**S&P CAPITAL IQ**

## QUANTITATIVE RESEARCH

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# Factor Insight:

## Earnings Announcement Return – Is A Return Based Surprise Superior to an Earnings Based Surprise?

Earnings surprise strategies have been popular amongst investors ever since Ball and Brown (1968) documented the drift in security prices subsequent to company earnings announcements. One of the most widely used surprise stock picking strategy is based on the standardized difference between a company's actual and expected earnings (SUE). In this report, we compare the performance of SUE to one based on returns around a firm's earnings announcement date (EAR), proposed by Brandt et al (2008). We test both factors globally and find:

- **EAR dominates SUE in the U.S in the post Reg FD era on both a long-short return and top quintile excess return basis**. In the Russell 3000**,** EAR generated an average monthly quintile spread return of 0.57% (significant at the 1% level) compared to 0.09% for SUE from November 2000 to June 2012, while delivering a cumulative equal-weighted excess return of 90% compared to 8% for SUE in the same period (Figure 1).

- **In the U.S, EAR performance is not subsumed by price momentum.** After we control for price momentum, EAR's average 1-month spread return deteriorates slightly post Reg FD (0.57% to 0.54%), but is still significant at the 1% level (Figure 3).

- **SUE's performance is subsumed by EAR's in Canada**. When we perform a 2-dimensional independent sort analysis, SUE's predictive power in Canada weakens significantly and is no longer statistically significant. In contrast, EAR is still predictive of future performance after the independent sort analysis.

- **EAR's long-short spread is statistically significant in all four markets we tested outside North America – UK, Japan, Australia and DM Europe ex UK, while SUE shows efficacy in only the latter two markets (Table 6)**.

- **Style is important for firms with weak EARs**. In the U.S, the average 1-month excess return to a portfolio of growth stocks in the worst EAR quintile is -0.77% (statistically significant at the 5% level), while it is 0% for value stocks. In the U.K, the same return to a portfolio of growth stocks in the worst EAR tertile is -0.86% (statistically significant at the 1% level), while it is 0.26% (not significant) for value stocks.

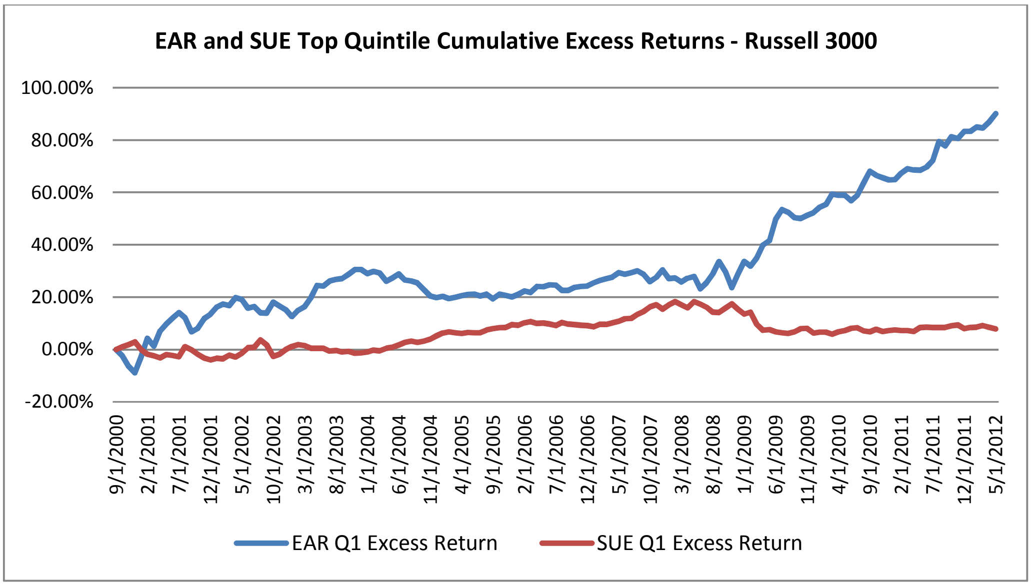
# 1 Introduction

The Post Earnings Announcement Drift ("PEAD"), the tendency for a security's cumulative return to drift in the direction of earnings surprise weeks after an earnings announcement, was first documented by Ball and Brown in 1968. One plausible theory that has been advanced for the existence of PEAD is the inability of investors to recognize the serial correlation in quarterly earnings shocks, thereby systematically misestimating expected earnings (See Bernard and Thomas[1]). Time series earnings models and analyst consensus estimates are the two approaches commonly used to capture expected earnings. Earnings surprise is subsequently derived as the standardized difference between actual earnings and either of the aforementioned approaches.

Rather than use earnings surprise, Brandt, Kishore, Santa-Clara and Venketachalam (BKCV) propose using returns around earnings announcement dates (EAR) to study the drift in security prices. BKCV state that unlike SUE which requires a model for expected earnings, EAR is not contaminated by estimation errors. In addition, they argue that EAR is a better proxy for "total surprise", as it captures all unexpected information (both earnings and non-earnings related) in company announcements. Firms often disclose forward looking numbers (such as sales for subsequent periods) around earnings announcements which may impact short and longer term price movement. Accordingly, a company that beats (misses) projected earnings may underperform (outperform) the market in subsequent weeks, depending on the type, and nature of additional information released by the firm.

In this report, we will explore the performance of EAR and SUE in six developed markets: U.S, Canada, UK, DM Europe ex UK, Japan and Australia. We will also investigate the interaction between EAR and SUE and the impact of momentum on the efficacy of EAR.

*Figure 1: Top Quintile Cumulative Equal-Weighted Excess Return; Russell 3000 : November 2000 – June 2012*



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[1] Bernard, V.L., and Thomas, J. 1989. "Post Earnings Announcement Drift: Delayed Price Response or Risk Premium." Journal of Accounting Research 27: 1-35.

## 2 Factor Performance – U.S Market

Similar to BKCV, we construct EAR as the three-day abnormal return for a firm, centered on its earnings announcement date. However, we measure abnormal return using sector adjusted returns, unlike BKCV who calculate abnormal returns based on the size and book-to-market Fama-French portfolio[2] that a security belongs to. Mathematically, EAR is defined as:

$$\text{EAR} = \prod_{j=t-1}^{t+1}(1 + R) - 1$$

We obtain report dates from the Compustat database for all our U.S tests as this source provides us with history from the 1970s, although our analysis commences in January 1986 when we have broad coverage for daily pricing. We define SUE as the realized difference between quarterly earnings per share and the consensus estimate, divided by the standard deviation of analyst estimates. Our source for SUE data is the S&P Capital IQ Estimates database, and history for U.S firms starts around 2000.

We report performance characteristics, pre and post Regulation Fair Disclosure (Reg FD)[3], for EAR over the Russell 3000 in Table 1. We only show results post Reg FD for SUE, since broad coverage starts in 2000.

*Table 1: EAR & SUE Factor Performance – Russell 3000 (January 1986 – June 2012)*

| Panel | Period | Factor | 1M-IC | 1M-IC IR | 1M IC Hit Rate | 1M Return Spread | 1M Spread IR | 1M Return Hit Rate |
|---|---|---|---|---|---|---|---|---|
| Panel A | Jan 1986 - June 2012 | EAR | 0.029*** | 0.77 | 80%*** | 0.84%*** | 0.43 | 75%*** |
| Panel B | Jan 1986 - Oct 2000 (Pre- Reg FD) | EAR | 0.035*** | 1.13 | 86%*** | 1.05%*** | 0.69 | 81%*** |
| Panel C | Nov 2000 - June 2012 (Post Reg FD) | EAR | 0.023*** | 0.51 | 72%*** | 0.57%*** | 0.24 | 67%*** |
| | | SUE | 0.013*** | 0.24 | 64%*** | 0.09% | 0.03 | 61%** |
| | | EAR-SUE | | | | 0.48%*** | 0.24 | 58%* |

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

Over the last 26 years (Panel A), EAR has generated an average monthly long-short return of 0.84% with a 75% hit rate, both statistically significant at the 1% level. The average 1-month IC (0.029) and hit rate (80%) are also statistically significant at the 1% level. EAR's performance is quite impressive pre-Reg FD, with the factor delivering a monthly return spread of 1.05% and IC of 0.035 in this period (Panel B). Although EAR's performance is weaker post-Reg FD (panel C), it is still superior to SUE's; EAR's average 1-month IC and return spread are 69% (0.023 vs 0.013) and 63% (0.57% vs 0.09%) higher than SUE's, with lower volatility as indicated by EAR's higher IR. We also report the difference in monthly spread between EAR and SUE at 0.48%, which is statistically significant at the 1% level, in the last row of Panel C.

We detail the performance of both factors by market capitalization in Table 2. As expected, both factors show improved efficacy in the Russell 2000 compared to the Russell 1000. In particular,

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[2] Fama, E., and French, K.R. 1992. "The Cross-section of Expected Stock Returns", Journal of Finance 47: 427-465

[3] Regulation Fair Disclosure (Reg FD) was passed by the U.S Securities and Exchange Commission in October 2000

EAR's 1-month IC and return spread jump by 100% (0.019 to 0.038) and 140% (0.43% to 1.03%) respectively when moving down the market cap spectrum, over the January 1986 to January 2012 period. Similar to what we observed in the Russell 3000, EAR dominates SUE post Reg FD in both the large and small cap universes. EAR's return spread in the Russell 2000 (0.73%) is statistically significant at the 1% level, although the return is weaker in the Russell 1000 (0.26%) and not statistically significant. In contrast, SUE's return spread is not statistically significant in either universe post Reg FD. Finally, the difference in monthly spread between EAR and SUE is statistically significant in both the large and small cap universes.

*Table 2: Factor Performance by Market Capitalization (January 1986 – June 2012)*

Russell 1000

| Panel | Period | Factor | 1M-IC | 1M-IC IR | 1M IC Hit Rate | 1M Return Spread | 1M Spread IR | 1M Return Hit Rate |
|---|---|---|---|---|---|---|---|---|
| Panel A | Jan 1986 - June 2012 | EAR | 0.019*** | 0.37 | 64%*** | 0.43%*** | 0.22 | 66%*** |
| Panel B | Jan 1986 - Oct 2000 (Pre- Reg FD) | EAR | 0.024*** | 0.55 | 68%*** | 0.57%*** | 0.42 | 69%*** |
| Panel C | Nov 2000 - June 2012 (Post Reg FD) | EAR | 0.012** | 0.21 | 60%** | 0.26% | 0.11 | 61%*** |
| | | SUE | 0.010* | 0.15 | 55% | -0.14% | -0.05 | 54% |
| | | EAR-SUE | | | | 0.40%*** | 0.19 | 55% |

Russell 2000

| Panel | Period | Factor | 1M-IC | 1M-IC IR | 1M IC Hit Rate | 1M Return Spread | 1M Spread IR | 1M Return Hit Rate |
|---|---|---|---|---|---|---|---|---|
| Panel A | Jan 1986 - June 2012 | EAR | 0.038*** | 0.83 | 80%*** | 1.03%*** | 0.43 | 77%*** |
| Panel B | Jan 1986 - Oct 2000 (Pre- Reg FD) | EAR | 0.039*** | 1.11 | 85%*** | 1.26%*** | 0.61 | 81%*** |
| Panel C | Nov 2000 - June 2012 (Post Reg FD) | EAR | 0.027*** | 0.59 | 74%*** | 0.73%*** | 0.27 | 73%*** |
| | | SUE | 0.013*** | 0.22 | 59%** | 0.20% | 0.08 | 59%** |
| | | EAR-SUE | | | | 0.53%** | 0.21 | 67%*** |

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

## 2.1 U.S – Sector Analysis

We test both EAR and SUE signals within the 10 GICS sectors, using the Russell 3000 as our universe. Companies are ranked into quintiles within each sector and we report quintile spreads and IRs in Table 3. EAR demonstrates impressive performance over the entire test period (January 1986 to June 2012), with a minimum and maximum average monthly quintile spread of 0.37% (materials) and 1.09% (Info Tech) respectively. Eight of ten sector quintile spreads are statistically significant at the 1% level, while Telecom and Materials sector spreads are statistically significant at the 5% and 10% levels respectively. EAR's performance over the pre Reg FD period is notably strong with Utilities the only sector with a return spread not statistically significant.

EAR's performance weakens in the Post Reg FD era, in line with what we documented earlier for the factor in the broad Russell universes. In this era, only six sectors have statistically significant spreads, with one sector (Utilities) having a higher spread compared to that of the Pre Reg FD era. However EAR's sector performance post Reg FD clearly dominates that of SUE; EAR's spread is larger than that of SUE in each of the ten GICS sectors and the difference in returns is statistically significant in five of these sectors (last column of Table 3).

*Table 3: Factor Performance – Russell 3000 GICS Sectors*

| | EAR | | | | | | SUE | | EAR-SUE |
|---|---|---|---|---|---|---|---|---|---|
| | ALL Periods (Jan 1986- June 2012) | | Pre Reg FD (Jan 1986 - Oct 2000) | | Post Reg FD (Nov 2000 - June 2012) | | Post Reg FD (Nov 2000 - June 2012) | | Nov 2000 - June 2012 |
| GICS Sector | 1M Return | 1M Spread IR | 1M Return | 1M Spread IR | 1M Return | 1M Spread IR | 1M Return | 1M Spread IR | 1M Return |
| Consumer Discretionary | 0.93%*** | 0.38 | 1.34%*** | 0.61 | 0.42%* | 0.15 | 0.13% | 0.03 | 0.29%** |
| Consumer Staples | 0.73%*** | 0.23 | 1.05%*** | 0.35 | 0.33% | 0.09 | -0.40% | -0.10 | 0.73%* |
| Energy | 0.62%*** | 0.15 | 0.61%** | 0.15 | 0.63%* | 0.16 | 0.51% | 0.12 | 0.12% |
| Financials | 0.77%*** | 0.28 | 0.95%*** | 0.36 | 0.54%** | 0.19 | 0.27% | 0.08 | 0.27% |
| Health Care | 0.70%*** | 0.20 | 1.00%*** | 0.30 | 0.32% | 0.09 | -0.01% | 0.00 | 0.33% |
| Industrials | 0.72%*** | 0.20 | 0.99%*** | 0.24 | 0.37%* | 0.14 | -0.11% | -0.03 | 0.48%* |
| Information Technology | 1.09%*** | 0.31 | 1.39%*** | 0.44 | 0.71%** | 0.19 | 0.09% | 0.02 | 0.62%* |
| Materials | 0.37%* | 0.11 | 0.55%*** | 0.20 | 0.13% | 0.03 | 0.10% | 0.02 | 0.03% |
| Telecommunication[1] | 0.97%** | 0.12 | 1.23%** | 0.17 | 0.64% | 0.07 | -0.25% | -0.03 | 0.89% |
| Utilities | 0.44%*** | 0.17 | 0.12% | 0.06 | 0.84%*** | 0.26 | -0.04% | -0.01 | 0.88%*** |

[1] Average security count of 45; *** significant at the 1% level; ** significant at the 5% level; * significant at the 10% level

## 2.2 U.S – Controlling for Fama-French Factors

We measured the excess return to both EAR and SUE strategies using the Fama-French three-factor model. For this test, we regressed monthly quintile spreads of both factors on the Fama-French factors (Russell 3000), and report the intercept and betas of our regression test in Table 4. For comparison purposes, we restate the quintile spreads of both strategies in the first row of the table. The excess returns to each strategy as measured by the intercept (second row), are similar to the original quintile spreads reported in the first row. The intercepts for EAR are all statistically significant at the 1% level.

*Table 4: Fama-French Regression Results; Universe: Russell 3000*

| | EAR | | | SUE |
|---|---|---|---|---|
| | ALL Periods (Jan 1986 - June 2012) | Pre Reg FD (Jan 1986 - Oct 2000) | Post Reg FD (Nov 2000 - June 2012) | Post Reg FD (Nov 2000 - June 2012) |
| 1M Return Spread | 0.84%*** | 1.05%*** | 0.57%*** | 0.09% |
| Intercept | 0.0092*** | 0.0104*** | 0.0064*** | 0.0024 |
| Mkt-Rf | -0.1024*** | -0.00676 | -0.2101*** | -0.1746*** |
| SMB | -0.1470*** | -0.1300*** | -0.1491*** | -0.1964** |
| HML | -0.0574 | -0.0738 | 0.06027 | -0.0708 |

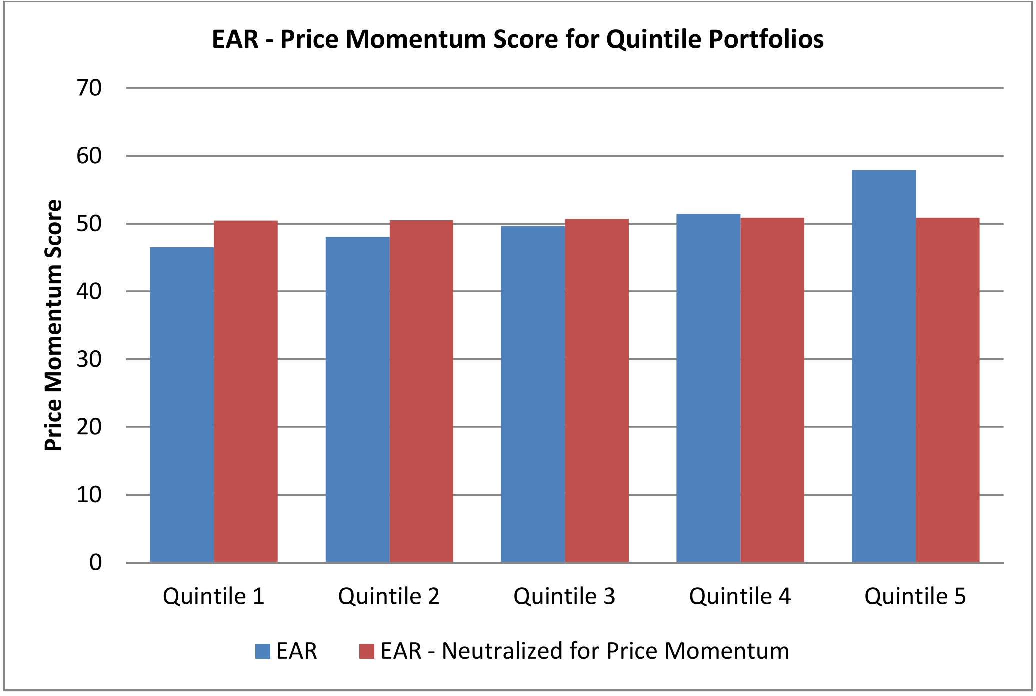
*** significant at the 1% level; ** significant at the 5% level; * significant at the 10% level

## 2.3 U.S: Robustness Analysis – Price Momentum

Several academic studies have examined the relationship between earnings and price momentum strategies. Chan, Jegadeesh and Lakonishok (1996) explored the interaction of a 6-month price momentum strategy (R6) and three strands of earnings momentum signals – ABR (a close approximation of EAR), SUE (constructed using a time series model) and the six month change in analyst forecasts (REV6). The authors used a Fama-MacBeth regression framework to determine the impact of these four strategies, including size as a control variable, on 12-month forward return. They report a decline (ranging from 64% for SUE to 26% for R6) in predictor variable betas when all four were jointly tested, compared to when each predictor was tested with the size variable. However, all four predictor betas were still statistically significant in the joint test, suggesting that each was an important determinant of future stock return. Hong, Lee and Swaminathan (2003) examined whether R6 and REV6 have incremental ability to predict returns in eleven international markets. They found that in six of the eleven markets where both anomalies were present, one effect was not subsumed by the other.

We used percentile ranks to capture each quintiles exposure to price momentum; a *lower percentile rank* implies a *higher exposure* to price momentum, while a *higher percentile rank* implies a *lower exposure* to price momentum. The average percentile rank for all the securities in a given quintile represents the exposure of that cohort to price momentum. We used a security's return over the last 11 months, lagged by one month, as our definition for price momentum.

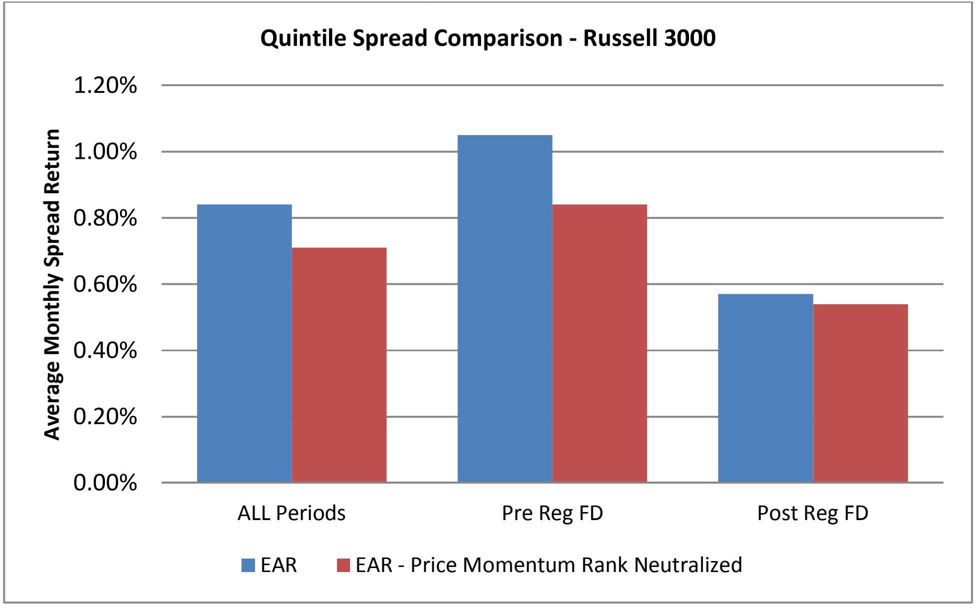
*Figure 2: EAR – Price Momentum Exposure of Quintile Equal-Weighted Portfolios – Russell 3000 Universe (January 1986 – June 2012)*



The blue bars in Figure 2 indicate the exposure of each EAR quintile to price momentum. Quintile 1 has the largest exposure to price momentum since it has the lowest average percentile rank, while quintile 5 has the lowest exposure to price momentum, as it has the largest average percentile rank. Quintile exposure to price momentum is monotonous (blue bars), indicating deterioration in momentum attribute as we move along the EAR quintile spectrum. Given this picture, it is possible that the economically significant EAR spread we observed in the Russell 3000 universe is being driven by momentum. To test this possibility, we stripped EAR of its price momentum bias by first ranking the universe based on price momentum into five buckets, and then ranking by EAR within each bucket. The new price momentum exposure for each EAR quintile is reported in Figure 2 (red bars) and we see that all five quintiles have similar price momentum average percentile scores.

We show the quintile spread return for the price momentum neutralized EAR factor (red bars), and the original EAR factor (blue bars) over the Russell 3000 in Figure 3. Similar to what we reported in Table 1 for the original EAR factor, the return spread of the price momentum neutralized version is statistically significant at the 1% level in both the pre and post Reg FD periods. While the price momentum neutralized version's return spread is lower by 20% in the pre-Reg FD era (1.05% to 0.84%), the return to both are similar in the post Reg FD period (0.57% to 0.54%).

*Figure 3: Spread Return Comparison between Original EAR factor and EAR Neutralized for Price Momentum Exposure; Russell 3000 Universe*



## 3 Factor Performance – Global Markets

We extend our tests to five developed markets listed in Figure 4. All our spread return tests are based on quintiles.

*Figure 4: Universe, Average Count and Testing Period*

| Universe | Start | End | Avg Count |
|---|---|---|---|
| S&P / TSX Canada | Jun-1991 | Jun-2012 | 252 |
| BMI-UK | Jun-2000 | Jun-2012 | 403 |
| BMI-DM Europe ex UK | Jun-2000 | Jun-2012 | 1310 |
| BMI-Japan | Oct-1996 | Jun-2012 | 1315 |
| BMI-Australia | Oct-1996 | Jun-2012 | 394 |

## 3.1 Canada

We report performance statistics for both EAR and SUE over the S&P/TSX universe in Table 5. EAR's performance over the entire test period (Panel A) was powerful with an average 1-month IC and long-short spread of 0.04 and 1.02% respectively (both statistically significant at the 1% level). Panel B compares the performance of EAR to SUE over the last 10 years; both factors have generated similar long short return spreads over this time period (EAR – SUE, which measures the difference in spreads, is not statistically significant).

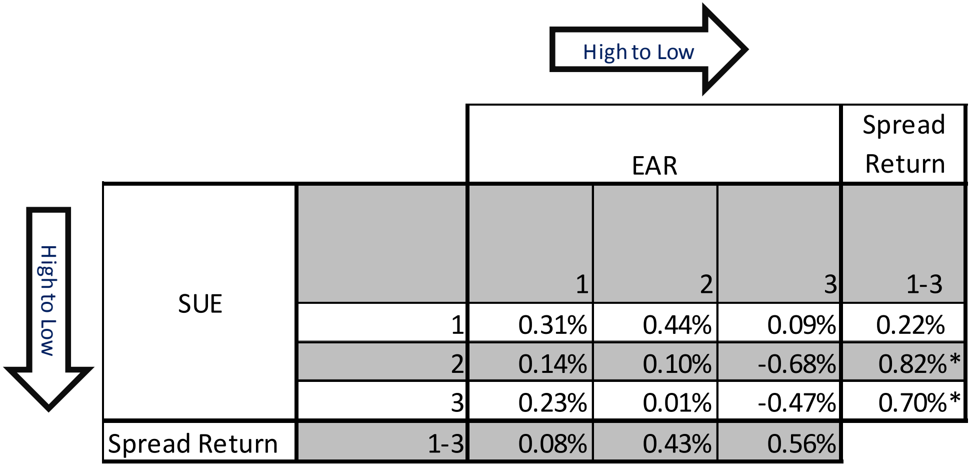
*Table 5: Factor Performance – S&P/TSX Composite (June 1991 – June 2012)*

| S&P BMI Canada | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Panel | Period | Factor | 1M-IC | 1M-IC IR | 1M IC Hit Rate | 1M Return Spread | 1M Spread IR | 1M Return Hit Rate |
| Panel A | June 1991- June 2012 | EAR | 0.040*** | 0.49 | 68%*** | 1.02%*** | 0.33 | 64%*** |
| Panel B | Jan 2002 - June 2012 | EAR | 0.028*** | 0.33 | 62%*** | 0.47%* | 0.15 | 58%* |
| | | SUE | 0.021*** | 0.23 | 59%* | 0.45%* | 0.17 | 56% |
| | | EAR-SUE | | | | 0.02% | 0.00 | 55% |

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

Liu, Strong and Xu (2003) looked at the interaction between both factors in the UK and found that EAR almost subsumes SUE, but EAR had significant predictive power for future returns after controlling for SUE. We follow Liu et al's approach and use a 2-dimesional independent sort analysis to create nine portfolios, based on the interaction of tertile portfolios formed for each factor. All returns are based on excess returns (return of a portfolio – universe return).

*Figure 5: Average Monthly Portfolio Excess Returns Using 2-Dimensaional Independent Sort Analysis for EAR and SUE: S&P/TSX Composite; Jan 2002 to June 2012*



| | | EAR | | | Spread Return |
|---|---|---|---|---|---|
| SUE | | 1 | 2 | 3 | 1-3 |
| | 1 | 0.31% | 0.44% | 0.09% | 0.22% |
| | 2 | 0.14% | 0.10% | -0.68% | 0.82%* |
| | 3 | 0.23% | 0.01% | -0.47% | 0.70%* |
| Spread Return | 1-3 | 0.08% | 0.43% | 0.56% | |

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

The average 1-month excess returns to the nine interaction portfolios, including the return to the long-short spreads (column named "Raw Return") are shown in Figure 5. The long-short returns to EAR, after controlling for SUE, are larger in magnitude (last column of the table) than the equivalent returns to SUE, after controlling for EAR (last row). Two of the three raw return spreads of EAR after controlling for SUE are also statistically significant, while none of the SUE raw return spreads is significant. The predictive ability of SUE deteriorates rapidly after accounting for EAR, supporting the views of Liu et al documented for the UK.

## 3.2 U.K, DM Europe ex UK, Australia and Japan

Although some international companies report quarterly or semi-annually, we use annual announcements for SUE, as it offers the broadest and most consistent measurement of the factor. For comparison purposes, we also use annual announcements for EAR (we provide performance characteristics using all available announcement dates for EAR in Appendix A).

In addition, we use Capital IQ Estimates dataset as our source for announcement dates (using the effective date of actual earnings), since Compustat does not collect this data item outside of the U.S and Canada.

*Table 6: Factor Performance by Country/Region (September 1996 – June 2012)*

S&P BMI UK

| Period | Factor | 1M-IC | 1M-IC IR | IC Hit Rate | 1M Return Spread | 1M Spread IR | Spread Hit Rate |
|---|---|---|---|---|---|---|---|
| June 2000 - June 2012 | EAR | 0.025*** | 0.44 | 67%*** | 0.74%*** | 0.34 | 66%*** |
| | SUE | 0.005 | 0.07 | 53% | -0.06% | -0.02 | 47% |
| | EAR-SUE | | | | 0.80%*** | 0.27 | 63%*** |

S&P BMI DM Europe ex UK

| Period | Factor | 1M-IC | 1M-IC IR | IC Hit Rate | 1M Return Spread | 1M Spread IR | Spread Hit Rate |
|---|---|---|---|---|---|---|---|
| June 2000 - June 2012 | EAR | 0.021*** | 0.47 | 71%*** | 0.52%*** | 0.31 | 71%*** |
| | SUE | 0.024*** | 0.41 | 68%*** | 0.59%*** | 0.26 | 68%*** |
| | EAR-SUE | | | | -0.07% | -0.03 | 50% |

S&P BMI Japan

| Period | Factor | 1M-IC | 1M-IC IR | IC Hit Rate | 1M Return Spread | 1M Spread IR | Spread Hit Rate |
|---|---|---|---|---|---|---|---|
| Sep 1996 - June 2012 | EAR | 0.013*** | 0.27 | 61%*** | 0.23%* | 0.14 | 59%*** |
| | SUE | 0.010* | 0.11 | 58%** | 0.17% | 0.06 | 54% |
| | EAR-SUE | | | | 0.05% | 0.02 | 52% |

S&P BMI Australia

| Period | Factor | 1M-IC | 1M-IC IR | IC Hit Rate | 1M Return Spread | 1M Spread IR | Spread Hit Rate |
|---|---|---|---|---|---|---|---|
| Sep 1996 - June 2012 | EAR | 0.025*** | 0.28 | 59%*** | 0.67%*** | 0.21 | 62%*** |
| | SUE | 0.025*** | 0.21 | 57%** | 0.51%** | 0.14 | 56%** |
| | EAR-SUE | | | | 0.16% | 0.03 | 57%** |

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

We report performance characteristics for EAR and SUE over the S&P BMI UK, DM Europe ex UK, Japan and Australia universes in Table 6. Overall, EAR's return spreads were higher than SUE's in three markets - UK, Japan and Australia, while it slightly underperformed by 7bps monthly in DM Europe ex UK. In the UK, EAR's average 1-month IC (0.025) and return spread (0.74%) were statistically significant at the 1%; SUE's results were weak and not significant. The difference in spread between EAR and SUE was also statistically significant at the 1% level in the UK. When performance is measured from an IC perspective, EAR's 1-month average IC at 0.025, is significant at the 1% level, while SUE's is approximately zero. Our result for SUE differs from what was reported by Liu et al. Liu et al used a different formulation for SUE and their test period started and ended before ours (January 1988 – May 1988).

The spread return to EAR was statistically significant in Japan (0.23%) and Australia (0.67%), even though difference in spread between this signal and SUE was not statistically significant in both countries. The performance of both factors is similar in DM Europe ex UK, with both factors generating average 1-month return spreads and IC's that are statistically significant at the 1% level.

## 4 EAR and the Value-Glamour Anomaly

Several academic studies relate the value-growth anomaly to the return differential between value and growth stocks around earnings report dates. Yan and Zhao (2009) used four proxies to capture the value-glamour effect and found that glamour (growth) stocks are more volatile around announcement dates, and their drift is different from value stocks - glamour stocks exhibit larger negative drifts following negative earnings surprises and negative EARs, while value stocks experience larger positive drifts after positive earnings surprises and EARs. For this report, we look at the relationship between EAR and the value-glamour anomaly in two markets – the U.S and U.K using earnings yield (EP) as our proxy to classify stocks into value or growth.

***Figure 6: Average Monthly Portfolio Excess Returns Using 2-Dimensaional Independent Sort Analysis for EAR and EP: Russell 3000 Universe; Jan 1986 to June 2012***[4]

High to Low

High to Low

| | | EAR | | | | | Spread Return |
|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 1-5 |
| EP | 1 | 0.71% | 0.37% | 0.36% | 0.25% | 0.00% | 0.72%*** |
| | 2 | 0.42% | 0.05% | -0.12% | -0.11% | -0.10% | 0.52%*** |
| | 3 | 0.34% | -0.04% | -0.15% | -0.16% | -0.34% | 0.68%*** |
| | 4 | 0.40% | -0.07% | -0.07% | -0.15% | -0.52% | 0.93%*** |
| | 5 | 0.45% | -0.06% | -0.16% | -0.27% | -0.77% | 1.22%*** |
| Spread Return | 1-5 | 0.27% | 0.43% | 0.53% | 0.52%** | 0.77%*** | |

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

We report the result of our 2-dimensional independent sort analysis for the Russell 3000 in Figure 6[5]. There are several interesting conclusions that can be drawn from the figure above. First, all the spread returns to EAR (last column) are statistically significant at the 1% level for all five EP buckets, indicating that EAR is still a powerful stock selection signal after controlling for earnings

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[4] All returns are based on equal-weighted excess returns (return of a portfolio – universe return).

[5] The conclusions, drawn from Figure 6, remain unchanged when we exclude companies with negative earnings from our analysis, except that four of 5 spread returns for EP are statistically significant after controlling for EAR.

yield. Second, in each EP bucket, the returns to EAR are monotonic. Third, we notice that a significant portion of EAR spreads come from the best EAR portfolio for the top two value buckets, while a larger portion of EAR spreads come from the worst EAR portfolio for the bottom two value buckets. For example, 100% of EAR's spread return for the top value bucket (0.72%) comes from the top EAR portfolio (0.71%). Similarly, 80% of the spread return for second best value bucket (0.52%) is from the top EAR portfolio (0.42%). Conversely, 63% of EAR's spread in the worst value bucket (1.22%) is from the bottom EAR portfolio (-0.77%). Our results confirm what was reported by Yan and Zhao – value stocks exhibit larger positive drifts when EAR is positive, while glamour stocks experience larger negative drifts when EAR is negative. Fourth, only the last two EP portfolios have statistically significant spread returns after controlling for EAR. Last, the most profitable strategy is to go long securities in the top left hand corner cell (average return to these securities = 0.71%) and short securities in the bottom right hand corner cell (average return to these securities in = -0.77%). Such a strategy produces annualized returns of 17.7%, similar to what was reported by Yan and Zhao.

We report a similar 2-dimenstional independent sort test for the S&P BMI UK universe in Figure 7[6], using tertiles instead of quintiles due to coverage. EAR[7] is still effective as a stock picking strategy after controlling for EP, except for the middle value bucket. Similar to the U.S, the most compelling strategy is to go long stocks in the top-most left cell (average return of 0.70%) and short those in the bottom right cell (average return of -0.86%).

*Figure 7: Average Monthly Portfolio Excess Returns Using 2-Dimensional Independent Sort Analysis for EAR and EP: S&P BMI UK Universe; June 2000 to June 2012*

High to Low

High to Low

| | | EAR | | | Spread Return |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 1-3 |
| EP | 1 | 0.70% | 0.69% | 0.26% | 0.44%* |
| | 2 | 0.24% | -0.03% | -0.01% | 0.25% |
| | 3 | -0.15% | -0.36% | -0.86% | 0.71%*** |
| Spread Return | 1-3 | 0.86%** | 1.05%*** | 1.12%*** | |

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

Our results for both the U.S and U.K suggest that investors punish glamour stocks more severely than they do value stocks when firms report disappointing results or, provide weak forward looking statements. In the U.S, the average 1-month return to glamour stocks when EAR quintile = 5 is -0.77% (statistically significant at the 5% level), while it is 0% for value stocks. In the U.K, it is -0.86% (statistically significant at the 1% level) for glamour stocks and 0.26% for value stocks (not significant). The stock prices for value stocks are already depressed and investors have low expectations for these stocks before they report. In contrast, investors have high expectations for glamour stocks and the price of these stocks reflect these lofty expectations. Accordingly, when

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[6] All returns are based on equal-weighted excess returns (return of a portfolio – universe return)

[7] EAR is calculated using all reporting frequencies

glamour stocks reveal disappointing results, they suffer larger price declines compared to value stocks.

## 5 Conclusions

We benchmarked the performance of EAR to SUE in six developed markets and found the former factor to be superior in four of these markets. We document that the returns to EAR is still significant after controlling for momentum in the US. We show that although SUE generates statistically significant average 1-month spreads in Canada, the factor's spread return is not significant once we control for the effects of EAR. We show that EAR dominates SUE in the UK and Japan. In addition, we report that going long (short) value (growth) stocks with attractive (poor) EAR attributes is a compelling strategy in both the U.S and U.K. EAR will be available on Alpha Factor Library, S&P Capital IQ's web-based factor research platform shortly, giving subscribers the ability to compare EAR's performance to the other 400+ factors currently available in the library.

# APPENDIX A

*Table 7: EAR Factor Performance Internationally, Including All Period Announcements (Quarterly, Semi-Annual, and Annual)*

| EAR International Performance - All reporting periodicities | | | | | | | |
|---|---|---|---|---|---|---|---|
| Universe | Period | 1M-IC | 1M-IC IR | IC Hit Rate | 1M Return Spread | 1M Spread IR | Spread Hit Rate |
| BMI UK | Jun 2000 - Jun 2012 | 0.029*** | 0.52 | 72%*** | 0.86%*** | 0.38 | 68%*** |
| BMI DM Europe ex UK | Jun 2000 - Jun 2012 | 0.028*** | 0.60 | 75%*** | 0.62%*** | 0.39 | 70%*** |
| BMI Japan | Sep 1996 - Jun 2012 | 0.015*** | 0.28 | 65%*** | 0.27%** | 0.15 | 61%*** |
| BMI Australia | Sep 1996 - Jun 2012 | 0.027*** | 0.30 | 61%*** | 0.70%*** | 0.23 | 62%*** |

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

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## Our Recent Research

**August 2012: Supply Chain Interactions Part 1: Industries – Profiting from Lead-Lag Industry Relationships**

Various types of business relationships connect companies throughout the economy. Supply chain (customer/supplier revenue and cost relationships) relations are both visible and measurable. Studies have shown material events happening to entities within a supply chain should introduce ripple effects to related entities, and theories incorporating this information into an investment process have garnered attention in recent years. Menzly & Ozbas (2007) examine cross-predictability of industries using the U.S. Bureau of Economic Analysis (BEA) Input-Output data, and Shahrur, et al (2010) extend the methodology to international markets.

**July 2012: Releasing S&P Capital IQ's Regional and Updated Global & US Equity Risk Models**

Over the course of the last two years we released our Global and US Fundamental Equity Risk Models. As a natural progression we are releasing the first set of Regional Models – the Pan-Asia ex. Japan and the Pan-Europe Fundamental Equity Risk Models. This document will explain some of the salient aspects of the process adopted for constructing the Regional Models. We have also made additional improvements to our US & Global Equity Risk Models, and we shall explain these changes.

**June 2012: Riding Industry Momentum – Enhancing the Residual Reversal Factor**

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. We examine a strategy that takes advantage of both industry level momentum and stock level reversal. We combine our residual reversal factor 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. The decile return spread is increased by 42 bps per month on average.

**May 2012: The Oil & Gas Industry - Drilling for Alpha Using Global Point-in-Time Industry Data**

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. While most fundamental analysts/investors take into consideration a company's reserves in arriving at price targets, a majority of systematic driven processes do not. Using S&P Capital IQ's Global Point-in-Time database, we investigate the importance of reserve and production information provided by oil & gas companies.

**April 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 Marker – 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 mont

**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.

**December 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**

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

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