com/abstract=1911449>
- Fama, Eugene F. and French, Kenneth R., Size, Value, and Momentum in International Stock Returns [June 21, 2011]. Fama-Miller Working Paper; Tuck School of Business Working Paper No. 2011-85; Chicago Booth Research Paper No. 11-10. Available at SSRN: <http://ssrn.com/abstract=1720139> or <http://dx.doi.org/10.2139/ssrn.1720139>
- Balachander, Falk, Liu and Scherer, Introducing S&P Capital IQ's Global Fundamental Equity Risk Models [May 2011]. S&P Capital IQ Quantitative Research
- Mark Grinblatt and Tobias J. Moskowitz. Do Industries Explain Momentum? [October 1999] Journal of Finance, 54(4):1249-1290
- Simpson, Marc William, Giudici, Emiliano and Emery, John T., One-Month Individual Stock Return Reversals and Industry Return Momentum [August 22, 2011]. Available at SSRN: <http://ssrn.com/abstract=1914629> or <http://dx.doi.org/10.2139/ssrn.1914629>
- Xiuqing Ji & Christos I. Giannikos [2010]: The profitability, seasonality and source of industry momentum, Applied Financial Economics, 20:17, 1337-1349

Our Recent Research

May 2012: The Oil & Gas Industry

Investors frequently use earnings and cash flows in assigning value to companies. Accordingly, identifying the key drivers of company earnings is an important component in most valuation models. In the oil & gas industry, a key determinant of value and future cash flow streams is the level of oil & gas reserves a firm holds.

May 2012: Case Study: S&P Capital IQ - The Platform for Investment Decisions

Ten years ago, AAPL traded just below \$12 and closed at \$583.98 on April 30, 2012. That is an average annual return of 48.1% over the period. During this same time the S&P 500 grew at an annual rate of only 2.65%. On April 2nd, Topeka Capital Markets initiated coverage of AAPL with a price target of \$1001. If achieved, this would make AAPL the first company to ever reach a \$1 trillion market cap. In this case study, we highlight some key S&P Capital IQ functionality in analyzing AAPL hypothetically reaching \$1000.

March 2012: Exploring Alpha from the Securities Lending Market - New Alpha Stemming from Improved Data

Numerous studies have examined the information content of short interest and found that heavily shorted stocks tend to underperform and liquid stocks with low levels of short interest subsequently outperform. Most studies relied on short interest data obtained directly from the exchanges available with a significant delay.

January 2012: S&P Capital IQ Stock Selection Model Review - Understanding the Drivers of Performance in 2011

In this report, we review the performance of S&P CIQ's four U.S stock selection models in 2011. These models were launched in January 2011, and this analysis will assess the underlying drivers of each model's performance over the last 12 months.

January 2012: Intelligent Estimates - A Superior Model of Earnings Surprise

As residual stakeholders, equity investors place enormous importance on a company's earnings. Analysts regularly forecast companies' future earnings. The prospects for a company's future earnings then become the basis for the price an investor will pay for a company's shares. Market participants follow sell side analysts' forecasts closely, identifying those analysts that demonstrate forecasting prowess and track those analysts' forecasts going forward.

November 2011: Factor Insight - Residual Reversal

Many investors employ price reversal strategies [strategies that buy "losers" and sell "winners" based on short-term price changes] in their stock selection decisions. One popular reversal strategy is constructed as the change in 1-month stock price over the most recent month. This report compares the performance of this factor to a "residual reversal" signal proposed by Blitz, Huij, Lansdorp and Verbeek in their 2011 paper, "Short-Term Residual Reversal".

November 2011: Research Brief: Return Correlation and Dispersion - All or Nothing

October 2011: The Banking Industry

Investors can improve model and portfolio risk adjusted returns using various approaches, including incorporating new alpha signals in an existing investment process. In this research piece, we build on our earlier work [See "Is your Bank Under Stress? Introducing our Dynamic Bank Model", November 2010], to determine if bank specific data provided by financial institutions regulatory bodies [FFIEC standardized data], can yield alpha signals orthogonal to those found in most stock selection models.

September 2011: Methods in Dynamic Weighting

In this report, we introduce a powerful discovery tool in Alphaworks and provide a pragmatic survey covering the identification and potential dynamic techniques to handle financial regimes and security level context. With increasingly volatile factor performance, the ability to implement adaptive strategies is paramount in maximizing factor efficacy.

September 2011: Research Brief: Return Correlation and Dispersion - Tough Times for Active Managers

July 2011: Research Briefs- A Topical Digest of Investment Strategy Insights

Investors must sort through a constant stream of information in order to identify opportunities, structural changes, and market risks. Wading through information quickly and efficiently is critical as investors must understand how their strategy and exposures are impacted. Typical classes of questions include: What strategy should I use in response to a regime shift? How do I invest in a specific industry? Do other markets behave differently than the US market? In this report we highlight several classes of questions that investors are routinely interested in and share our thoughts on these topics.

June 2011: A Retail Industry Strategy: Does Industry Specific Data tell a different story?

Investors are on a constant quest for new investment insights. A more complete understanding of the dynamics that shape an industry is integral to this search. As S&P Capital IQ's quantitative research begins a more thorough examination of industry specific sources of alpha, we turn our attention first to the retail industry utilizing the Compustat database. Many of the strategies validate common investor best practice when looking at the retail space. In this paper we develop several new retail specific factors and use them to construct a 6-factor retail specific model.

May 2011: Introducing S&P Capital IQ's Global Fundamental Equity Risk Models

Global investors invest in assets across multiple countries. Building on the success of S&P Capital IQ's release of our U.S. Fundamental Equity Risk models we use similar building blocks viz. the best of breed point-in-time S&P Capital IQ data, state of the art Alphaworks alpha factor library, GICS global industry classification system and an open and robust risk estimation methodology to construct the S&P Capital IQ Global Fundamental Equity Risk Model.

May 2011: Topical Papers That Caught Our Interest

April 2011: Can Dividend Policy Changes Yield Alpha?

April 2011: CQA Spring 2011 Conference Notes

March 2011: How Much Alpha is in Preliminary Data?

February 2011: Industry Insights – Biotechnology: FDA Approval Catalyst Strategy

January 2011: US Stock Selection Models Introduction

January 2011: Variations on Minimum Variance

January 2011: Interesting and Influential Papers We Read in 2010

November 2010: Is your Bank Under Stress? Introducing our Dynamic Bank Model

October 2010: Getting the Most from Point-in-Time Data

October 2010: Another Brick in the Wall: The Historic Failure of Price Momentum

July 2010: Introducing S&P Capital IQ's Fundamental US Equity Risk Model

RIDING INDUSTRY MOMENTUM

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