Style-Driven Earnings Momentum

Sebastian Mueller*

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Appendix attached

Abstract

This paper shows that earnings announcements contain information about future returns of "same-style" firms. In the time-series, these information transfers can be used to predict a large number of style-based return spreads (e.g. the profitability of a value minus growth factor). In the cross-section of stocks, a style-based earnings surprise strategy delivers an an equal-weighted (value-weighted) long-short return of 184 (119) basis points per month. The results are neither explained by industry membership, nor by differences in risk, and they are largely unrelated to the performance of a traditional post earnings announcement drift (PEAD) strategy.

Keywords: Earnings momentum, post earnings announcement drift, style returns.

JEL Classification Codes: G11, G12, G14

*Sebastian Mueller, Chair of Banking and Finance, University of Mannheim, L 5, 2, 68131 Mannheim, Germany. E-Mail: mueller@bank.bwl.uni-mannheim.de. I thank participants at the EAA annual meeting in Ljubljana (2012), the VHB annual meeting in Bozen (2012), the AAA annual meeting in Washington (2012), and seminar participants at the University of Mannheim for valuable comments. Furthermore, I am grateful to Gerard Hoberg and Gordon Phillips for providing industry classification data on their website. Thanks goes also to Shane Corwin for disclosing his algorithm to compute bid-ask spread estimates from daily high and low prices. Parts of this research project have been conducted during my stay at the University of California at Berkeley which was generously supported by a fellowship within the Postdoc-Program of the German Academic Exchange Service (DAAD).

1 Introduction

In a seminal paper, La Porta et al. (1997) show that the markets reactions to earnings announcements of value stocks are consistently more positive than those of growth stocks. They interpret their findings as evidence of investors' expectational errors which in turn lead to positive or negative surprises at the time when (earnings) information is revealed. In line with their methodology, earnings surprises have been analyzed in a variety of different settings to test whether abnormal returns are a likely result of mispricing or not.[1]

Based on this prior work, I examine fluctuations in earnings announcement returns (EAR) over time for different stock styles (e.g. high dividend paying firms vs. non-payers) and relate them to future realizations of style-related return differences. The premise is that if earnings surprises measure investors' general tendency to be over-optimistic or over-pessimistic for certain stock styles, variations in surprises over time will help identifying periods when investors are particularly upbeat or skeptical relative to company fundamentals. Assuming a gradual incorporation of these signals into prices, I hypothesize that earnings surprises positively predict style-related return differences in the future.[2] I call this effect "style-driven earnings momentum".

To explain my methodology, I exemplarily illustrate my results for the book-to-market equity ratio which is used to characterize stocks as value or growth. Figure 1 shows the difference between the average EAR of value and growth stocks at a monthly level during my sample period from 1972 to 2011. EAR are calculated as the cumulative stock return over the three-day window centered around the quarterly earnings announcement date minus the cumulative market return over the same period.

Insert figure 1 here

Consistent with La Porta et al. (1997), I find that on average, value stocks have systematically higher EAR than growth stocks (the average monthly difference equals 0.88%). However, figure 1 also shows a substantial time-series variation in earnings surprise differences. The difference ranges between up to +6% and less than -4% for a given month and the time-series standard deviation is 1.28%. My tests ask

[1] See e.g., Sloan (1996), Piotroski (2000), Griffin and Lemmon (2002), Baker and Wurgler (2006), Cooper et al. (2008), and Campbell et al. (2008). For risk related explanations of earnings announcement premiums see Savor and Wilson (2011) and Barber et al. (2012).

[2] Gradual information diffusion plays an important role in several behavioral models that try to explain medium-term price momentum, particularly in the model of Hong and Stein (1999). In the context of earnings information transfers within industries, empirical papers have provided results that are also consistent with gradual information diffusion, see e.g. Thomas and Zhang (2008), Hou (2007), and Ramnath (2002).

whether these variations predict future value-growth long-short style returns.

Figure 2 provides an answer to this question by sorting the sample months into quintiles based on earnings surprise differences between value and growth stocks and relating them to one-month ahead long-short value minus growth returns. For quintile 1, the average difference in EAR is -0.8% (implying more positive market reactions for growth stocks than value stocks) and the next month return difference between both styles is -0.6%. For the fifth quintile, the average EAR difference is 2.7% and the next month value minus growth return is roughly 2%. The 2.6% difference in returns between quintile 5 and quintile 1 is highly statistically significant (t-statistic: 4.7). EAR differences also predict the Fama/French HML factor; in this case the return difference amounts to 1.8% (t-statistic: 3.8).[3] Since HML is based on value-weighted returns, the evidence suggests stronger predictability for smaller firms.

Insert figure 2 here

In addition to book-to-market, this paper uses 14 further characteristics to classify stocks into different styles (e.g., return on assets, asset growth, or stock issuance). The results show that past earnings surprises are significant predictors of characteristic-based long-short portfolio returns for most characteristics. The effects are virtually unaffected when controlling for risk factors (market excess return, the Fama/French size, value, momentum and short-term reversal factors, and the Pastor and Stambaugh (2003) liquidity factor) and robust in a number of further specifications. Specifically, to test if the predictability of style returns is driven by post earnings drifts at the firm-level I also exclude prior announcers from the characteristic-based long-short portfolios before calculating returns. Essentially, this procedure leads to the same results. A further specification uses industry-adjusted stock returns before calculating the return spreads to check whether the results are driven by information spillovers between stocks within the same industry that have been documented in prior work (see Foster (1981), Han et al. (1989), Freeman and Tse (1992), Asthana and Mishra (2001), and Easton et al. (2010)). Although characteristic values may interfere with industry membership, the regression results show that style-driven earnings momentum is not explained by intra-industry information transfers.

I find that predictability is almost always strongest for the second month of a quarter and nearly absent

[3] Note that the results are inconsistent with a simple risk-based explanation whereby the earnings releases provide information about changes in the riskiness of value and growth firms. Such an argumentation would for instance imply an increase in the discount factor due to the earnings report which should first lead to a decrease in the stock price around the earnings announcement date and then trigger higher subsequent returns. Hence, EAR and future returns should be negatively correlated under such a scenario and not positively as shown in figure 2. Furthermore, unreported results show that the constant of regressing HML on the excess return of the market drops from 0.49% per month (t-value: 3.69) to 0.11% (t-value: 0.69) after including the prior one-month EAR difference. This reinforces the role of earnings surprises in explaining the underlying source of the value-growth effect beyond the actual return differences around the three-day announcement windows.

in the first month when a new earnings season begins. This finding suggests that it is indeed the information content of earnings that matters. A "placebo" test which uses prior returns outside the earnings announcement windows mostly shows no significant relation to future style-based return spreads thereby confirming this conclusion. Like in the introductory example, value-weighting returns reduces the level of predictability for all styles under consideration. Since prior research has shown that small firms react more sluggishly to new information (see Hou and Moskowitz (2005), Hou (2007), and Lo and MacKinlay (1990)), this result is consistent with (and has to be expected under) a gradual information diffusion.

I then switch from the style level to the firm level in order to exploit the idea that one stock belongs to different styles at the same point in time. First, individual stock returns are regressed on a set of explanatory variables including prior style-based earnings surprises. Here, the earnings surprise coefficients of several styles are significant predictors which rules out the possibility that one characteristic alone (like firm size or book-to-market) drives the results. Motivated by this finding, I test a simple trading strategy which assigns a style-based earnings surprise measure ("SESM") to every firm using all earnings surprise signals in combination. An equal-weighted (value-weighted) long-short portfolio based on this measure realizes an abnormal return of 184 bps (119 bps) per month. Adjustments for differences in risk cannot explain the performance of this strategy which is somewhat less but still substantially profitable among the largest firms in the sample (market value above the NYSE median) with a value-weighted return spread of 106 bps per month. Furthermore, the returns of the SESM-trading strategy are largely unrelated to the returns of traditional post earnings announcement drift (PEAD) strategies and - when used in combination - able to approximately double their profitability. I also examine whether certain firm characteristics in addition to size are related to the predictive power of SESM. Interestingly however, neither proxies for limited attention (analyst coverage and institutional ownership) nor for market frictions (bid-ask-spread estimates and the Amihud (2002) illiquidity ratio) have a reliably positive impact on the forecasting abilities of SESM.

There are two plausible explanations for the documented return patterns. First, same-style stocks have correlated fundamentals, but the market fails to fully impound the information revealed at earnings announcement dates into the prices of related firms immediately. Evidence that same-style stocks are fundamentally connected is given by Fama and French (1995) who find that a common factor can explain the earnings of firms sorted on size and book-to-market. However, apart from these two characteristics the literature has not tested for other style-dependent earnings factors to the best of my knowledge. The second possibility, which is more in line with the introductory motivation of this paper, is that investor sentiment leads to a temporal style-level mispricing in the spirit of the Barberis and Shleifer (2003) model.

In this setting, common earnings surprises among stocks with similar characteristics are a consequence of the common mispricing, beyond any fundamental relation in earnings. The mispricing then leads to surprises at the earnings announcement dates and is gradually corrected over time. For instance, one would not expect firms with the same share price level to be fundamentally related (after properly controlling for industry membership or other fundamental factors that may be correlated with nominal share prices). Nonetheless, the results of Greene and Huang (2009) and Baker et al. (2009) suggest that investors may classify stocks purely based on price levels. Such categorizations can give rise to time-varying mispricing associated with share price levels even in the absence of fundamental connections.

My final tests try to shed some light on these two competing explanations. Specifically, I analyze whether differences in standardized unexpected earnings (SUE) between high- and low-characteristic stocks are indeed correlated over time. Further, if fundamental connections in earnings play a role in explaining the return patterns, future returns should also be predicted by SUE differences. The results show that SUE differences tend to be highly autocorrelated (even after controlling for industry membership), and that they can also predict a number of future characteristic-based factor returns (even though they are typically less successful than EAR differences). The evidence thus suggests that underreaction to common fundamental information can indeed explain the predictability patterns to some extent.

While this paper is related to several arms of the literature, its key contribution is to document the informational content that earnings surprises have for other firms sharing the same style characteristic.[4] Some studies show evidence of price momentum or long-term reversal among style portfolios (see Lewellen (2002), Chen and De Bondt (2004), and Teo and Woo (2004)), but they consider longer formation and forecasting periods (as it is common in this literature), do not concentrate on the information coming from earnings releases, and generally focus only on styles based on book-to-market and size. On the other hand, short-term information spillovers like in my study have yet been primarily investigated in the context of industry affiliations (see e.g., Ramnath (2002), Easton et al. (2010), Hou (2007), Cohen and Frazzini (2008), Menzly and Ozbas (2010), and Cohen and Lou (2012)). My paper suggests that these information transfers occur at a broader scope. Finally, two other recent papers simultaneously investigate a large set of characteristic-based style returns. Stambaugh et al. (2012) show that the short legs of 11 return anomalies are larger in periods of high investor sentiment. Greenwood and Hanson (2010) find that characteristics of stock issuers (where issuance is measured over the most recent year) are useful to forecast characteristic-based factor returns. In selecting and computing the firm characteristics for this

[4]In a broad sense, this paper is also part of the vast research on the post earnings announcement drift (PEAD). However, unlike most studies on the PEAD (with the market-level study of Kothari et al. (2006) as exception), this paper does not focus on underreaction to firm-specific information but is primarily concerned with information from other firms.

study, I closely follow these two papers.

2 Data and methodology

Sample data are obtained from three major sources: (1) firms quarterly earnings announcement dates are from quarterly Compustat files (item *rdq*), (2) stock return data are from CRSP, and (3) financial statement variables like book value of equity are from annual Compustat files. In addition, data on analyst coverage from I/B/E/S (item *numest*) and on institutional investor holdings from Thomson Reuters 13F filings are used. Consistent with prior research, I focus on common shares (share codes 10 or 11) traded on NYSE, AMEX or NASDAQ (exchange codes 1, 2, or 3). The sample period spans 39 years from 1972 to 2011.[5] To be included in the sample, I require companies to have a positive book value of equity in the fiscal year ending in calendar year $t-1$ and to have a CRSP market value of equity at the end of June of year t. This results in a total of 179,933 firm-year observations.

To test the relation between current earnings surprises and future returns at the style level, I start with cross-sectionally sorting all stocks into quintiles based on NYSE breakpoints for each characteristic. I examine a total of 15 different characteristics that appear to be either important for investor categorization or have been used in prior work to explain the cross-section of stock returns. These are firm size, firm age, market beta, residual volatility, accruals, sales growth, profitability (return on assets), book-to-market, dividend yield, stock issuance, asset growth, investments over assets, nominal share price, price momentum, and the financial distress measure of Campbell et al. (2008).[6] Measurement details for each characteristic and an overview of the cross-sectional distribution of all characteristics by firm-year observations can be found in the online appendix to this paper. I apply the convention of Fama and French (1993) and characterize stocks at the end of June in every year and keep this assignment constant for one year. For characteristics that are based on annual financial statement information, I use data from the latest fiscal year ending in the previous calendar year. As exception from annual updating, for price momentum (the stock's last year return excluding the most recent month) and the financial distress

[5]Earnings announcement dates not are recorded before the third quarter of 1971. In 1972, CRSP coverage was expanded to include NASDAQ firms. Since I sometimes need a history of past prices (e.g. for price momentum) or accounting variables from the previous fiscal year to construct the characteristics, NASDAQ firms are sometimes excluded from the analysis in the first two years.

[6]For the dividend yield and stock issuance variable I slightly modify the sorting since there are many firms with a zero-value on these characteristics. For the dividend yield the first portfolio contains all non-paying firms, and the remaining dividend payers are sorted into quartiles. For the stock issuance variable, contracting firms are sorted into the first portfolio, all zero-value firms into the second portfolio, and the remaining firms are then sorted into tertiles. I have also experienced with the Daniel and Titman (2006) composite equity issuance measure as alternative to the stock issuance variable and the Shumway (2001) distress measure as alternative to the measure of Campbell et al. (2008). Results for these alternative variables are very similar and available upon request.

measure of Campbell et al. (2008) I follow the convention in the literature and use a monthly rebalancing interval. I verify that none of the construction details are sensitive to my results.[7]

As a measure for the market reaction to unexpected information contained in the companies' earnings releases, I use the abnormal earnings announcement return (EAR), which is calculated as the cumulative stock return over the three-day window centered around the announcement date minus the cumulative CRSP value-weighted market return over the same period:

$$EAR_{i,t} = \prod_{j=t-1}^{j=t+1} (1 + ret_{i,j}) - \prod_{j=t-1}^{j=t+1} (1 + mkt_j). \tag{1}$$

The cumulative market return is subtracted in order to control for general market movements unrelated to the earnings release. For each month and every characteristic X, I then calculate the average EAR difference between the top and the bottom quintile using all firms having an earnings announcement in that particular month:

$$EAR_{X,t} = Mean(EAR_{top20X,t}) - Mean(EAR_{bottom20X,t}). \tag{2}$$

Style-driven earnings momentum effects are tested with time-series regressions of long-short characteristic portfolio returns on prior one-month differences in earnings surprises:[8]

$$Ret_{X,t} = \alpha + \beta \cdot EAR_{X,t-1} + \sum_k \beta_k \cdot k_t + \varepsilon, \tag{3}$$

where k_t stands for contemporaneous realizations of several risk factors for which I control in different multivariate regression settings. These include the market excess return, the Fama/French size, value, momentum and short-term reversal factors, and the Pastor and Stambaugh (2003) liquidity factor. $Ret_{X,t}$ is the return spread associated with a given characteristic X, and I compute equal-weighted and value-weighted long-short portfolio returns. The equal-weighted return spread is simply given as the average

[7] First, I redefine stock styles using the 30th and 70th percentile as breakpoints for the top and bottom characteristic portfolio (as opposed to the 20th and 80th percentile). Second, I use breakpoints on the basis of the complete firm universe, instead of NYSE breakpoints. Third, I also update characteristic-values for market variables (such as firm size) at a monthly frequency. Results are available upon request.

[8] EAR of firms announcing at the last trading day of the month are excluded to avoid a mechanical relation between average month $t-1$ EAR and month t portfolio returns. In unreported robustness tests, I have also delayed all stock returns by one respectively five trading days when calculating monthly characteristic-based style returns and in addition considered weekly and quarterly measurement and forecasting periods. Skipping the first trading day (or the first trading week) impacts the findings only modestly. While style-based earnings momentum is stronger at the weekly horizon, there is still considerable evidence that style-based return spreads can be predicted also at the quarterly level. Results are available upon request.

return of quintile 5 firms minus the average return of quintile 1 firms in a given month. The computation of the value-weighted portfolio returns follows a slightly different procedure by adopting the methodology of Fama and French (1993) for the construction of the HML factor. Specifically, for each characteristic firms are independently sorted into 3 groups based on the 30th and the 70th NYSE characteristic percentile and into 2 size buckets based on the NYSE median firm market capitalization. The value-weighted characteristic X return spread is then the average of the value-weighted return difference for small stocks and for large stocks:

$$Ret_{X,t} = 1/2 \cdot (Ret_{highX,small,t} - Ret_{lowX,small,t}) + 1/2 \cdot (Ret_{highX,big,t} - Ret_{lowX,big,t}). \tag{4}$$

One advantage of the Fama and French (1993) procedure is to provide a convenient way for examining any spillovers separately for small and large firms by splitting up the factors into their 2 components.

Given the known PEAD at the individual stock level, one might expect a positive relation between earnings surprises and future style-related return differences even in the absence of information spillovers for same-style stocks. To clarify, suppose that a lot of stocks in the highest (lowest) quintile of characteristic X had a positive (negative) earnings surprise. As a result, the EAR spread for characteristic X will be high in that month. Since we know that stock returns drift after earnings announcements, it might simply be the announcing firms that are responsible for a positive next month characteristic-based return spread. Hence, EAR spreads might forecast future return spreads even though they do not contain any information about other same-style stocks that had no announcement in the last month. To address this concern, I construct portfolio returns ($Ret_{X,t}$) in three different ways using a) all stocks in the long-short portfolios, b) including only stocks with an announcement in the previous month, and c) excluding all stocks with an announcement in the previous month.

Table 1 shows average returns and earnings surprises for each of the 15 characteristic-based strategies. In addition, Fama and French (1993) three-factor alphas and monthly standard deviations are reported. For the summary statistics, the long and short portfolios are set to be consistent with prior literature and also to ease the interpretation. For instance, the style return difference reported for firm size is the return of small stocks minus the return of large stocks (which explains the positive sign of the reported spread). The direction of the sorting can be inferred from the column "long-short PF".

Insert table 1 here

In line with prior research, table 1 shows statistically significant characteristic-based return spreads for firm size, asset growth, accruals, sales growth, book-to-market, investments over assets, stock issuance, price momentum, and financial distress over the sample period. Two aspects are worth being highlighted here. First, style returns and EAR spreads mostly go in the same direction[9] and the values in table 1 suggest that a substantial portion of the return spreads occurs at earnings announcement dates. For instance, the equal-weighted asset growth return spread is 0.88% per month, which corresponds to a daily return spread of 0.04% given an average of 21 trading days per month. In contrast, the average daily return spread during the earnings announcement period is almost five times as large (0.57%/3=0.19%). This suggests that earnings announcements play an important role in explaining many return anomalies. Second, characteristic-based style returns tend to shrink substantially towards zero if value-weights are used for the return calculation. Among large firms (stocks above the NYSE median firm market capitalization), only four characteristics (asset growth, accruals, net stock issuance, and price momentum) are still associated with significantly positive return spreads (see also Fama and French (2008) for similar results). Hence, return anomalies are to a substantial extent restricted to small firms. Inspection of Fama and French (1993) three-factor alphas for equal-weighted and value-weighted return spreads in the last two columns of table 1 mostly confirms this conclusion.

For descriptive purposes (to which I refer in later parts of this paper), table 1 also summarizes the returns and three-factor alphas of two post earnings announcement drift (PEAD) strategies. Specifically, I report the equal-weighted and value-weighted performance of a strategy based on the firms' most recent earnings announcement return ("PEAD-EAR") and the most recent quarterly standardized unexpected earnings ("PEAD-SUE"). Following Chordia and Shivakumar (2006), SUE are calculated as current-quarter earnings less earnings four quarters ago, divided by the standard deviation of the earnings changes in the prior eight quarters. As can be seen, both PEAD-strategies deliver substantial positive returns which are however again lower using a value-weighting portfolio approach. Specifically, the equal-weighted (value-weighted) return of the EAR-based strategy is 139 bps (69 bps) per month, and for the SUE-based strategy the corresponding numbers are 96 bps (45 bps) per month.[10]

[9] The exception is the failure measure of Campbell et al. (2008) for which I do not find a large difference in earnings announcement returns between firms in the highest and lowest quintile. However, this finding is consistent with their results.

[10] For further evidence on the relation between these two PEAD-strategies see Brandt et al. (2008).

3 Predictability of style returns

3.1 Baseline Results: equal-weighted style returns

To begin with testing the style-driven earnings momentum hypothesis, table 2 documents the results of the baseline analysis (see equation 3). The table shows beta coefficients and t-statistics associated with the EAR spreads (the independent variables). Panel A reports univariate regression results and panel B the results of multivariate regressions where the excess market return, HML, and SMB are added as control variables. As outlined in section 2, characteristic-based long-short portfolio returns (the dependent variables) are constructed in three different ways. The first two columns pertain to using all stocks ("All"), the third and fourth column to including only stocks with an announcement in the previous month ("Announcers"), and the last two columns to including only stocks without an announcement in the most recent month ("Non-Announcers"). At this stage all portfolio components are equal-weighted.

Insert Table 2 here

The univariate results support the style-driven earnings momentum hypothesis in many cases and often with a high degree of statistical significance. In fact, considering columns one and two (the "All" portfolio return calculation scheme), eleven out of 15 coefficients are significant at the 1% level. The strongest impact on the characteristic-based return spread can be observed for residual volatility: A one percent increase in the prior one-month EAR spread is associated with a 1.12% increase in the long-short portfolio return. Other regression coefficients are below one, but still appear to be large. For size and book-to-market, the two probably most self-evident characteristics, the coefficients amount to 0.58 and 0.65. Both values are close to the average coefficient size (0.47). When return spreads are calculated using only announcers or only non-announcers very similar coefficients and levels of statistical significance are obtained. The results suggest that past EAR spreads forecast future characteristic-based returns for both announcers and non-announcers. Hence, style-driven earnings momentum does not simply emerge as a consequence of the post earnings announcement drift at the individual stock level.

The coefficients are also of economically important magnitude. To better see this, consider the standard deviations of the EAR spreads reported in table 1. For instance, the standard deviation of the residual volatility EAR spread is 1.50%. Hence, a one standard deviation increase in this spread is associated with a 1.68% higher return of high volatility stocks compared to low volatility stocks. The increase is more than seven times larger than the unconditional mean return difference of 0.23% per month between high and low volatility stocks. Likewise, a one standard deviation increase in the book-to-market-based EAR spread predicts an increase in the value premium of 0.84% per month, which is close to the unconditional value premium of 0.95%. For other characteristics I obtain comparable results. Interestingly, even characteristic-based strategies that have unconditional excess returns which are close to zero (like CAPM beta or dividend policy), seem to promise large returns once one controls for past earnings surprises of same-style stocks.

In comparison to panel A, most regression coefficients have a similar level of statistical and economic significance in panel B, indicating that conventional adjustments for systematic risk make little difference. Exceptions are beta and book-to-market which is not surprising since these characteristics are tightly linked to the added controls by construction. For example, HML has a correlation of 0.80 with the equal-weighted book-to-market return spread, which implies that HML is by far the most important predictor of the long-short portfolio return in the multivariate regression. (The prior one-month EAR spread is still significant in predicting the value spread at the 5% level, though.) For the size-based EAR spread the reduction in the coefficient is less substantial when SMB is added (for instance, in column one the coefficient is now 0.42 compared to 0.58 in panel A). This result is partly explained by the differences in construction of the size factor used as dependent variable in table 2 and the size factor of Fama and French. While I use only the top 20% and bottom 20% of the stock universe, they consider each stock as either large or small by taking the median market capitalization of NYSE stocks as breakpoint. In contrast, when constructing the value factor, Fama and French use the 30th and the 70th percentile as breakpoints, which is closer to my definition.

While table 2 displays only the results for a three-factor model, I have also tested a four-, five-, and six-factor risk model including momentum, short-term reversal, and the Pastor and Stambaugh (2003) liquidity factor as controls. The results for these models are very similar to the ones shown in panel B and can be found in the online appendix.

3.2 Predictability of industry-adjusted style returns

In this section, I examine the robustness of the earnings surprise effect after controlling for industry membership. To the extent that characteristics are clustered at the industry level, the above presented results could pick up the known effect of within-industry information transfers. To investigate this question, stock returns are adjusted by industry before calculating the return spreads. Industry-adjustment means that the average industry return is subtracted from the stock return, with the aim to control for general industry movements. In order to sort firms into industries, I follow the common practice of using the 48 industry classification system of Fama and French (1997). In addition, I require an industry to contain at least five firms which marginally reduces my stock sample in this setting. Table 3 shows the regression results for industry-adjusted return spreads.

Insert Table 3 here

The evidence presented in table 3 suggests that industry-information transfers cannot explain the predictive abilities of earnings surprises at the style level. The univariate regression results in panel A display a similar level of statistical significance for most characteristics; the same applies to the multivariate results in panel B. Compared to table 2, the coefficients are somewhat smaller which seems to indicate that at least some part of the style-level effect is explained by industry membership. However, since industry membership explains a substantial part of the return of individual stocks, subtracting industry returns from stock returns decreases the total variation in returns; hence, there is less variation left that past earnings surprises could forecast. Controlling for this effect by standardizing the dependent and independent variables, I obtain nearly identical standardized regression coefficients in the specification with and without adjustment for industry returns. (Standardization is not reported, but the fact that the t-statistics are very similar in tables 2 and 3 points in the same direction.)

To see if the results are sensitive to the exact procedure of industry-adjustment, I also calculate and control for value-weighted industry returns and use different industry definitions. Particularly, I classify stocks according to their first digit, first two digits, and first three digits SIC-code. This approach allows me to check whether changes in how narrow an industry definition is defined affect the conclusions. In addition, the text-based analysis of product descriptions from firm 10-K statements (see Hoberg and Phillips (2010a) and Hoberg and Phillips (2010b)) is used to generate a new set of industries which do not rely on SIC-codes. The results of these robustness tests are reported in the online appendix and confirm that style-driven earnings momentum is distinct from previously documented within-industry information transfers.

3.3 Predictability of style returns by quarter month

Several papers document a strong seasonality in earnings announcements whereby the majority of firms report their earnings in the first two months of a calendar quarter such as January or February (see e.g., Hirshleifer et al. (2009)). This result emerges from the fact that most firms have their fiscal year closing at the end of a calendar quarter (i.e. in December, March, June or September) and from the typical SEC requirement to file earnings reports within 45 days for fiscal quarters one, two, and three, and within 90 days for fiscal quarter four.[11]

The pattern of distinct earnings seasons provides an interesting additional test for the style-driven earnings momentum hypothesis: Announcements made in the first month of a calendar quarter should be most informative to investors as they are the first to provide earnings data about the most recent quarter. Moreover, the numbers of early announcers usually refer to the same time period as the releases made by firms in the second or third month of a quarter. In contrast, announcements in the third month of a quarter should have the lowest informational value. First, they typically refer to an "old" earnings period (in the sense that the market received information about this period already from earlier announcers) and second, next-month announcements (in the first month of the *next* quarter) tend to be on a different earnings period. Hence, if it is indeed the information content of earnings which matters for the predictability of style returns, the strongest effect for style returns should be observed in the second month of a quarter (using first month earnings releases as predictors) and the weakest effect in the first month. This is true no matter whether earnings surprises simply indicate temporal style-level mispricing beyond any fundamental connection or (either alternatively or in addition) provide information about future earnings of same-style stocks. To test this conjecture, I repeat the baseline analysis separately for the first, second, and third month of a given quarter. Results are reported in table 4. For example, columns 1 and 2 ("Quarter start") show the coefficients and t-statistics when regressing January, April, July, and October long-short style returns on prior one-month earnings surprise differences. To save space, the characteristic-based return spreads are calculated only for the "All" firms sample. (Like in the previous analyses the regression coefficients are very similar when I split the sample for the return calculation between prior one-month announcers and non-announcers.)

Insert Table 4 here

Table 4 strongly supports the idea that seasonality in earnings announcements leads to time-series variation in the level of predictability. In panel A which shows the univariate regression results, the coefficients for quarter mid observations are all significant at 5% or higher (t-statistics range from 2.2 to 4.1). Past earnings surprises are in general also successful in forecasting style-based return spreads in the last month of a quarter, although the point estimates and levels of statistical significance are somewhat lower. In sharp contrast, for the first months of a quarter, only a minority of five coefficients is significant at 5% or 10%, and none at 1%. Overall, the same tendency is apparent in panel B which displays the three-factor

[11]While these disclosure rules apply to most firm observations in the sample period, the SEC started to reduce the 45 and 90 day requirement to 35 and 60 days in 2002 for firms with a market value of common equity above 75 million US$ and being reporting to the SEC for at least twelve months.

regression results.

The results of table 4 suggest that the ability to predict future style-returns indeed stems from an underreaction to the information imbedded in earnings releases. To provide an additional test for this conclusion, I run a "placebo" predictability test where I try to forecast future style-returns with artificially constructed EAR spreads. These artificial EAR spreads are calculated using randomly selected three-day period returns in excess of the market return from the previous month that are outside the earnings announcement windows. To the extent that it is the information from earnings announcements which matters, the placebo regressions should provide no (or at least substantially less) evidence of predictability. The results of the exercise which are shown in table 5 of the online appendix confirm this prediction. For the "All" firms sample I find four artificial EAR spreads that are significant positive predictors at 5% or 10% (out of a total of 15 univariate and 15 three-factor regression coefficients). No coefficient is significant at 1%. In contrast, the results from the baseline analysis in table 2 show that 23 out of the 30 regression coefficients are statistically significantly positive. Again, differentiating between announcing and non-announcing firms does not lead to different conclusions.

3.4 Predictability of style returns by firm size

Prior research finds that the traditional PEAD is is less pronounced for large firms (see e.g., Bernard and Thomas (1989) and Peress (2008)). This evidence is confirmed by the summary statistics in table 1 which in addition show that characteristic-based trading strategies also tend to produce lower return spreads among large firms. Hence, it seems obvious that the above documented predictability of style returns should be decreasing in firm size as well. To investigate this issue, I test whether EAR spreads (which are constructed in the same manner as before) also forecast value-weighted style-returns. As outlined in section 2, for the calculation of the value-weighted long-short returns, I apply the same methodology that Fama and French (1993) use for construction of the HML factor (except for firm size for which the value-weighted return is simply the SMB factor). This allows me to investigate the predictability of value-weighted return spreads separately for small firms and large firms based on the NYSE median firm market capitalization (again except for firm size for which this is not possible). The findings - restricted to the the "All" firms sample to conserve space - are displayed in 5.

Insert Table 5 here

The first two columns in table 5 refer to the results for forecasting the baseline value-weighted return spread as average of the spread for the small and the large firm sample. Inspection of these columns reveals clear evidence that earnings surprises are less successful predictors for value-weighted returns. This is particularly true for the three-factor regression results. For instance, nine coefficients remain statistically significant positive at the 10%-level or higher in the univariate models, but only five are so in the multivariate regressions. In line with expectations, I also find more evidence in favor of predictability when I try to forecast the value-weighted spread of small stocks. In fact, for the big stock sample, there is only one statistically significant positive coefficient in the multivariate results (which is for book-to-market). In contrast, eight coefficients are still statistically positive for small firms in the three-factor models. Since returns are value-weighted for small firms also, these findings imply that style-based earnings momentum is not only a micro-cap effect. Nonetheless, the value-weighted findings question the exploitability of the effect by investors to some extent.[12] The remaining parts of the paper will investigate this issue in greater detail.

4 Switching to the stock level: Predictability using style-based earnings surprises

4.1 Time-series panel regressions

In this section, I move from the style- to the stock level perspective. A stock belongs to different styles at the same time. Hence, one might be interested whether combining the information from all style-based earnings surprises improves the predictability of future stock returns beyond what has been documented before at the style-level. On the other hand, many characteristic-based trading strategies also tend to be correlated: The average correlation between the EAR spreads (the predictor variables) is 0.16 and the highest absolute correlation is 0.76.[13] Since a high absolute correlation between two signals reduces the additional informational value when using both signals in combination, it is a priori unclear how strong the gain in predictability for stock returns would be.

To start the analysis, I run pooled panel regressions of individual stock returns on style-based earnings surprises, the main variables of interest, as well as a number of controls. Style-based earnings surprises

[12] As an alternative way to control for firm size, I follow Fama and French (2008) and sort stocks into a tiny, small, and large group based on the 20th and 50th percentile of end-of-June market capitalization for NYSE stocks. For each size bucket, I then calculate equal-weighted characteristic-based long-short returns and regress them on past earnings surprises. This robustness test which is also reported in the online appendix confirms the above documented results: There is substantial evidence of predictability for the tiny- and small-cap firm sample, but - analogous to table 5 - weaker evidence if big stocks are investigated.

[13] Correlations are reported in table 2 of the internet appendix.

are calculated as the average prior one-month EAR of same-style stocks, i.e. stocks that are in the same characteristic-quintile. For example, style-based EAR for small (large) stocks are the average earnings surprise of all stocks being in the lowest (highest) size quintile. I note that this approach is conceptionally different from the previous long-short procedure used in the time-series regressions since earnings surprises are now also calculated for quintiles two to four and used as predictors. Doing so allows me to classify stocks with medium-level characteristic values into a style group as well (such as "mid-cap" stocks), and - on technical grounds - avoids losing these observations in the regressions.

Control variables include firm size, book-to-market, prior one-month and prior one year returns (prior one year returns exclude the most recent month). Furthermore, to capture the stock-specific post earnings drift, I add the most recent earnings announcement returns (EAR) and standardized unexpected quarterly earnings (SUE) for each stock. For SUE, some observations have extremely large positive or negative values. To limit the impact of these outliers on the regression results, I winsorize SUE at the 99,9%-level. That is, out of 1000 observations, the highest and lowest value are replaced with the second-highest and second-lowest value. I also include industry-wide earnings surprises as predictors to capture any intra-industry information transfers. These are calculated as the average EAR of same-industry stocks (again based on the 48 industries from Fama and French (1997)) that have announced in the most recent month. (Going back further than one month does not alter the results in a meaningful way.) The regression results are displayed in table 6. As suggested by Petersen (2009) all specifications include month dummies and standard errors are clustered by month to control for unobserved time effects.

Insert Table 6 here

For comparison, panel A of Table 6 displays a baseline specification that does not include style-based EAR spreads. The results are consistent with book-to-market, momentum, and short-term reversal effects in the sample. The post earnings announcement drift at the individual stock level is also confirmed (for both EAR and SUE), as well as the fact that recent industry-wide earnings surprises positively impact on stock returns.

Panel B reports the regression coefficients and t-statistics for the style-based earnings surprises. In this panel, style-based earnings surprises are selectively added as explanatory variables. All specifications include the same list of controls as shown in panel A but since the regressions coefficients are very similar in size and statistical significance they are suppressed for brevity. Panel B documents statistically significant effects for all styles with the exception of beta and momentum. For eleven out of 15 styles, the coefficients are significant at the 1% level. Moreover, in terms of economic and statistical significance, the effects compare quite well with the time-series findings documented in the baseline analysis in table 2 which is to some extent remarkable, given the differences in the regression design. Next, I investigate whether controlling for past style returns subsumes the positive relation between stock returns and past style-based earnings surprises. The underlying motivation is similar to the one for running the "placebo" predictability test before: To what extent is it important to focus specifically on the market reaction around earnings announcements? Past style returns are calculated as the average return over all stocks pertaining to a particular quintile minus the market return in that month. Hence, the calculation is the same as for earnings surprises with the exception of using a longer time period. Panel C shows the regression results for both past style-based earnings surprises and past style returns. The regressions are again conducted separately for each style and include the same list of controls as before. I find that past style returns are associated with statistically significant regression coefficients in three cases. In general however, style-based EAR remain significant predictors of future stock returns: Only the style-based earnings surprise coefficient for investment over assets is no longer significant. While the point estimates shown in panel C are somewhat reduced compared to panel B, the findings jointly document the benefits of focussing on earnings surprises as opposed to simple past returns.

What happens if all style-related EAR are collectively included in one regression? The answer is given in panel D of table 6. Interestingly, ten out of the 15 coefficients are still statistically significant, and the remaining coefficients are positive. Hence, the evidence does not support the idea that style-driven earnings momentum can be traced back to only one or two characteristics.

4.2 Trading strategy results for a style-based earnings surprise measure

Since the panel regressions suggest that there are multiple sources of predictability, I move on to test whether one could use the earnings information of all styles in combination to make predictions about cross-sectional differences in future stock returns for the complete firm universe. To operationalize this, I construct a **S**tyle-based **E**arnings **S**urprise **M**easure ("SESM") for each stock as an equal-weighted average of the style-based EAR over all 15 styles. SESM is arguably the simplest possible measure in this context, since it is not optimized by over- or underweighting certain styles for which earnings surprises have proven to be more or less successful return predictors. It has a mean value of 0.33% and a cross-sectional standard deviation of 0.78%. The complete distribution which is relatively normal is shown in the online appendix.

4.2.1 Portfolio tests

To investigate the potential profitability of a trading strategy based on SESM, I form equal- and value-weighted long-short portfolios as before. Specifically, the equal-weighted portfolios are long in the 20% of stocks with the highest SESM and short in the 20% with the lowest SESM. Value-weighted returns are constructed as the average of a value-weighted long-short portfolio for small stocks (below the median NYSE market value) and large stocks. Raw return differences as well as intercepts from multi-factor regressions are reported in table 7.

Insert Table 7 here

As can be seen, the equal-weighted return from the long-short portfolio is 184 bps per month (t-value: 7.5), or over 22% per year. The value-weighted return difference is 119 bps (t-value: 5.8), which roughly corresponds to 14% per year. While value-weighting reduces the return spread, there are only minor differences between the long-short portfolio for small and large firms: In the small firm sample the spread is 132 bps (t-value: 6.7), and for large firms it is 106 bps (t-value: 4.4). This suggests that in contrast to the style-level findings (see subsection 3.4), style-based earnings surprises are still very useful at the individual stock level when conditioning on larger firms. In fact, the value-weighted monthly return difference is considerably larger than that of the traditional PEAD with 69 bps for an EAR-strategy and 45 bps for an SUE-strategy (see table 1).

The intercepts of multifactor models which control for other return factors are not very different from the raw return spreads. The CAPM one-factor alpha is 1.91% per month (equal-weighted returns) and 1.24% per month (value-weighted returns), respectively. A six-factor model which includes the market excess return, the Fama/French size, value, momentum and short-term reversal factors, and the Pastor and Stambaugh (2003) liquidity factor in the regressions delivers a monthly alpha of 2.17% for the equal-weighted portfolio, and 1.55% for the value-weighted portfolio. The six factor alphas are larger than the one-, three- or four-factor alphas because the short-term reversal factor is substantially negatively related to the SESM returns. The next two columns examine to what extent the profits of the SESM-strategy are related to the PEAD-strategy (either based on EAR or SUE). In both models, the alphas are fairly comparable to the six-factor estimates, further confirming that style-based earnings momentum is relatively unrelated to the traditional PEAD.

Finally, in the last column of table 7 the value-weighted long-short returns of all 15 characteristic-based strategies are added as controls. (This increases the number of independent variables by twelve, since the value, size, and momentum factor are already included.) One might argue that part of the profitability of the SESM-strategy emerges from a general tendency to load on characteristic-based strategies that have been successful over the past. For instance, since low asset growth firms tend to have more positive EAR, these firms should in general have a higher probability of entering the long SESM-portfolio. As can be seen, the results of the enlarged regression model do not provide strong support for this line of reasoning. Neither the alphas nor their levels of statistical significance are materially affected.[14] Overall, the profitability of the SESM-strategy seems to be rather explained by exploiting time-series variations in characteristic-based return spreads.

4.2.2 Fama/MacBeth regressions

The fact that earnings surprises of same-style stocks are less informative for the returns of large stocks is consistent with a limited attention explanation as well as an explanation based on market frictions. To examine this issue in more detail, I run a set of Fama/MacBeth regressions, which allow me to analyze the influence of certain firm characteristics on the profitability of SESM. In particular, I use analyst coverage and institutional investor ownership as proxies for investor attention, and the monthly bid-ask-spread estimator of Corwin and Schultz (2011) and the Amihud (2002) illiquidity ratio as measures for market frictions. Corwin and Schultz (2011) show that their estimator works well compared to other estimators, especially for small stocks. In addition, it can be easily applied to the whole sample period. Since all four measures are also strongly correlated with firm size, I orthogonalize them with respect to the natural log of market capitalization and dummies for NYSE market value deciles.[15] Results can be found in table 8.

Insert Table 8 here

The first column shows the raw impact of SESM on future stock returns, controlling for the same set of additional predictors as in table 6. The impact of SESM is statistically strong (t-statistic: 8.15). In economic terms the estimated coefficient indicates that a one standard deviation increase in SESM increases the future stock return by 1.5% (1.89 times 0.78%). Hence, the Fama/MacBeth results confirm the portfolio tests. The second column adds an interaction term between firm size and SESM. To ease interpretation, size is measured as an indicator variable being 0 (1) for firms below (above) the NYSE

[14]An examination of the variance inflation factors suggests that the enlarged regression model suffers from multicollinearity problems. This is however not a serious concern here, since my focus is on the constant of the model, and not on the slopes of the independent variables.

[15]The methodology follows Hong et al. (2000) by running monthly cross-sectional regressions and storing the residuals for each month. Dummies for NYSE market value deciles are included in the regressions to control for non-linear relations between firm size and the four measures. Using the residuals from a regression without these dummy variables leads to qualitatively similar findings.

median market value. The statistically significant interaction term is -0.4, which suggests a rather modest decline of the forecasting abilities for the largest firms. Going further, I separately add interaction terms between SESM and analyst coverage (column 3), institutional ownership (column 4), the estimated bid-ask-spread (column 5), and the illiquidity ratio (column 6). These interaction terms are insignificant in all columns, providing no further evidence that limited attention or market frictions play a role in explaining the return predictability. If all interaction terms are added simultaneously in the regression (column 7), the coefficient for residual institutional ownership is now marginally significant with a t-value of 1.66 and the expected negative sign. Nonetheless, to summarize, there is little evidence beyond the influence of firm size that a limited attention or market based frictions story can explain the results of the SESM-strategy.

Lastly, the monthly coefficient estimates of the Fama/MacBeth regressions are also informative about the time-series evolution of the profitability of the SESM-strategy. To see this, I plot rolling three-year beta averages from the first regression model in figure 3. The figure suggests that the strategy was particularly successful during the mid-80's and the early 2000's. However, a clear trend (and specifically one that would point towards decreasing returns over time) is not evident.

Insert figure 3 here

4.3 Relation to the traditional post earnings announcement drift

The previous sections of this paper suggest that the profits to an SESM-based strategy are unrelated to the profits of a traditional PEAD-strategy. If so, trading profits could potentially be increased by combining both strategies. To examine this question, I first create five equal-sized stock portfolios either based on their most recent EAR or their most recent SUE. Within each of these quintiles, I create five further bins using the stocks' SESM. Three-factor alphas for the resulting portfolios are reported in table 9. I consider a monthly rebalancing and a six-month rebalancing strategy. The returns from the six-month rebalancing strategy are based on overlapping portfolios as in Jegadeesh and Titman (1993).

Insert Table 9 here

Panel A and B give the performance of portfolios based on an "EAR-SESM"-strategy. Inspection shows an increase in the three-factor alphas along both dimensions for the monthly as well as the six-month rebalancing frequency. Under monthly rebalancing, the (low EAR/low SESM)-portfolio has a monthly alpha of -1.37%, whereas the abnormal performance of the (high EAR/high SESM)-portfolio amounts to

1.34%. The alpha of the corresponding long-short portfolio is 2.71% per month (equalling 33% per year) with a t-value of 9.3, which roughly doubles the alpha of 1.39% that is obtained when using earnings announcement returns in isolation (see table 1). The monthly alpha of the long-short portfolio under a six-month rebalancing regime is lower at 1.22% (t-value: 6.1), which leads to the conclusion that profits are to a substantial extent realized in the short-term. Comparing the numbers however, it is also obvious that the abnormal performance is not restricted to the first month after the portfolio formation: The total six-month alpha of the longer holding period strategy (obtained by multiplying by six) is 7.32%, which is approximately 2.7 times the alpha for the one month holding period. Further inspection of the final rows and final columns in panel A and B, which report the return differences holding either the EAR or the SESM stock portfolio constant, shows that both measures contribute to the continued abnormal performance after the first month.

In panel C and D, I report the abnormal performance for an "SUE-SESM"-strategy. Overall, the results are comparable to those shown in panel A and B. Interestingly, since a portfolio sorting based on SUE leads to quite different stock portfolios than a sorting based on EAR (see Brandt et al. (2008)), the results in table 9 suggest that all three measures can be combined to achieve a further increase in profitability.[16]

5 Are same-style stocks fundamentally related?

What accounts for the documented predictability of style- and stock returns? In principle, there are two plausible answers. First, same-style stocks are fundamentally related, for instance, because macroeconomic events have a similar impact on earnings. For some reasons however, the market does not fully understand the fundamental relation or is unable to fully impound it into prices immediately. Second, investor sentiment may cause a temporal deviation from fundamental values among stocks that share a common "in" or "out" characteristic (Barberis and Shleifer (2003)). Here, large earnings surprises among same-style stocks result from correlations in prices which are not justified by firm fundamentals and signal an already existing misvaluation which is corrected in the following.

The final tests in this paper focus on the validity of the first explanation. Specifically, I examine whether same-style stocks have correlated earnings (that are not explained by industry membership) and whether style-based earnings surprises which are defined on the basis of real earnings numbers (as opposed to earnings announcement returns) can also be used as a predictor of future style - and stock returns. To do so, I calculate the mean standardized unexpected earnings (SUE) of all announcers for each characteristic

[16]For direct evidence on this issue, see table 9 in the online appendix.

quintile and every month (the procedure is the same as before for earnings announcement returns). Then I measure the difference in the average SUE between firms in the highest and lowest characteristic quintile and investigate the autocorrelation of this difference as well as its ability to predict future long-short style returns. Results are displayed in table 10.

Insert table 10 here

Panel A shows the autocorrelation results. As can be seen, current characteristic-based differences in SUE are significantly correlated with their prior one-month outcome for all characteristics. The same holds true if SUE are industry-adjusted using the 48 industries from Fama and French (1997) before calculating the averages for each characteristic quintile (see columns 3 and 4 in panel A). These results suggest that same-style stocks are fundamentally related, that these fundamental relations are not explained by industry affiliation, and also that "unexpected" earnings are somewhat predictable. Going further, the univariate and multivariate regression results in panel B provide some evidence that past SUE differences can also predict style return spreads (particulary for book-to-market and net stock issuance). However, compared to the baseline findings in table 2 the predictability is clearly weaker. Lastly, I re-run the Fama/MacBeth regression reported in the first column of table 8 but additionally include a second style-based earnings surprise measure as independent variable which is constructed on the basis of SUE. The results reported in the last column table 8 show that although this second measure is also a strong predictor of future stock returns with a t-value of 4.8, it only slightly subsumes the forecasting power of the first earnings surprise measure (SESM): The estimated coefficient decreases by approximately 20% (from 1.89 to 1.54), and the t-value shrinks from 8.2 to 7.2.[17]

Taken together these tests imply that correlated firm fundamentals among same-style stocks can at least partly explain style-driven earnings momentum. However, they cannot answer the question of how important the role of firm fundamentals exactly is in comparison to the alternative explanation of a common misvaluation by investors that arises from style-based classifications of stocks. Apparently, earnings announcement returns do a better job as predictors than SUE, but they might simply capture information about other firm fundamentals that are also relevant. In that sense, the results provide a lower bound for the role of firm fundamentals.

[17] The SUE-based earnings surprise measure has a standard deviation of 0.44 in the sample. Hence a one standard deviation increase in this measure is associated with an estimated increase in the one-month ahead stock return of 103 bps (0.44 times 0.024).

6 Conclusion

Earnings announcements provide investors with a variety of information about future stock returns. In addition to being informative about the the stock's own price development (the traditional post earnings drift), earnings announcements are important for other firms that operate in the same industry, and - as this paper shows - also for stocks that share the same style (or characteristic) like being a value stock. The connections at the style-level can be exploited to predict future characteristic-based long-short portfolio returns as well as future stock return differences. The style-based earnings surprise measure (SESM) constructed in this paper proves to be a strong return predictor both in calendar-time portfolio tests as well as cross-sectional Fama/MacBeth regressions. With a value-weighted return spread of 106 bps per month the measure is particularly useful for larger firms. The predictability is not explained by other known return determinants and provides further evidence that value-relevant information is only gradually incorporated into prices. In the context of this paper, earnings surprises should be of value-relevance as they may be helpful to identify time-varying mispricing associated with stock styles; however, I also find some evidence that the value-relevance (at least partly) stems from the fact that earnings are informative about the future earnings of other same-style stocks.

In future research, it would be interesting to investigate the extent to which different post earnings announcement strategies can be explained by one common source. For instance, recent work (see e.g., Richardson et al. (2010), Chordia et al. (2007), Ng et al. (2008)) suggests that transaction costs can explain the existence of the PEAD based on standardized unexpected earnings. However, whether transaction costs can also account for the apparently large profits provided by smarter trading strategies which would use several information signals from earnings announcements in combination is an open issue. Furthermore, it is not entirely clear why same-style stocks have correlated earnings. Macroeconomic factors could be responsible for this fundamental connection but as pointed out by Richardson et al. (2010), there appears to be little evidence on the relation between earnings and macroeconomic factors. Finally, international tests could provide an analysis of gradual information diffusion across different equity markets.

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Figure 1: Average monthly earnings surprise in %: Difference between value and growth stocks

This figure shows the monthly difference in average earnings surprises between value and growth stocks over the sample period from 1972 to 2011. For each announcer, the earnings surprise is calculated as the cumulative stock return over the three-day window centered around the quarterly earnings announcement date minus the cumulative market return over the same period. The value (growth) portfolio contains all stocks belonging to the highest (lowest) book-to-market equity quintile.

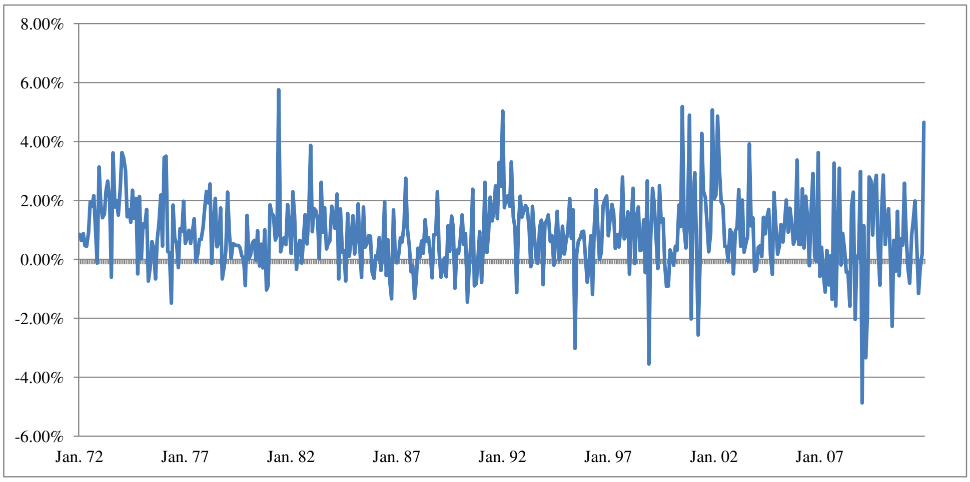

Figure 2: One-month ahead value-growth long-short returns by quintiles earnings surprise differences

This figure sorts the sample months into quintiles based on earnings surprise differences between value and growth stocks and shows corresponding average one-month ahead value minus growth return spreads. The return spreads are calculated using equal-weighting and value-weighting of stocks. The construction of value-weighted returns follows the methodology of Fama and French (1993), i.e. the value-weighted return is the HML factor.

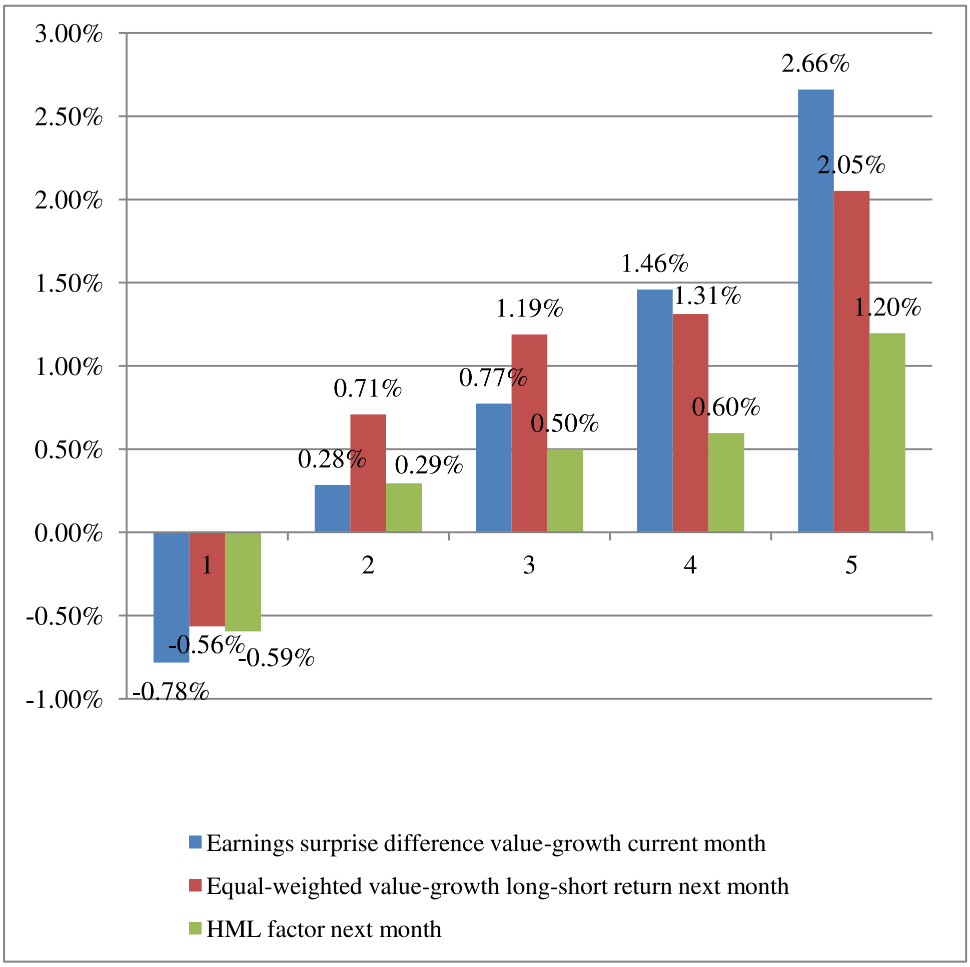

Figure 3: Three-year rolling slope estimates for SESM, 1975-2011

The figure plots three-year rolling averages of Fama/MacBeth slopes for the style-based earnings surprise measure (SESM). The estimates come from the first regression model in table 8.

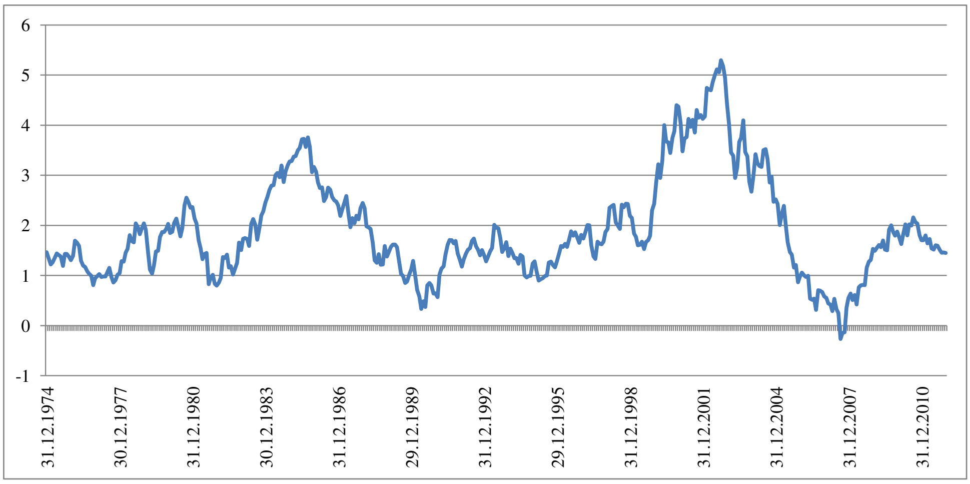

Table 1: Time-series summary statistics: Style returns and earnings surprises

This table reports average style returns (equal-weighted and value-weighted), earnings surprises (EAR) and 3-factor alphas in panel A. Panel B reports standard deviations. For descriptive purposes, both panels show corresponding numbers also for two post earnings announcement drift strategies (PEAD): "PEAD-EAR" is a long-short portfolio based on the firms' most recent earnings announcement return; "PEAD-SUE" is a long-short portfolio on the basis of the most recent quarterly standardized unexpected earnings (SUE). Following Chordia and Shivakumar (2006), SUE are calculated as current-quarter earnings less earnings four quarters ago, divided by the standard deviation of the earnings changes in the prior eight quarters (Compustat item *ibq*). The sample period is from Q1:1972 to Q4:2011 and all numbers are expressed in % per month. For equal-weighted ("ew") style returns and earnings surprises, the portfolios are based on characteristic quintiles (top quintile minus bottom quintile). The computation of value-weighted ("vw") returns follows the procedure that Fama and French (1993) use for the construction of the HML factor (except for firm size for which the value-weighted return is simply the SMB factor). The value-weighted returns are also shown separately for small and big stocks using the NYSE median firm market capitalization as breakpoint. Column "long-short PF" shows the direction of the characteristic sorting (upward or downward) to determine the long and short portfolio. In panel A, values that are significant at 10% or higher using a two-sided t-test are in bold. Construction details for each characteristic are in the appendix.

Panel A: Time-series average returns, earnings surprises and three-factor alphas [%]

Style Variable	long-short PF	EW return	EAR	VW return	VW return small	VW return big	3f alpha EW	3f alpha VW
Firm Size	low-high	**0.38**	**0.32**	0.19	N.A.	N.A.	0.11	N.A.
Age	high-low	0.02	-0.09	0.06	0.15	-0.04	0.03	0.00
Beta	high-low	-0.01	**-0.30**	-0.08	-0.05	-0.11	**-0.35**	**-0.25**
Residual Vol	high-low	0.23	**0.17**	-0.01	-0.11	0.09	-0.08	-0.12
Asset Growth	low-high	**0.88**	**0.57**	**0.31**	**0.36**	**0.25**	**0.78**	**0.18**
Accruals	low-high	**0.33**	**0.24**	**0.27**	**0.29**	**0.24**	**0.28**	**0.26**
Sales Growth	low-high	**0.52**	**0.45**	0.10	**0.14**	0.06	**0.40**	-0.04
Return on Assets	high-low	-0.20	**-0.39**	0.06	0.08	0.04	0.00	**0.31**
Book-to-Market	high-low	**0.95**	**0.88**	**0.37**	**0.51**	0.24	**0.63**	N.A.
Dividend Yield	high-low	-0.01	-0.09	0.11	0.18	0.04	0.07	0.05
Investments/Assets	low-high	**0.75**	**0.47**	**0.22**	**0.31**	0.13	**0.70**	**0.12**
Net Stock Issuance	low-high	**0.64**	**0.47**	**0.25**	**0.28**	**0.23**	**0.62**	**0.23**
Price	low-high	0.28	**0.18**	-0.03	-0.10	0.03	-0.07	**-0.41**
Momentum	high-low	**0.77**	**0.51**	**0.65**	**0.87**	**0.44**	**0.99**	**0.89**
Distress	low-high	**0.62**	0.07	**0.40**	**0.65**	0.15	**1.03**	**0.80**
PEAD-EAR	high-low	**1.39**	N.A.	**0.69**	**1.01**	**0.37**	**1.56**	**0.75**
PEAD-SUE	high-low	**0.96**	N.A.	**0.45**	**0.67**	**0.22**	**1.02**	**0.54**

Table 1: Time-series summary statistics: Style returns and earnings surprises (continued)

Panel B: Time-series standard deviations [%]					
Style Variable	EW return	EAR	VW return	VW return small	VW return big
Firm Size	4.57	1.39	3.12	N.A.	N.A.
Age	3.86	1.47	2.75	2.76	3.22
Beta	5.20	1.40	4.45	4.58	4.70
Residual Vol	6.04	1.50	4.94	5.01	5.28
Asset Growth	2.57	1.25	1.86	1.86	2.68
Accruals	1.61	1.18	1.63	1.45	2.46
Sales Growth	2.14	1.26	2.12	1.81	2.94
Return on Assets	3.38	1.32	2.25	2.38	3.06
Book-to-Market	3.61	1.28	2.89	3.26	3.26
Dividend Yield	4.84	1.55	4.51	4.37	5.13
Investments/Assets	2.08	1.37	1.71	1.74	2.40
Net Stock Issuance	2.94	1.08	1.71	2.11	1.82
Price	4.90	1.44	3.22	3.04	3.99
Momentum	5.34	1.38	4.43	4.31	5.00
Distress	4.80	1.44	3.61	3.33	4.46
PEAD-EAR	2.97	N.A.	2.27	2.58	2.59
PEAD-SUE	1.59	N.A.	1.40	1.43	1.98

Table 2: Forecasting style-based return spreads

This table presents the results of regressing equal-weighted characteristic-based long-short portfolio returns on prior one-month characteristic-based long-short earnings announcement returns (EAR). Panel A (B) shows results from univariate (multivariate) regressions; in the multivariate design the market excess return, and the Fama/French factors HML and SMB are added as controls. Columns with heading "All" show results when portfolio returns are computed using all stocks in the extreme quintiles. Columns with heading "Announcers" ("Non-Announcers") show results when portfolio returns are computed using only the subset of stocks with (without) an earnings announcement in the previous month. The sample period is from Q1:1972-Q4:2011. * indicates significance at the 10% level, ** indicates significance at the 5% level and *** indicates significance at the 1% level. All t-statistics are based on the heteroskedasticity-consistent standard errors of White (1980). See appendix for details about characteristics.

Style	Panel A: Univariate Regression Results					
	All		Announcers		Non-Announcers	
	b	t-stat	b	t-stat	b	t-stat
Firm Size	0.5812***	(3.370)	0.5768***	(3.031)	0.5471***	(3.138)
Age	0.5106***	(3.781)	0.4087**	(2.419)	0.4916***	(3.644)
Beta	0.5743***	(2.592)	0.6492***	(3.006)	0.5380**	(2.482)
Residual Vol	1.1186***	(4.772)	1.1025***	(4.490)	1.1081***	(4.750)
Asset Growth	0.3674***	(2.598)	0.4500***	(3.066)	0.3448**	(2.325)
Accruals	0.1085	(1.564)	0.2342**	(2.196)	0.0628	(0.868)
Sales Growth	0.2433**	(2.585)	0.2257*	(1.834)	0.2278**	(2.404)
Return on Assets	0.4708***	(3.745)	0.4442***	(2.910)	0.4471***	(3.615)
Book-to-Market	0.6535***	(4.216)	0.6404***	(4.115)	0.6596***	(4.164)
Dividend Yield	0.5318***	(3.122)	0.5722***	(3.525)	0.4941***	(2.927)
Investments/Assets	0.1081	(1.201)	0.1621	(1.367)	0.0625	(0.665)
Net Stock Issuance	0.3705***	(2.758)	0.2598	(1.545)	0.3711***	(2.864)
Price	0.6565***	(3.580)	0.5865***	(2.613)	0.6201***	(3.449)
Momentum	0.2356	(0.770)	0.1541	(0.511)	0.2066	(0.660)
Distress	0.4929***	(2.989)	0.5515***	(3.023)	0.4469***	(2.761)
Style	Panel B: Multivariate Regression Results					
	All		Announcers		Non-Announcers	
	b	t-stat	b	t-stat	b	t-stat
Firm Size	0.4174***	(4.257)	0.3819***	(3.142)	0.3848***	(3.862)
Age	0.3145***	(3.139)	0.2065	(1.440)	0.3052***	(3.007)
Beta	0.1288	(1.062)	0.2432*	(1.762)	0.0953	(0.829)
Residual Vol	0.5737***	(3.819)	0.5159***	(3.140)	0.5667***	(3.846)
Asset Growth	0.3195***	(2.596)	0.3957***	(2.976)	0.2999**	(2.274)
Accruals	0.0921	(1.330)	0.2217**	(2.031)	0.0480	(0.668)
Sales Growth	0.1781**	(2.359)	0.1667	(1.547)	0.1634**	(2.143)
Return on Assets	0.3938***	(3.161)	0.3662**	(2.490)	0.3698***	(3.028)
Book-to-Market	0.2103**	(2.158)	0.2149*	(1.884)	0.2166**	(2.087)
Dividend Yield	0.3355***	(3.099)	0.3894***	(3.194)	0.3006***	(2.863)
Investments/Assets	0.0977	(1.140)	0.1605	(1.340)	0.0543	(0.612)
Net Stock Issuance	0.3126***	(3.192)	0.2011	(1.403)	0.3165***	(3.333)
Price	0.4716***	(3.618)	0.3910**	(2.251)	0.4376***	(3.483)
Momentum	0.1427	(0.506)	0.0521	(0.186)	0.1119	(0.390)
Distress	0.4438***	(2.632)	0.5097***	(2.656)	0.3943**	(2.308)

Table 3: Forecasting industry-adjusted return spreads

This table presents the results of regressing characteristic-based long-short portfolio returns on prior one-month characteristic-based long-short earnings announcement returns (EAR). Portfolio returns are based on industry-adjusted stock returns; the Fama/French 48 industry classification system is used and SIC codes are from CRSP. Panel A (B) shows results from univariate (multivariate) regressions; in the multivariate design the market excess return, HML, and SMB are added as controls. Columns with heading "All" show results when portfolio returns are computed using all stocks in the extreme quintiles. Columns with heading "Announcers" ("Non-Announcers") show results when portfolio returns are computed using only the subset of stocks with (without) an earnings announcement in the previous month. The sample period is from Q1:1972-Q4:2011. * indicates significance at the 10% level, ** indicates significance at the 5% level and *** indicates significance at the 1% level. All t-statistics are based on the heteroskedasticity-consistent standard errors of White (1980). See appendix for details about characteristics.

Style	Panel A: Univariate Regression Results					
	All		Announcers		Non-Announcers	
	b	t-stat	b	t-stat	b	t-stat
Firm Size	0.4061***	(2.783)	0.4520***	(2.663)	0.3709**	(2.525)
Age	0.3132***	(3.650)	0.2601**	(2.018)	0.3050***	(3.483)
Beta	0.3306**	(2.524)	0.3609**	(2.327)	0.3186**	(2.517)
Residual Vol	0.5841***	(4.597)	0.5652***	(3.605)	0.5810***	(4.561)
Asset Growth	0.3132**	(2.549)	0.4223***	(3.120)	0.2932**	(2.260)
Accruals	0.0358	(0.591)	0.1697*	(1.688)	-0.0102	(-0.155)
Sales Growth	0.2417***	(3.186)	0.2298**	(2.289)	0.2323***	(2.985)
Return on Assets	0.4415***	(3.587)	0.3954***	(2.683)	0.4254***	(3.549)
Book-to-Market	0.3703***	(3.521)	0.3859***	(3.205)	0.3652***	(3.191)
Dividend Yield	0.2495***	(3.491)	0.2766***	(2.806)	0.2257***	(3.136)
Investments/Assets	0.1014	(1.364)	0.1871*	(1.676)	0.0635	(0.827)
Net Stock Issuance	0.2360***	(2.848)	0.1674	(1.432)	0.2376***	(2.852)
Price	0.5280***	(3.341)	0.4905**	(2.532)	0.4955***	(3.183)
Momentum	0.2008	(0.820)	0.1089	(0.430)	0.1812	(0.718)
Distress	0.5023***	(3.338)	0.5282***	(3.218)	0.4723***	(3.199)
Style	Panel B: Multivariate Regression Results					
	All		Announcers		Non-Announcers	
	b	t-stat	b	t-stat	b	t-stat
Firm Size	0.2756***	(3.232)	0.2896**	(2.515)	0.2413***	(2.812)
Age	0.1736***	(2.650)	0.1008	(0.883)	0.1730**	(2.529)
Beta	0.0500	(0.679)	0.1070	(0.988)	0.0363	(0.515)
Residual Vol	0.2655***	(3.096)	0.1856	(1.523)	0.2679***	(3.222)
Asset Growth	0.2719**	(2.552)	0.3760***	(2.993)	0.2543**	(2.217)
Accruals	0.0257	(0.455)	0.1610	(1.577)	-0.0185	(-0.295)
Sales Growth	0.1952***	(3.155)	0.1878**	(2.055)	0.1862***	(2.939)
Return on Assets	0.3826***	(3.201)	0.3374**	(2.373)	0.3636***	(3.147)
Book-to-Market	0.1283	(1.548)	0.1496	(1.401)	0.1201	(1.272)
Dividend Yield	0.1716***	(2.779)	0.1982**	(1.985)	0.1481**	(2.432)
Investments/Assets	0.0882	(1.249)	0.1803	(1.570)	0.0531	(0.737)
Net Stock Issuance	0.1881***	(3.496)	0.1213	(1.152)	0.1915***	(3.493)
Price	0.3753***	(3.305)	0.3264**	(2.124)	0.3448***	(3.126)
Momentum	0.1132	(0.515)	0.0125	(0.054)	0.0919	(0.410)
Distress	0.4572***	(2.768)	0.4867***	(2.791)	0.4250**	(2.530)

Table 4: Forecasting style-based return spreads: Results by quarter-month

This table presents the results of regressing equal-weighted characteristic-based long-short portfolio returns on prior one-month characteristic-based long-short earnings announcement returns (EAR). Panel A (B) shows results from univariate (multivariate) regressions; in the multivariate design the market excess return, and the Fama/French factors HML and SMB are added as controls. Columns 1 and 2 ("Quarter start") refer to forecasts for style-based return spreads in January, April, July, and October; Columns 3 and 4 ("Quarter mid") to forecasts for spreads in February, May, August, and November; and Columns 5 and 6 ("Quarter end") to forecasts for March, June, September, and December observations. The sample period is from Q1:1972-Q4:2011. * indicates significance at the 10% level, ** indicates significance at the 5% level and *** indicates significance at the 1% level. All t-statistics are based on the heteroskedasticity-consistent standard errors of White (1980). See appendix for details about characteristics.

Style	Panel A: Univariate regression results					
	Quarter Start		Quarter Mid		Quarter End	
	b	t-stat	b	t-stat	b	t-stat
Firm Size	0.4520*	(1.865)	1.0465**	(2.586)	0.4699	(1.163)
Age	0.3131*	(1.829)	1.2152***	(4.058)	0.6889**	(2.126)
Beta	0.1462	(0.448)	0.9856**	(2.483)	1.0067**	(2.606)
Residual Vol	0.7277**	(1.989)	1.4084***	(3.329)	1.6191***	(3.961)
Asset Growth	0.2580	(1.303)	0.8760***	(2.963)	0.1899	(1.220)
Accruals	0.0258	(0.267)	0.4400***	(3.812)	-0.0022	(-0.016)
Sales Growth	0.1995	(1.569)	0.4632**	(2.447)	0.2624*	(1.697)
Return on Assets	0.3235*	(1.970)	0.6163**	(2.267)	0.6639***	(2.791)
Book-to-Market	0.4900*	(1.877)	0.9979***	(3.216)	0.5140**	(2.055)
Dividend Yield	0.0268	(0.108)	1.0630***	(4.053)	1.1275***	(3.155)
Investments/Assets	0.0182	(0.146)	0.3830**	(2.208)	0.1441	(1.099)
Net Stock Issuance	0.1980	(1.141)	0.9016**	(2.414)	0.4075	(1.537)
Price	0.2775	(0.959)	1.2014***	(3.586)	0.9098***	(2.919)
Momentum	-0.2153	(-0.411)	1.0083**	(2.302)	0.5998*	(1.749)
Distress	-0.0210	(-0.090)	1.2431***	(3.469)	0.8923***	(3.231)
Style	Panel B: Multivariate regression results					
	Quarter Start		Quarter Mid		Quarter End	
	b	t-stat	b	t-stat	b	t-stat
Firm Size	0.0141	(0.096)	0.6603***	(3.391)	0.8051***	(5.237)
Age	0.0964	(0.793)	0.6571***	(3.160)	0.6240***	(2.888)
Beta	-0.1981	(-1.533)	0.4825*	(1.734)	0.4335**	(2.448)
Residual Vol	0.1339	(0.650)	0.7567***	(3.443)	1.0658***	(4.555)
Asset Growth	0.1921	(1.147)	0.6398***	(2.638)	0.2939**	(2.083)
Accruals	0.0077	(0.083)	0.3972***	(3.395)	-0.0037	(-0.029)
Sales Growth	0.1328	(1.372)	0.3504**	(2.189)	0.2639**	(2.108)
Return on Assets	0.2231	(1.495)	0.4131	(1.490)	0.7081***	(2.980)
Book-to-Market	0.2240	(1.268)	0.2397	(1.506)	0.0982	(0.702)
Dividend Yield	-0.0128	(-0.088)	0.6058***	(3.846)	0.8457***	(4.249)
Investments/Assets	0.0172	(0.147)	0.2459	(1.538)	0.1926	(1.506)
Net Stock Issuance	0.2970**	(2.118)	0.3637	(1.356)	0.3344*	(1.681)
Price	-0.0557	(-0.327)	0.7010***	(3.112)	1.0101***	(4.008)
Momentum	-0.3232	(-0.706)	0.7746**	(2.033)	0.6845**	(2.094)
Distress	0.0842	(0.340)	0.8390**	(2.523)	0.8477***	(3.165)

Table 5: Forecasting value-weighted style-based return spreads

This table presents the results of regressing value-weighted characteristic-based long-short portfolio returns on prior one-month characteristic-based long-short earnings announcement returns (EAR). The computation of value-weighted returns follows the procedure that Fama and French (1993) use for the construction of the HML factor (except for firm size for which the value-weighted return is simply the SMB factor). The baseline value-weighted characteristic return spread is the average of the value-weighted return difference for small stocks and for large stocks (below and above the NYSE median market value). Results for this average are reported in columns 1 and 2 (heading "Average"). The next columns display the coefficients and t-statistics for predicting the small and large stock value-weighted spread separately. Panel A (B) shows results from univariate (multivariate) regressions; in the multivariate design the market excess return, and the Fama/French factors HML and SMB are added as controls. SMB (HML) is excluded as explanatory variable when SMB (HML) is the to-be-predicted variable. The sample period is from Q1:1972-Q4:2011. * indicates significance at the 10% level, ** indicates significance at the 5% level and *** indicates significance at the 1% level. All t-statistics are based on the heteroskedasticity-consistent standard errors of White (1980). See appendix for details about characteristics.

Style	Panel A: Univariate Regression Results					
	All		Small		Large	
	b	t-stat	b	t-stat	b	t-stat
Firm Size	0.0966	(0.712)	N.A.	N.A.	N.A.	N.A.
Age	0.1278	(1.474)	0.1249	(1.452)	0.1307	(1.248)
Beta	0.5000***	(2.720)	0.5209***	(2.865)	0.4791**	(2.431)
Residual Vol	0.6212***	(3.360)	0.7409***	(4.047)	0.5016**	(2.485)
Asset Growth	0.1302*	(1.692)	0.2359***	(2.723)	0.0244	(0.225)
Accruals	0.1204*	(1.920)	0.1060*	(1.853)	0.1348	(1.317)
Sales Growth	0.0588	(0.699)	0.1564**	(2.046)	-0.0387	(-0.346)
Return on Assets	0.1940**	(2.181)	0.1951**	(2.249)	0.1929	(1.525)
Book-to-Market	0.4083***	(3.520)	0.5696***	(4.804)	0.2469*	(1.674)
Dividend Yield	0.3192**	(2.022)	0.3642**	(2.276)	0.2743	(1.601)
Investments/Assets	0.0901	(1.386)	0.0951	(1.524)	0.0850	(0.886)
Net Stock Issuance	0.1433*	(1.751)	0.1662*	(1.736)	0.1204	(1.310)
Price	0.2892**	(2.244)	0.3745***	(3.131)	0.2038	(1.304)
Momentum	0.2200	(0.869)	0.2033	(0.789)	0.2366	(0.903)
Distress	0.1286	(0.713)	0.2743*	(1.810)	-0.0170	(-0.076)
Style	Panel B: Multivariate Regression Results					
	All		Small		Large	
	b	t-stat	b	t-stat	b	t-stat
Firm Size	0.1039	(0.801)	N.A.	N.A.	N.A.	N.A.
Age	0.0194	(0.387)	0.0283	(0.547)	0.0104	(0.144)
Beta	0.1462	(1.469)	0.1486	(1.608)	0.1439	(1.131)
Residual Vol	0.2411***	(2.618)	0.3096***	(3.714)	0.1727	(1.363)
Asset Growth	0.0377	(0.680)	0.1894**	(2.522)	-0.1139	(-1.420)
Accruals	0.1016	(1.584)	0.0872	(1.539)	0.1159	(1.117)
Sales Growth	-0.0390	(-0.604)	0.0823	(1.401)	-0.1604*	(-1.668)
Return on Assets	0.0690	(0.950)	0.1417*	(1.671)	-0.0037	(-0.040)
Book-to-Market	0.3772***	(3.093)	0.5059***	(4.164)	0.2485*	(1.694)
Dividend Yield	0.1213*	(1.779)	0.1751**	(2.321)	0.0675	(0.730)
Investments/Assets	0.0507	(0.926)	0.0764	(1.224)	0.0250	(0.338)
Net Stock Issuance	0.1125*	(1.734)	0.1266*	(1.769)	0.0984	(1.191)
Price	0.1600*	(1.842)	0.2721***	(3.237)	0.0479	(0.420)
Momentum	0.1456	(0.644)	0.1300	(0.565)	0.1612	(0.681)
Distress	0.0954	(0.906)	0.2418**	(2.432)	-0.0510	(-0.382)

Table 6: Pooled panel regressions explaining individual stock returns

This table presents the results of regressing individual stock returns on prior one-month style-based earnings announcement returns (EAR) and a list of control variables. Controls include firm size, book-to-market, stock momentum, prior one-month returns (all measured as categorical variables ranging from one (lowest quintile) to five (highest quintile)), the most recent stock-specific earnings announcement return (EAR) and standardized unexpected quarterly earnings (SUE). SUE are winsorized at 99,9%. Panel A shows the results when only the controls are used as explanatory variables. In panel B, style-based EAR are added to the baseline regression separately for each style. In panel C style-based EAR and prior one-month style-based returns are added to the baseline regression, again separately for each style. Finally, regression results in panel D are based on a specification that includes all style-based EAR simultaneously. Control variables are suppressed for brevity in panels B to D, but have qualitatively similar coefficients as in panel A. All specifications also include month dummies and the t-statistics (in parentheses) are based on standard errors clustered by month. Abbreviations are as follows: Book-to-market (BM), momentum (Mom), asset growth (AG), accruals (ACC), sales growth (SG), return on assets (ROA), dividend yield (DY), investment over assets (IA), and net stock issuance (NS). The sample period is from Q1:1972-Q4:2011. * indicates significance at the 10% level, ** indicates significance at the 5% level and *** indicates significance at the 1% level.

Panel A: Regression without style EAR														
Size	BM	Mom	PR1M	EAR Stock	SUE stock	Ind. EAR t-1								
-0.0007	0.0017***	0.0014**	-0.0036***	0.0387***	0.0012***	0.1065***								
(-1.012)	(3.509)	(2.132)	(-6.694)	(12.324)	(6.393)	(2.770)								
Panel B: Style-based EAR added as regressor - separate regression for each style														
Size	Age	Beta	Res Vol	AG	ACC	SG	ROA	BM	DY	IA	NS	Price	Mom	Distress
0.304***	0.202**	0.163	0.677***	0.343***	0.132***	0.288***	0.315***	0.318***	0.423***	0.136***	0.173***	0.630***	0.229	0.344**
(2.996)	(2.403)	(1.477)	(4.143)	(4.966)	(3.558)	(4.648)	(3.413)	(4.263)	(2.840)	(3.535)	(2.792)	(5.069)	(1.376)	(2.332)
Panel C: Style-based EAR (results in the first two rows) and past-style returns (results in the second two rows) added as regressor - separate regression for each style														
Size	Age	Beta	Res Vol	AG	ACC	SG	ROA	BM	DY	IA	NS	Price	Mom	Distress
0.305***	0.141*	0.062	0.516***	0.246***	0.111***	0.214***	0.231***	0.273***	0.240**	0.063	0.117*	0.605***	0.203*	0.334***
(3.417)	(1.806)	(0.626)	(3.693)	(3.599)	(2.630)	(3.286)	(2.883)	(3.059)	(2.019)	(1.471)	(1.809)	(4.251)	(1.657)	(2.803)
-0.001	0.121	0.125	0.101	0.135*	0.073	0.135**	0.111	0.074	0.143	0.180***	0.111	0.019	0.019	0.010
(-0.008)	(1.170)	(1.537)	(0.949)	(1.814)	(1.166)	(2.150)	(1.157)	(0.885)	(1.451)	(4.442)	(1.421)	(0.206)	(0.237)	(0.094)
Panel D: Style-based EAR simultaneously added as regressor														
Size	Age	Beta	Res Vol	AG	ACC	SG	ROA	BM	DY	IA	NS	Price	Mom	Distress
0.023	0.132*	0.060	0.446***	0.158***	0.085**	0.161***	0.177**	0.159**	0.141	0.034	0.108*	0.362***	0.083	0.224*
(0.280)	(1.823)	(0.672)	(3.754)	(3.088)	(2.402)	(2.986)	(2.248)	(2.367)	(1.449)	(0.863)	(1.926)	(3.516)	(0.588)	(1.690)

Table 7: Abnormal returns to a long-short SESM-based trading strategy

This table shows calendar time abnormal returns to a trading strategy that ranks stocks in ascending order of their style-based earnings surprise measure (SESM) at the beginning of every month and goes long in stocks with the highest SESM and short in stocks with the lowest SESM. Equal-weighted portfolio returns in panel A are based on quintiles (top quintile minus bottom quintile). The computation of value-weighted returns in panel B follows the procedure that Fama and French (1993) use for the construction of the HML factor. The value-weighted returns are also shown separately for small and big stocks in panel C and D using the NYSE median firm market capitalization as breakpoint. Reported alphas are the intercepts from a regression of long-short SESM-strategy returns on a set of explanatory variables. The three-factor regression includes the market excess return, and the Fama/French factors HML and SMB as controls. Other factors (Fama/French momentum factor, Fama/French short-term reversal factor, and Pastor and Stambaugh (2003) liquidity factor) are sequentially added in the four-, five-, and six-factor regressions. The first (second) seven-factor regression adds the value-weighted return of a traditional PEAD-strategy based on earnings announcement returns (standardized unexpected quarterly earnings). The 20-factor alpha model includes the value-weighted returns of all 15 characteristic-based trading strategies (see table 1), plus the market excess return, the Fama/French short-term reversal factor, the Pastor and Stambaugh (2003) liquidity factor, and both PEAD-strategy returns. Regression coefficients for the explanatory variables can be found in the online appendix. The sample period is from Q1:1972-Q4:2010 for all models that include the Pastor and Stambaugh (2003) liquidity factor and otherwise from Q1:1972-Q4:2011. * indicates significance at the 10% level, ** indicates significance at the 5% level and *** indicates significance at the 1% level. All t-statistics (in parentheses) are based on the heteroskedasticity-consistent standard errors of White (1980).

Panel A: Equal portfolio weights								
Excess return	CAPM alpha	3-factor alpha	4-factor alpha	5-factor alpha	6-factor alpha	7-factor alpha (1)	7-factor alpha (2)	20-factor alpha
0.0184***	0.0191***	0.0179***	0.0162***	0.0206***	0.0217***	0.0209***	0.0205***	0.0207***
(7.469)	(7.792)	(7.239)	(5.237)	(8.078)	(8.370)	(7.670)	(6.765)	(7.582)
Panel B: Value-based portfolio weights								
Excess return	CAPM alpha	3-factor alpha	4-factor alpha	5-factor alpha	6-factor alpha	7-factor alpha (1)	7-factor alpha (2)	20-factor alpha
0.0119***	0.0124***	0.0114***	0.0109***	0.0150***	0.0155***	0.0141***	0.0155***	0.0138***
(5.821)	(6.176)	(5.518)	(5.033)	(7.537)	(7.573)	(6.555)	(6.002)	(6.432)
Panel C: Value-based portfolio weights, small firms								
Excess return	CAPM alpha	3-factor alpha	4-factor alpha	5-factor alpha	6-factor alpha	7-factor alpha (1)	7-factor alpha (2)	20-factor alpha
0.0132***	0.0139***	0.0131***	0.0126***	0.0164***	0.0171***	0.0160***	0.0175***	0.0164***
(6.701)	(7.183)	(6.473)	(5.867)	(8.745)	(8.873)	(7.753)	(7.369)	(7.913)
Panel C: Value-based portfolio weights, large firms								
Excess return	CAPM alpha	3-factor alpha	4-factor alpha	5-factor alpha	6-factor alpha	7-factor alpha (1)	7-factor alpha (2)	20-factor alpha
0.0106***	0.0110***	0.0099***	0.0093***	0.0136***	0.0139***	0.0123***	0.0137***	0.0112***
(4.380)	(4.574)	(4.101)	(3.730)	(5.534)	(5.466)	(4.638)	(4.371)	(4.224)

Table 8: Fama/MacBeth regressions: Profits to an SESM-strategy and relation to firm characteristics

This table reports the results of Fama/MacBeth regressions to forecast individual stocks returns. The independent variables of interest are the style-based earnings surprise measure (SESM) and number of interaction terms with this variable. All interaction terms are calculated by multiplying SESM with an indicator variable being 0 (1) if the value for the particular firm is below (above) the sample median in a given month. *MktCap* is the market capitalization of the firm at the end of June in every calendar year. *RES-AC* is residual analyst coverage, *RES-IO* is residual institutional ownership, *RES-BAS* is the residual bid-ask-spread estimator of Corwin and Schultz (2011), and *RES-ILQ* is the residual illiquidity measure of Amihud (2002) which is measured as the average daily absolute price change per dollar of daily trading volume in the recent month. I use the primary estimator of Corwin and Schultz (2011) where negative estimates are set to zero. Residuals are obtained by running separate monthly cross-sectional regressions on ln(firm size), and dummies for NYSE size deciles. Analyst coverage is set to ln(1+number of estimates) in these regressions. Control variables (added to all regression models) include firm size, book-to-market, momentum, prior 1 month return, most recent earnings announcement return, most recent standardized unexpected quarterly earnings, and the most recent average earnings announcement return of same-industry stocks. The definition of industries follows the 48-industry classification system of Fama and French (1997). Column 8 shows the results of re-running the first regression model with the inclusion of a SUE-based earnings surprise measure (for a description see section 5). The $R2$ is the average from the monthly cross-sectional regressions. The sample period is from from Q1:1972-Q4:2011, but data on analyst coverage is restricted to the period from Q1:1980-Q4:2010, and data on institutional ownership to the period from Q3:1980-Q2:2011. * indicates significance at the 10% level, ** indicates significance at the 5% level and *** indicates significance at the 1% level. All t-statistics (in parentheses) are based on the time-series mean and standard deviation for each coefficient.

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SESM	1.885***	2.039***	2.124***	2.185***	1.897***	2.086***	2.080***	1.544***
	(8.149)	(8.481)	(7.618)	(7.389)	(8.518)	(8.445)	(7.483)	(7.183)
SESM*		-0.403***	-0.459***	-0.452***	-0.371***	-0.380***	-0.412**	
MktCap>NYSE median		(-2.860)	(-2.810)	(-2.765)	(-2.605)	(-2.680)	(-2.463)	
SESM*			0.078				0.090	
Res-AC>median			(0.569)				(0.736)	
SESM*				-0.207			-0.236*	
Res-IO>median				(-1.449)			(-1.656)	
SESM*					0.079		0.073	
Res-BAS>median					(0.610)		(0.437)	
SESM*						-0.134	-0.121	
Res-ILQ>median						(-1.204)	(-0.829)	
SUE-based ESM								0.024***
								(4.752)
Controls	YES	YES	YES	YES	YES	YES	YES	YES
Average R2	0.040	0.044	0.045	0.040	0.041	0.047	0.046	0.047

Table 9: PEAD-SESM-strategy: Three-factor alphas of double sorted portfolios

This table presents three-factor alphas (expressed in % per month) and associated t-statistics (in parentheses) of various stock portfolios which result from sequential double sorts. In panels A and B, stocks are first sorted into quintiles based on their most recent earnings announcement return (EAR), and then within each quintile further into five bins using the stocks' style-based earnings surprises measure (SESM). In panel C and D the sequential sorting starts based on the stocks' most recent standardized unexpected quarterly earnings (SUE). The portfolio rebalancing frequency is one month and six months, respectively. The returns from the six-month rebalancing strategy are based on overlapping portfolios as in Jegadeesh and Titman (1993). The "high-low" rows and columns show the abnormal returns of long-short portfolios, and for each panel the abnormal return of the ("high/high"-"low/low")-portfolio is highlighted in bolt. Three-factor alphas come from a time-series regression of portfolio returns (in excess of the risk-free rate if the portfolio is long-only) on the market excess return, and the Fama/French factors HML and SMB. The sample period is from Q1:1972-Q4:2011. * indicates significance at the 10% level, ** indicates significance at the 5% level and *** indicates significance at the 1% level. All t-statistics are based on the heteroskedasticity-consistent standard errors of White (1980).

Panel A: EAR-SESM double sorts, one-month rebalancing						
EAR	SESM Quintile					
Quintile	low	2	3	4	high	high-low
low	-1.37***	-1.00***	-0.52***	-0.13	0.24	1.62***
	(-6.31)	(-5.74)	(-3.32)	(-0.84)	(1.48)	(6.01)
2	-0.93***	-0.46***	-0.03	0.26***	0.62***	1.55***
	(-5.93)	(-4.73)	(-0.35)	(2.90)	(5.18)	(6.99)
3	-0.74***	-0.24***	0.13*	0.42***	0.83***	1.57***
	(-5.26)	(-2.64)	(1.76)	(5.01)	(6.65)	(7.16)
4	-0.58***	-0.04	0.23***	0.53***	0.92***	1.50***
	(-4.26)	(-0.46)	(2.86)	(6.24)	(7.37)	(7.02)
high	-0.35**	0.26**	0.67***	0.99***	1.34***	1.68***
	(-2.04)	(2.22)	(6.87)	(7.98)	(8.67)	(6.64)
high-low	1.03***	1.26***	1.19***	1.12***	1.09***	**2.71*** **
	(8.82)	(9.83)	(10.09)	(9.46)	(9.54)	**(9.30)**

Panel B: EAR-SESM double sorts, six-month rebalancing						
EAR	SESM Quintile					
Quintile	low	2	3	4	high	high-low
low	-0.61***	-0.52***	-0.26*	-0.15	0.00	0.61***
	(-3.20)	(-3.36)	(-1.93)	(-1.17)	(0.04)	(3.65)
2	-0.25**	-0.12	0.01	0.10	0.23***	0.48***
	(-1.98)	(-1.34)	(0.18)	(1.49)	(3.03)	(3.56)
3	-0.18*	-0.03	0.12*	0.17**	0.33***	0.51***
	(-1.67)	(-0.46)	(1.78)	(2.57)	(4.36)	(4.18)
4	-0.10	0.09	0.16**	0.23***	0.36***	0.47***
	(-0.96)	(1.17)	(2.37)	(3.81)	(4.99)	(3.80)
high	-0.11	0.21**	0.43***	0.49***	0.61***	0.72***
	(-0.89)	(2.16)	(5.04)	(5.97)	(6.60)	(5.29)
high-low	0.50***	0.73***	0.69***	0.64***	0.61***	**1.22*** **
	(5.24)	(8.36)	(8.42)	(8.22)	(8.65)	**(6.11)**

Table 9: PEAD-SESM-strategy: Three-factor alphas of double sorted portfolios (continued)

Panel C: SUE-SESM double sorts, one-month rebalancing						
SUE	SESM Quintile					
Quintile	low	2	3	4	high	high-low
low	-1.62***	-1.25***	-0.80***	-0.47***	-0.05	1.57***
	(-7.83)	(-7.72)	(-6.31)	(-3.60)	(-0.32)	(5.65)
2	-1.06***	-0.61***	-0.23**	0.16	0.43***	1.49***
	(-5.64)	(-4.85)	(-2.02)	(1.32)	(3.02)	(5.81)
3	-0.64***	-0.08	0.23**	0.55***	0.98***	1.62***
	(-4.21)	(-0.68)	(2.40)	(5.22)	(6.84)	(6.93)
4	-0.44***	0.13	0.56***	0.84***	1.36***	1.80***
	(-3.04)	(1.33)	(6.54)	(8.68)	(8.75)	(7.25)
high	-0.10	0.35***	0.82***	1.10***	1.59***	1.69***
	(-0.77)	(3.56)	(9.09)	(11.61)	(11.92)	(7.76)
high-low	1.52***	1.61***	1.62***	1.57***	1.64***	**3.21*** **
	(9.16)	(10.49)	(12.31)	(11.32)	(12.08)	**(11.56)**

Panel D: SUE-SESM double sorts, six-month rebalancing						
SUE	SESM Quintile					
Quintile	low	2	3	4	high	high-low
low	-0.80***	-0.67***	-0.50***	-0.46***	-0.33***	0.47***
	(-4.47)	(-4.86)	(-4.37)	(-4.62)	(-3.30)	(2.80)
2	-0.34**	-0.20*	-0.09	0.04	0.11	0.45***
	(-2.22)	(-1.67)	(-0.88)	(0.48)	(1.23)	(2.92)
3	-0.08	0.11	0.25***	0.36***	0.50***	0.58***
	(-0.66)	(1.18)	(3.17)	(4.67)	(5.48)	(4.29)
4	0.03	0.22***	0.35***	0.46***	0.68***	0.64***
	(0.31)	(2.76)	(5.22)	(6.57)	(7.98)	(4.97)
high	0.13	0.30***	0.42***	0.55***	0.66***	0.52***
	(1.36)	(3.93)	(6.14)	(8.69)	(8.08)	(4.54)
high-low	0.94***	0.97***	0.93***	1.02***	0.98***	**1.46*** **
	(6.92)	(7.70)	(7.86)	(9.56)	(10.09)	**(7.28)**

Table 10: Forecasting earnings and style-based return spreads with past earnings differences

Panel A of this table presents the results of AR(1) models to forecast equal-weighted characteristic-based differences in standardized unexpected earnings (SUE) and industry-adjusted standardized unexpected earnings (ISUE). For a given firm, SUE is constructed by dividing the earnings surprise (current-quarter earnings less earnings four quarters ago) by the standard deviation of the earnings surprises in the prior eight quarters. To compute ISUE for a given firm, the average SUE of all firms being in the same Fama/French 48 industry and announcing in the same month is subtracted from SUE. Panel B reports the results from univariate (multivariate) regressions of equal-weighted characteristic-based long-short portfolio returns on prior one-month characteristic-based differences in SUE. In the multivariate design the market excess return, and the Fama/French factors HML and SMB are added as controls. The characteristic-based return spreads are calculated only for the "All" firms sample. For the computations SUE are winsorized at the 99.9%-level. The sample period is from Q1:1972-Q4:2011. * indicates significance at the 10% level, ** indicates significance at the 5% level and *** indicates significance at the 1% level. All t-statistics are based on the heteroskedasticity-consistent standard errors of White (1980). See appendix for details about characteristics.

Style	Panel A: Forecasts of unexpected earnings (SUE) and industry-adjusted unexpected earnings (ISUE)			
	SUE		ISUE	
	b	t-stat	b	t-stat
Firm Size	0.1310***	(2.997)	0.2699***	(4.661)
Age	0.1629***	(4.121)	0.3021***	(6.331)
Beta	0.4094***	(9.034)	0.3515***	(5.959)
Residual Vol	0.2097***	(4.128)	0.2996***	(5.812)
Asset Growth	0.2939***	(6.502)	0.4228***	(7.946)
Accruals	0.1821***	(3.438)	0.4581***	(7.191)
Sales Growth	0.3241***	(6.431)	0.3075***	(4.695)
Return on Assets	0.3490***	(7.144)	0.2579***	(3.477)
Book-to-Market	0.4755***	(9.255)	0.4671***	(7.249)
Dividend Yield	0.1839***	(3.388)	0.3475***	(5.862)
Investments/Assets	0.2901***	(7.386)	0.2945***	(4.968)
Net Stock Issuance	0.1636***	(3.632)	0.4855***	(9.505)
Price	0.3237***	(6.572)	0.3623***	(6.222)
Momentum	0.6050***	(14.480)	0.3660***	(4.600)
Distress	0.4436***	(8.784)	0.3647***	(3.953)
Style	Panel B: Forecasts of style returns based on past SUE			
	Univariate		Multivariate	
	b	t-stat	b	t-stat
Firm Size	0.0026	(0.813)	-0.0017	(-1.213)
Age	0.0023	(0.530)	0.0006	(0.186)
Beta	0.0156***	(2.650)	0.0049	(1.343)
Residual Vol	0.0101**	(2.186)	-0.0000	(-0.017)
Asset Growth	0.0043	(1.508)	0.0041*	(1.652)
Accruals	0.0033	(1.445)	0.0026	(1.144)
Sales Growth	0.0027	(1.115)	0.0022	(1.048)
Return on Assets	0.0075**	(2.054)	0.0040	(1.192)
Book-to-Market	0.0104***	(2.889)	0.0062***	(3.623)
Dividend Yield	0.0109**	(2.310)	0.0043	(1.338)
Investments/Assets	0.0017	(0.695)	0.0013	(0.607)
Net Stock Issuance	0.0104**	(2.529)	0.0067**	(2.025)
Price	0.0068*	(1.748)	0.0022	(0.803)
Momentum	-0.0112	(-1.553)	-0.0105	(-1.596)
Distress	-0.0036	(-0.544)	-0.0063	(-1.244)

Appendix for “Style-Driven Earnings Momentum”

January 2013

Abstract

This appendix contains explanations and tables that supplement the analysis in the paper “Style-Driven Earnings Momentum”. It starts with an overview of how characteristics (stock styles) are constructed. Figure 1 plots the distribution of the style-based earnings surprise measure (SESM) used as predictor of future stock returns in the paper. Table 1 summarizes the cross-section of characteristics by firm-year observations. Table 2 shows correlations between style-based return spreads and earnings announcement return (EAR) spreads. Table 3 extends the baseline forecasts of style-based return spreads by running further multivariate regressions. Table 4 reports forecasts of industry-adjusted return spreads for a number of alternative industry definitions. The results of the “placebo” tests which rely on prior one-month returns outside the earnings announcement windows as predictors are shown in table 5. Table 6 displays forecasts of style-based return spreads for different size buckets. Table 7 reports the loadings of the explanatory variables for the regressions shown in table 7, panel A and B of the paper. Table 8 provides the findings of the baseline forecasts for two subsamples (pre and post 1991). Finally, in table 9, three-factor alphas of triple sorted portfolios (based on the stocks' EAR, SUE, and SESM) are displayed.

Appendix: Variable Definitions

This section outlines how characteristics (stock styles) are constructed. Data sources are CRSP and annual and quarterly Compustat files. Consistent with Fama and French (1992) portfolio sorts take place once every year at the end of June. Market-based variables (like price, residual volatility, and beta) are measured as of the same date, while accounting variables are taken from financial statements of the last fiscal year ending in the previous calendar year. As exception from annual rebalancing, price momentum and financial distress portfolios are updated monthly.

Firm Size: Firm size is defined as number of shares outstanding (*shrout*) times price (*prc*).

Firm Age: Age is number of years since the firm's PERMCO first appeared in CRSP (starting year 1925).

Beta and **Residual Volatility**: Beta and residual volatility are obtained from a one factor regression (with $mktrf$ from CRSP as excess market return) using up to previous 60 months of firm year returns. I require a firm to have at least 24 months of return data.

Accruals: Accruals (Acc) are defined as in Bergstresser and Philippon (2006):

$$Acc_t = \frac{(\Delta CA_t - \Delta Cash_t - \Delta CL_t + \Delta STD_t + \Delta TP_t - DP_t)}{(A_t + A_{t-1})/2}.$$

CA is current assets (Compustat item *act*), CL is current liabilities (*lct*), STD is short term debt (*dlc*), TP is taxes payable (*txp*), and DP is depreciation (*dp*). $Cash$ is Compustat item *che*.

Asset Growth: Asset growth is the increase in *at* compared to last year financial statements.

Sales Growth: Sales growth is the increase in *sale* compared to last year financial statements.

Return on Assets: Return on assets measures firm profitability and is defined as the sum of income before extraordinary items available for common (*ibcom*) divided prior year total assets (*at*).

Book-to-Market: Book-to-Market is the book value of equity (*ceq*) divided by market value of equity from CRSP. Consistent with Fama and French (1992) market value of equity is measured at the end of the previous calendar year (which is also the year to which the book value data refers).

Dividend Yield: Dividend yield is calculated as dividends per share (*dvpsx_f*) over stock price as of fiscal year end.

Investments over Assets: Investment over assets (IA) are defined as in Chen et al. (2010):

$$IA_t = \frac{PPE_t - PPE_{t-1} + INV_t - INV_{t-1}}{at_{t-1}}.$$

PPE is property, plant and equipment from Compustat (item *ppegt*), and INV are inventories (*invt*).

Net Stock Issuance: Net stock issuance is defined as in Fama and French (2008) as the log increase in shares outstanding compared to last year financial statements. For each fiscal year, shares outstanding are first adjusted using the cumulative adjustment factor from Compustat ($csho \cdot adjex\_c$).

Price: Price is the nominal share price (*prc*) from CRSP.

Price Momentum: Price momentum is prior one year return from CRSP excluding the most recent month.

Distress: I use the failure probability from Campbell et al. (2008) as distress measure. More specifically, distress is calculated as:

$$Distress_t = -9.164 - 20.264 \cdot NIMTAAVG_t + 1.416 \cdot TLMTA_t - 7.129 \cdot EXRETAVG_t$$
$$+1.411 \cdot SIGMA_t - 0.045 \cdot RSIZE_t - 2.132 \cdot CASHMTA_t + 0.075 \cdot MB_t - 0.058 \cdot PRICE_t.$$

For further details about the variables used in the above equation I refer to Campbell et al. (2008) and Chen et al. (2010)). All accounting variables are based on Compustat quarterly files as in Campbell et al. (2008) with an appropriate lag to ensure that only historically available data is used (quarterly earnings announcement date + 1 month).

Figure 1: Distribution of the style-based earnings surprise measure (SESM)

This figure shows the historical distribution of the style-based earnings surprise measure (SESM) used as predictor of future stock returns in this paper. The sample period is from Q1:1972-Q4:2011.

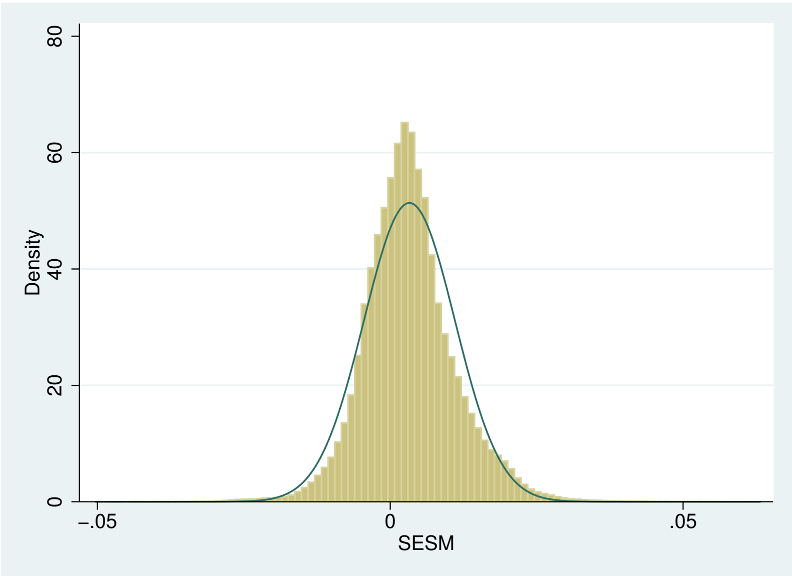

Table 1: Firm-year summary statistics

This table summarizes the cross-section of characteristics used to define stock styles by firm-year observations (number of observations (N), mean, median, standard deviation (SD), and extreme percentiles (P5 and P95)). The sample period is from 1972 to 2011 and includes all firm-years with a positive book value of equity in the fiscal year ending in calendar year $t-1$ and a CRSP market value of equity at the end of June of year t. Construction details for each characteristic are in the appendix.

Style Variable	N	Mean	Median	SD	P5	P95
Firm Size (Mio. $)	179933	955.82	87.97	3098.78	3.67	4370.39
Age [years]	179933	14.19	9.58	14.02	1.42	46.33
Beta	156754	1.11	1.03	0.73	0.08	2.44
Residual Vol (%)	156754	13.39	11.52	7.47	5.13	28.19
Asset Growth (%)	163542	15.46	7.98	37.83	-23.21	78.40
Accruals (%)	136533	-3.05	-3.31	9.85	-18.77	13.79
Sales Growth (%)	161492	18.67	10.23	48.59	-27.08	84.49
Return on Assets (%)	163464	0.77	3.38	16.47	-31.01	17.99
Book-to-Market	179933	0.89	0.65	0.83	0.12	2.49
Dividend Yield (%)	178571	1.47	0.00	2.33	0.00	6.61
Investments/Assets (%)	144615	8.99	5.51	17.86	-11.39	40.59
Net Stock Issuance	163325	0.04	0.00	0.14	-0.06	0.32
Price	179933	17.28	12.50	16.49	1.00	50.63
Momentum (%)	173309	12.57	4.93	54.07	-58.59	111.63
Distress	148347	-7.51	-7.72	1.11	-8.84	-5.31

Table 2: Correlations between time-series style returns and earnings announcement returns

Correlations between monthly equal-weighted style returns (earnings announcement returns (EAR)) are shown in Panel A (Panel B). Style returns and EAR spreads are long-short portfolio returns based on extreme characteristic portfolios. To calculate EAR spreads I use all firms having an earnings announcement in a particular month, except firms announcing at the last trading day of that month. For an individual firm, EAR is the cumulative stock return over the three-day window centered around the announcement date minus the cumulative CRSP value-weighted market return over the same period. Column "long-short PF" shows the direction of the characteristic sorting (upward or downward) to determine the long and short portfolio. Construction details for each characteristic are in the appendix.

Style Variable	long-short PF	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Panel A: Correlations between monthly style returns																
Firm Size (1)	low-high	1.00														
Age (2)	high-low	-0.79	1.00													
Beta (3)	high-low	0.49	-0.68	1.00												
Residual Vol (4)	high-low	0.78	-0.88	0.86	1.00											
Asset Growth (5)	low-high	0.53	-0.32	0.04	0.31	1.00										
Accruals (6)	low-high	0.16	-0.15	0.12	0.19	0.42	1.00									
Sales Growth (7)	low-high	0.39	-0.09	-0.09	0.12	0.81	0.46	1.00								
Return on Assets (8)	high-low	-0.73	0.66	-0.37	-0.63	-0.79	-0.43	-0.62	1.00							
Book-to-Market (9)	high-low	0.17	0.32	-0.43	-0.28	0.48	0.14	0.63	-0.24	1.00						
Dividend Yield (10)	high-low	-0.68	0.84	-0.83	-0.94	-0.14	-0.11	0.05	0.47	0.46	1.00					
Investments/Assets (11)	low-high	0.45	-0.28	0.00	0.23	0.81	0.40	0.75	-0.66	0.41	-0.10	1.00				
Net Stock Issuance (12)	low-high	-0.37	0.74	-0.71	-0.73	-0.04	-0.16	0.20	0.43	0.62	0.73	0.02	1.00			
Nominal Price (13)	low-high	0.95	-0.76	0.55	0.79	0.57	0.22	0.42	-0.81	0.19	-0.66	0.44	-0.43	1.00		
Momentum (14)	high-low	-0.37	0.40	-0.37	-0.42	-0.23	-0.11	-0.16	0.50	-0.01	0.34	-0.07	0.40	-0.54	1.00	
Distress (15)	low-high	-0.70	0.66	-0.60	-0.72	-0.40	-0.24	-0.32	0.75	-0.08	0.60	-0.29	0.49	-0.80	0.81	1.00
Panel B: Correlations between monthly earnings announcement returns																
Firm Size (1)	low-high	1.00														
Age (2)	high-low	-0.28	1.00													
Beta (3)	high-low	0.23	-0.13	1.00												
Residual Vol (4)	high-low	0.57	-0.36	0.53	1.00											
Asset Growth (5)	low-high	0.29	-0.03	0.05	0.21	1.00										
Accruals (6)	low-high	-0.01	0.00	0.10	0.04	0.40	1.00									
Sales Growth (7)	low-high	0.21	0.11	0.01	0.09	0.52	0.28	1.00								
Return on Assets (8)	high-low	-0.36	0.06	-0.16	-0.32	-0.57	-0.36	-0.44	1.00							
Book-to-Market (9)	high-low	0.26	0.08	-0.08	0.06	0.31	0.17	0.24	-0.38	1.00						
Dividend Yield (10)	high-low	-0.30	0.35	-0.46	-0.55	-0.01	-0.08	0.08	0.18	0.09	1.00					
Investments/Assets (11)	low-high	0.20	0.00	0.07	0.07	0.64	0.30	0.53	-0.44	0.20	0.03	1.00				
Net Stock Issuance (12)	low-high	-0.15	0.12	-0.15	-0.20	0.17	0.07	0.17	0.08	0.23	0.21	0.05	1.00			
Nominal Price (13)	low-high	0.76	-0.24	0.22	0.49	0.31	0.05	0.29	-0.45	0.29	-0.24	0.32	-0.11	1.00		
Momentum (14)	high-low	-0.10	0.24	-0.13	-0.16	-0.01	-0.04	0.07	0.09	-0.02	0.08	-0.06	0.20	-0.14	1.00	
Distress (15)	low-high	-0.32	0.08	-0.17	-0.27	-0.22	-0.07	-0.05	0.42	-0.29	0.15	-0.17	0.11	-0.38	0.46	1.00

Table 3: Forecasting style-based return spreads: Further multi-factor models

This table presents the results of regressing equal-weighted characteristic-based long-short portfolio returns on prior one-month characteristic-based long-short earnings announcement returns (EAR). Panel A shows the results of a four-factor model which in addition to the market excess return, HML and SMB also controls for the momentum factor (UMD). Results in panel B are based on a five-factor model which additionally includes a short-term reversal factor. Panel C reports results for a six-factor model which is augmented with the Pastor and Stambaugh (2003) liquidity factor. Columns with heading "All" show results when portfolio returns are computed using all stocks in the extreme quintiles. Columns with heading "Announcers" ("Non-Announcers") show results when portfolio returns are computed using only the subset of stocks with (without) an earnings announcement in the previous month. The sample period is from Q1:1972-Q4:2011 for panels A and B, and from Q1:1972-Q4:2010 for panel C. * indicates significance at the 10% level, ** indicates significance at the 5% level and *** indicates significance at the 1% level. All t-statistics are based on the heteroskedasticity-consistent standard errors of White (1980). See appendix for details about characteristics.

Style	Panel A: Four-factor model					
	All		Announcers		Non-Announcers	
	b	t-stat	b	t-stat	b	t-stat
Firm Size	0.4227***	(4.442)	0.3874***	(3.242)	0.3882***	(3.980)
Age	0.2814***	(2.741)	0.1751	(1.211)	0.2745***	(2.630)
Beta	0.1014	(1.003)	0.2198*	(1.787)	0.0689	(0.697)
Residual Vol	0.5417***	(3.730)	0.4769***	(2.993)	0.5373***	(3.745)
Asset Growth	0.3225***	(2.595)	0.3968***	(3.012)	0.3046**	(2.278)
Accruals	0.0916	(1.302)	0.2212**	(2.019)	0.0476	(0.651)
Sales Growth	0.1762**	(2.373)	0.1662	(1.542)	0.1614**	(2.161)
Return on Assets	0.4059***	(3.342)	0.3808***	(2.587)	0.3801***	(3.177)
Book-to-Market	0.1759*	(1.868)	0.2048*	(1.768)	0.1820*	(1.831)
Dividend Yield	0.3216***	(3.130)	0.3746***	(3.294)	0.2885***	(2.841)
Investments/Assets	0.0949	(1.092)	0.1596	(1.317)	0.0508	(0.564)
Net Stock Issuance	0.2969***	(3.070)	0.1847	(1.268)	0.3020***	(3.275)
Price	0.4592***	(3.814)	0.3778**	(2.302)	0.4267***	(3.636)
Momentum	-0.0011	(-0.009)	-0.0873	(-0.558)	-0.0311	(-0.263)
Distress	0.3948***	(3.467)	0.4600***	(3.349)	0.3466***	(2.948)

Table 3: Forecasting style-based return spreads: Further multi-factor models (continued)

Style	Panel B: Five-factor model					
	All		Announcers		Non-Announcers	
	b	t-stat	b	t-stat	b	t-stat
Firm Size	0.4237***	(4.508)	0.3894***	(3.335)	0.3892***	(4.034)
Age	0.2883***	(2.897)	0.1817	(1.294)	0.2806***	(2.754)
Beta	0.1042	(1.040)	0.2181*	(1.784)	0.0729	(0.745)
Residual Vol	0.5477***	(3.833)	0.4807***	(3.054)	0.5442***	(3.855)
Asset Growth	0.3162***	(2.606)	0.3964***	(3.000)	0.2963**	(2.290)
Accruals	0.0888	(1.250)	0.2184**	(1.994)	0.0443	(0.600)
Sales Growth	0.1775**	(2.402)	0.1658	(1.540)	0.1631**	(2.209)
Return on Assets	0.4054***	(3.339)	0.3802**	(2.581)	0.3798***	(3.176)
Book-to-Market	0.1820*	(1.939)	0.2020*	(1.725)	0.1910*	(1.944)
Dividend Yield	0.3249***	(3.163)	0.3772***	(3.330)	0.2928***	(2.889)
Investments/Assets	0.0947	(1.087)	0.1562	(1.294)	0.0515	(0.569)
Net Stock Issuance	0.3035***	(3.198)	0.1950	(1.403)	0.3087***	(3.364)
Price	0.4580***	(3.855)	0.3766**	(2.317)	0.4255***	(3.669)
Momentum	0.0056	(0.049)	-0.0800	(-0.527)	-0.0248	(-0.217)
Distress	0.3758***	(3.318)	0.4225***	(3.126)	0.3372***	(2.851)

Style	Panel C: Six-factor model					
	All		Announcers		Non-Announcers	
	b	t-stat	b	t-stat	b	t-stat
Firm Size	0.4485***	(4.806)	0.4229***	(3.684)	0.4170***	(4.353)
Age	0.2864***	(2.739)	0.2458*	(1.696)	0.2709**	(2.541)
Beta	0.1055	(1.044)	0.2245*	(1.817)	0.0758	(0.765)
Residual Vol	0.5807***	(4.056)	0.5055***	(3.176)	0.5834***	(4.132)
Asset Growth	0.3238**	(2.511)	0.4295***	(3.148)	0.2996**	(2.171)
Accruals	0.0929	(1.272)	0.2464**	(2.210)	0.0491	(0.644)
Sales Growth	0.1907**	(2.405)	0.1876	(1.630)	0.1705**	(2.143)
Return on Assets	0.4268***	(3.368)	0.4019***	(2.604)	0.3971***	(3.175)
Book-to-Market	0.1708*	(1.797)	0.1919*	(1.683)	0.1795*	(1.800)
Dividend Yield	0.3285***	(3.193)	0.3680***	(3.238)	0.3025***	(2.993)
Investments/Assets	0.0804	(0.878)	0.1637	(1.306)	0.0335	(0.349)
Net Stock Issuance	0.3083***	(3.139)	0.2080	(1.474)	0.3199***	(3.362)
Price	0.4906***	(4.230)	0.4365***	(2.854)	0.4568***	(4.005)
Momentum	0.0091	(0.079)	-0.0830	(-0.544)	-0.0204	(-0.180)
Distress	0.3816***	(3.259)	0.4158***	(3.043)	0.3473***	(2.823)

Table 4: Forecasting industry-adjusted return spreads: Alternative industry definitions

This table presents the results of univariate regressions of characteristic-based long-short portfolio returns on prior one-month characteristic-based long-short earnings announcement returns (EAR). Portfolio returns are based on industry-adjusted stock returns and a variety of different industry definitions is used. Panel A uses value-weighted industry returns for the adjustment (as opposed to equal-weighted returns used in the paper). Panel B classifies firms according to their first digit SIC code, the classification in panel C relies on the 2-digit SIC code, and the classification in panel D on the 3-digit SIC code. SIC codes are from CRSP. In addition, panels E and F use the Hoberg and Phillips (2010) text-based fixed industry classifications ("FIC") and network industry classifications ("TNIC") which are based on similarity scores from 10K product descriptions. The sample period is from Q1:1972-Q4:2011 for panels A to D and from Q3:1997-Q2:2010 for panels D and E. Multivariate regression results are not reported but provide qualitatively similar results (available upon request). * indicates significance at the 10% level, ** indicates significance at the 5% level and *** indicates significance at the 1% level. All t-statistics are based on the heteroskedasticity-consistent standard errors of White (1980). See appendix for details about characteristics.

Style	Panel A: Adjustment using value-weighted industry returns					
	All		Announcers		Non-Announcers	
	b	t-stat	b	t-stat	b	t-stat
Firm Size	0.4489***	(2.869)	0.4556***	(2.639)	0.4101**	(2.572)
Age	0.4161***	(3.730)	0.3990***	(2.750)	0.3955***	(3.471)
Beta	0.4824***	(2.843)	0.5030***	(2.767)	0.4622***	(2.855)
Residual Vol	0.9305***	(5.051)	0.8393***	(4.023)	0.9205***	(5.023)
Asset Growth	0.3538***	(2.679)	0.4424***	(3.150)	0.3331**	(2.405)
Accruals	0.0768	(1.211)	0.1918*	(1.865)	0.0336	(0.492)
Sales Growth	0.2873***	(3.598)	0.2551**	(2.435)	0.2837***	(3.478)
Return on Assets	0.4209***	(3.346)	0.4123***	(2.746)	0.3897***	(3.125)
Book-to-Market	0.5014***	(4.234)	0.4703***	(3.674)	0.4996***	(3.993)
Dividend Yield	0.4750***	(3.988)	0.4445***	(3.375)	0.4454***	(3.901)
Investments/Assets	0.1180	(1.398)	0.1440	(1.333)	0.0866	(0.961)
Net Stock Issuance	0.2989***	(2.908)	0.2024	(1.494)	0.2965***	(2.909)
Price	0.6148***	(3.655)	0.5221**	(2.525)	0.5867***	(3.531)
Momentum	0.2298	(0.879)	0.1724	(0.654)	0.1855	(0.698)
Distress	0.5125***	(3.318)	0.5431***	(3.293)	0.4630***	(2.977)
Style	Panel B: Industry defined by first digit SIC code					
	All		Announcers		Non-Announcers	
	b	t-stat	b	t-stat	b	t-stat
Firm Size	0.4744***	(2.949)	0.5518***	(3.086)	0.4340***	(2.669)
Age	0.4595***	(3.695)	0.3972**	(2.489)	0.4407***	(3.526)
Beta	0.4403**	(2.575)	0.5064***	(2.818)	0.4174**	(2.493)
Residual Vol	0.7888***	(4.705)	0.8124***	(4.196)	0.7901***	(4.687)
Asset Growth	0.3643***	(2.726)	0.4525***	(3.126)	0.3447**	(2.445)
Accruals	0.0726	(1.139)	0.2250**	(2.135)	0.0209	(0.305)
Sales Growth	0.2729***	(3.075)	0.2522**	(2.128)	0.2624***	(2.932)
Return on Assets	0.4768***	(3.650)	0.4308***	(2.799)	0.4603***	(3.604)
Book-to-Market	0.4977***	(3.833)	0.4718***	(3.443)	0.5048***	(3.718)
Dividend Yield	0.3749***	(3.283)	0.4218***	(3.259)	0.3473***	(3.087)
Investments/Assets	0.1186	(1.436)	0.1688	(1.434)	0.0805	(0.942)
Net Stock Issuance	0.2988***	(2.765)	0.2031	(1.354)	0.3047***	(2.936)
Price	0.5735***	(3.271)	0.5712***	(2.693)	0.5373***	(3.110)
Momentum	0.1895	(0.691)	0.0885	(0.321)	0.1695	(0.599)
Distress	0.5014***	(3.084)	0.5381***	(3.055)	0.4612***	(2.889)

Table 4: Forecasting industry-adjusted return spreads: Alternative industry definitions (continued)

Style	Panel C: Industry defined by 2-digit SIC code					
	All		Announcers		Non-Announcers	
	b	t-stat	b	t-stat	b	t-stat
Firm Size	0.3841***	(2.602)	0.4389***	(2.685)	0.3469**	(2.330)
Age	0.3288***	(3.597)	0.2972**	(2.262)	0.3228***	(3.472)
Beta	0.3175**	(2.521)	0.3654**	(2.448)	0.3037**	(2.492)
Residual Vol	0.5584***	(4.406)	0.5227***	(3.392)	0.5595***	(4.398)
Asset Growth	0.3138**	(2.541)	0.4207***	(3.079)	0.2947**	(2.267)
Accruals	0.0352	(0.579)	0.1628	(1.595)	-0.0098	(-0.149)
Sales Growth	0.2276***	(3.013)	0.2229**	(2.209)	0.2152***	(2.786)
Return on Assets	0.4578***	(3.625)	0.4030***	(2.743)	0.4455***	(3.628)
Book-to-Market	0.3697***	(3.512)	0.3925***	(3.260)	0.3628***	(3.174)
Dividend Yield	0.2519***	(3.401)	0.2768***	(2.729)	0.2308***	(3.079)
Investments/Assets	0.0948	(1.278)	0.1406	(1.315)	0.0615	(0.802)
Net Stock Issuance	0.2302***	(2.657)	0.1795	(1.527)	0.2285***	(2.640)
Price	0.5242***	(3.296)	0.5113***	(2.728)	0.4851***	(3.097)
Momentum	0.1752	(0.732)	0.1058	(0.422)	0.1526	(0.619)
Distress	0.4895***	(3.253)	0.5215***	(3.210)	0.4523***	(3.055)
Style	Panel D: Industry defined by 3-digit SIC code					
	All		Announcers		Non-Announcers	
	b	t-stat	b	t-stat	b	t-stat
Firm Size	0.3331**	(2.434)	0.4186***	(2.785)	0.2943**	(2.126)
Age	0.2328***	(3.179)	0.2004*	(1.767)	0.2202***	(2.880)
Beta	0.2417**	(2.468)	0.2772**	(2.212)	0.2223**	(2.326)
Residual Vol	0.4499***	(4.219)	0.3723***	(3.012)	0.4559***	(4.170)
Asset Growth	0.2516**	(2.115)	0.3432**	(2.567)	0.2337*	(1.853)
Accruals	0.0216	(0.360)	0.1506	(1.560)	-0.0169	(-0.255)
Sales Growth	0.2127***	(2.926)	0.1504	(1.454)	0.2038***	(2.727)
Return on Assets	0.4064***	(3.463)	0.3538**	(2.584)	0.3933***	(3.436)
Book-to-Market	0.3046***	(3.191)	0.3174***	(2.770)	0.2962***	(2.835)
Dividend Yield	0.1741***	(3.185)	0.3288	(1.495)	0.1536***	(2.716)
Investments/Assets	0.0510	(0.687)	0.0630	(0.565)	0.0254	(0.332)
Net Stock Issuance	0.2062***	(2.845)	0.1957*	(1.842)	0.2018***	(2.720)
Price	0.4701***	(3.225)	0.4607***	(2.829)	0.4231***	(2.928)
Momentum	0.1587	(0.755)	0.0681	(0.298)	0.1385	(0.644)
Distress	0.4751***	(3.232)	0.4873***	(3.143)	0.4369***	(2.974)

Table 4: Forecasting industry-adjusted return spreads: Alternative industry definitions (continued)

Style	Panel E: Industry defined by Hoberg and Phillips (2011) fixed industry classifications (FIC)					
	All		Announcers		Non-Announcers	
	b	t-stat	b	t-stat	b	t-stat
Firm Size	0.2325	(1.010)	0.2403	(0.931)	0.1707	(0.737)
Age	0.2142	(1.519)	-0.0307	(-0.165)	0.2225	(1.457)
Beta	0.4045***	(2.795)	0.5902***	(4.106)	0.3634**	(2.465)
Residual Vol	0.5186***	(3.093)	0.5419**	(2.441)	0.4877***	(2.870)
Asset Growth	0.4380***	(3.445)	0.6327***	(3.116)	0.4138***	(2.972)
Accruals	0.1102	(1.385)	0.4589***	(2.853)	0.0390	(0.427)
Sales Growth	0.2485**	(2.070)	0.2688*	(1.728)	0.1980	(1.523)
Return on Assets	0.6920***	(3.076)	0.7226***	(2.680)	0.6338***	(2.905)
Book-to-Market	0.2905**	(2.175)	0.3740**	(2.222)	0.2551	(1.639)
Dividend Yield	0.2359**	(2.584)	0.2328*	(1.830)	0.1748*	(1.838)
Investments/Assets	0.1578**	(2.274)	0.2959**	(2.206)	0.1241	(1.636)
Net Stock Issuance	0.3541***	(2.633)	0.3642*	(1.936)	0.3496**	(2.603)
Price	0.6424**	(2.395)	0.5668*	(1.810)	0.5932**	(2.252)
Momentum	0.4930	(1.254)	0.3420	(0.804)	0.4559	(1.132)
Distress	0.7593***	(3.896)	0.8101***	(3.836)	0.6926***	(3.694)

Style	Panel F: Industry defined by Hoberg and Phillips (2011) network industry classifications (TNIC)					
	All		Announcers		Non-Announcers	
	b	t-stat	b	t-stat	b	t-stat
Firm Size	0.2066	(1.017)	0.2827	(1.249)	0.1535	(0.740)
Age	0.1264	(1.491)	0.0075	(0.048)	0.1077	(1.117)
Beta	0.2911**	(2.299)	0.4483***	(2.899)	0.2588**	(2.055)
Residual Vol	0.4271***	(3.666)	0.4184***	(2.746)	0.3923***	(3.167)
Asset Growth	0.4495***	(3.216)	0.6281***	(2.630)	0.4366***	(2.887)
Accruals	0.0748	(0.891)	0.3895*	(1.761)	-0.0025	(-0.026)
Sales Growth	0.3160**	(2.523)	0.3721*	(1.849)	0.2596*	(1.915)
Return on Assets	0.6308***	(3.110)	0.5684**	(2.171)	0.5809***	(2.994)
Book-to-Market	0.0790	(0.505)	0.2150	(1.267)	0.0235	(0.129)
Dividend Yield	0.0973*	(1.768)	0.0035	(0.039)	0.0581	(0.889)
Investments/Assets	0.1521*	(1.730)	0.1998	(1.435)	0.1163	(1.260)
Net Stock Issuance	0.2494**	(2.433)	0.2923*	(1.934)	0.2570**	(2.241)
Price	0.5694**	(2.300)	0.6352**	(2.229)	0.5159**	(2.076)
Momentum	0.4976	(1.454)	0.3996	(1.078)	0.4567	(1.285)
Distress	0.6769***	(4.161)	0.7700***	(3.878)	0.5946***	(3.881)

Table 5: Placebo test for forecasting style return spreads

This table presents the results of regressing equal-weighted characteristic-based long-short portfolio returns on prior one-month characteristic-based long-short "placebo" earnings announcement returns (EAR). To construct the placebo EAR, I randomly select a three-day period return (in excess of the market return) from the previous month that does not fall in the earnings announcement window. The long-short style-based EAR spread is then constructed as before. Panel A (B) shows results from univariate (multivariate) regressions; in the multivariate design the market excess return, and the Fama/French factors HML and SMB are added as controls. Columns with heading "All" show results when portfolio returns are computed using all stocks in the extreme quintiles. Columns with heading "Announcers" ("Non-Announcers") show results when portfolio returns are computed using only the subset of stocks with (without) an earnings announcement in the previous month. The sample period is from Q1:1972-Q4:2011. * indicates significance at the 10% level, ** indicates significance at the 5% level and *** indicates significance at the 1% level. All t-statistics are based on the heteroskedasticity-consistent standard errors of White (1980). See appendix for details about characteristics.

Style	Panel A: Univariate Regression Results					
	All		Announcers		Non-Announcers	
	b	t-stat	b	t-stat	b	t-stat
Firm Size	0.1517	(0.414)	0.0533	(0.143)	0.1265	(0.343)
Age	0.0302	(0.114)	0.2549	(0.885)	-0.0088	(-0.034)
Beta	0.5507**	(1.980)	0.5866**	(2.055)	0.4895*	(1.792)
Residual Vol	0.8230*	(1.960)	0.7943*	(1.874)	0.7975*	(1.903)
Asset Growth	-0.0054	(-0.031)	-0.1059	(-0.564)	0.0142	(0.077)
Accruals	-0.1408	(-1.328)	-0.0621	(-0.358)	-0.1546	(-1.428)
Sales Growth	0.0710	(0.489)	0.0678	(0.362)	0.0395	(0.264)
Return on Assets	0.1779	(0.747)	0.2981	(1.091)	0.1390	(0.569)
Book-to-Market	0.2142	(0.822)	0.4481	(1.460)	0.1972	(0.771)
Dividend Yield	0.5763	(1.598)	0.5322	(1.561)	0.5515	(1.525)
Investments/Assets	0.1165	(0.839)	0.0499	(0.306)	0.1101	(0.753)
Net Stock Issuance	0.0979	(0.380)	0.0245	(0.090)	0.0726	(0.286)
Price	0.3782	(1.158)	0.2439	(0.655)	0.4011	(1.221)
Momentum	0.0127	(0.028)	-0.1008	(-0.223)	-0.0155	(-0.034)
Distress	0.1320	(0.304)	0.0902	(0.205)	0.1192	(0.263)
Style	Panel B: Multivariate Regression Results					
	All		Announcers		Non-Announcers	
	b	t-stat	b	t-stat	b	t-stat
Firm Size	0.0107	(0.049)	-0.0415	(-0.193)	-0.0206	(-0.091)
Age	0.2101	(1.405)	0.4235**	(2.465)	0.1653	(1.132)
Beta	0.2254	(1.522)	0.2937*	(1.789)	0.1671	(1.111)
Residual Vol	0.4976*	(1.847)	0.4512	(1.624)	0.4743*	(1.777)
Asset Growth	-0.1458	(-1.064)	-0.2115	(-1.285)	-0.1304	(-0.887)
Accruals	-0.1580	(-1.545)	-0.0630	(-0.369)	-0.1705	(-1.641)
Sales Growth	-0.0073	(-0.066)	0.0174	(0.100)	-0.0444	(-0.385)
Return on Assets	-0.0859	(-0.440)	0.0080	(0.034)	-0.1221	(-0.615)
Book-to-Market	0.1622	(1.261)	0.4005**	(2.034)	0.1436	(1.125)
Dividend Yield	0.4110*	(1.863)	0.3689*	(1.673)	0.3951*	(1.790)
Investments/Assets	0.0426	(0.349)	0.0028	(0.018)	0.0334	(0.260)
Net Stock Issuance	0.1395	(0.814)	0.0596	(0.295)	0.1092	(0.639)
Price	0.0755	(0.336)	-0.0831	(-0.308)	0.1036	(0.462)
Momentum	0.0571	(0.130)	-0.0461	(-0.107)	0.0283	(0.065)
Distress	-0.1563	(-0.435)	-0.1688	(-0.488)	-0.1788	(-0.470)

Table 6: Forecasting equal-weighted return spreads for different size buckets

This table presents of regressing equal-weighted characteristic-based long-short portfolio returns on prior one-month characteristic-based long-short earnings announcement returns (EAR). Stocks are classified as tiny stocks, small stocks or big stocks based on the 20th and 50th percentile of end-of-June market capitalization for NYSE stocks (see Fama and French (2008)). Characteristic-based return spreads (the dependent variable) are then calculated separately for each size group. Size is excluded as characteristic in this table because it is also used to sort stocks into the three different groups. Panel A (B) shows results from univariate (multivariate) regressions; in the multivariate design the market excess return, and the Fama/French factors HML and SMB are added as controls. The sample period is from Q1:1972-Q4:2011. * indicates significance at the 10% level, ** indicates significance at the 5% level and *** indicates significance at the 1% level. All t-statistics are based on the heteroskedasticity-consistent standard errors of White (1980). See appendix for details about characteristics.

Style	Panel A: Univariate regression results					
	Tiny		Small		Large	
	b	t-stat	b	t-stat	b	t-stat
Age	0.2649***	(2.639)	0.1480	(1.218)	0.1873	(1.479)
Beta	0.6551**	(2.526)	0.7356***	(2.876)	0.5478**	(2.151)
Residual Vol	1.0958***	(3.581)	0.7461***	(2.967)	0.6591***	(2.994)
Asset Growth	0.4686**	(2.357)	0.3780***	(2.637)	0.1601	(1.148)
Accruals	0.0946	(0.779)	0.1464*	(1.737)	0.0552	(0.683)
Sales Growth	0.2240**	(2.251)	0.2255*	(1.687)	0.1564	(1.106)
Return on Assets	0.5538**	(2.554)	0.3160**	(2.145)	0.2139**	(2.054)
Book-to-Market	0.7235***	(3.707)	0.9353***	(4.211)	0.6790***	(3.599)
Dividend Yield	0.5324***	(3.419)	0.3853**	(2.098)	0.2906	(1.598)
Investments/Assets	0.1359	(1.327)	0.1844*	(1.797)	0.0729	(0.662)
Net Stock Issuance	0.4401**	(2.517)	0.2536	(1.576)	0.1825	(1.359)
Price	0.8703***	(3.366)	0.4384**	(2.484)	0.2050	(1.437)
Momentum	0.1220	(0.357)	0.2554	(0.634)	0.1266	(0.337)
Distress	0.6579***	(3.232)	0.3798	(1.618)	0.0813	(0.348)
Style	Panel B: Multivariate regression results					
	Tiny		Small		Large	
	b	t-stat	b	t-stat	b	t-stat
Age	0.2346***	(2.761)	0.0817	(0.990)	0.0579	(0.673)
Beta	0.1654	(1.007)	0.2575*	(1.743)	0.0947	(0.652)
Residual Vol	0.6922***	(2.897)	0.3148**	(2.132)	0.2627**	(2.038)
Asset Growth	0.4894**	(2.517)	0.2571**	(2.255)	0.0122	(0.132)
Accruals	0.0923	(0.798)	0.1108	(1.263)	0.0315	(0.385)
Sales Growth	0.1882**	(2.159)	0.0984	(1.028)	0.0063	(0.062)
Return on Assets	0.6212***	(3.032)	0.2909**	(1.985)	0.0618	(0.694)
Book-to-Market	0.2877**	(1.997)	0.3098**	(2.406)	0.0788	(0.895)
Dividend Yield	0.3727***	(3.216)	0.1815*	(1.795)	0.0647	(0.726)
Investments/Assets	0.1512	(1.519)	0.1312	(1.305)	-0.0082	(-0.097)
Net Stock Issuance	0.3629***	(2.678)	0.1829	(1.547)	0.1449	(1.280)
Price	0.7454***	(3.366)	0.3199**	(2.265)	0.0914	(0.762)
Momentum	0.0278	(0.085)	0.1364	(0.367)	0.0328	(0.095)
Distress	0.6192***	(3.113)	0.3543*	(1.807)	0.0615	(0.318)

Table 7: Long-short SESM-based trading strategy: Factor loadings

This table reports the loadings of the explanatory variables for the regressions shown in table 7, panel A and B of the paper. $MKTRF$ is the excess market return, HML, SMB, UMD, and $ST-REV$ are the value, size, momentum, and short-term reversal factors obtained from Kenneth French's homepage. LIQ is the Pastor and Stambaugh (2003) liquidity factor. $PEAD-EAR$ ($PEAD-SUE$) is the value-weighted return of a traditional PEAD-strategy based on earnings announcement returns (standardized unexpected quarterly earnings). All remaining variables are the value-weighted returns of the characteristic-based long-short strategies outlined in table 1 of the paper. The sample period is from Q1:1972-Q4:2010 for all models that include the Pastor and Stambaugh (2003) liquidity factor and otherwise from Q1:1972-Q4:2011. * indicates significance at the 10% level, ** indicates significance at the 5% level and *** indicates significance at the 1% level. All t-statistics (in parentheses) are based on the heteroskedasticity-consistent standard errors of White (1980).

Panel A: Equal portfolio weights								
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables								
MKTRF	-0.1544**	-0.1520*	-0.1169	0.0346	0.0224	0.0227	0.0175	0.0043
SMB		0.2181	0.2179	0.3208***	0.3135***	0.3180***	0.3606***	0.3635***
HML		0.2113	0.2692*	0.3140***	0.3107***	0.3158***	0.3418***	-0.0034
UMD			0.1732	0.0085	0.0018	-0.0159	-0.0454	-0.2567**
ST-REV				-0.8657***	-0.8789***	-0.8616***	-0.8807***	-0.7771***
LIQ					-0.1242**	-0.1284**	-0.1220**	-0.1163*
PEAD-EAR						0.1669		-0.1237
PEAD-SUE							0.1768	0.2774*
AGE								0.4197*
BETA								0.3248*
RES VOL								0.1061
AG								0.5197
ACCRUALS								-0.4041*
SG								0.3780*
ROA								-0.7595***
DY								0.0438
IA								-0.3485
NS								0.1369
PRICE								-0.2085
FAILURE								0.4877**
R2	0.018	0.042	0.061	0.309	0.322	0.323	0.325	0.420

Table 7: Long-short SESM-based trading strategy: Factor loadings (continued)

Panel B: Value-based portfolio weights								
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables								
MKTRF	-0.1083**	-0.1302**	-0.1194**	0.0199	0.0125	0.0146	0.0126	-0.0904
SMB		0.2538	0.2537	0.3485***	0.3445***	0.3518***	0.3431***	0.1548
HML		0.1264	0.1441	0.1843**	0.1805**	0.1880**	0.1796*	0.0757
UMD			0.0535	-0.0982	-0.0998	-0.1328*	-0.0984	-0.2321**
ST-REV				-0.7976***	-0.8027***	-0.7694***	-0.8026***	-0.6952***
LIQ					-0.0468	-0.0544	-0.0469	-0.0574
PEAD-EAR						0.3164*		0.1618
PEAD-SUE							-0.0052	0.1343
AGE								0.0359
BETA								0.2629*
RES VOL								0.0550
AG								0.4289*
ACCRUALS								-0.0743
SG								0.2260
ROA								-0.4790**
DY								-0.0548
IA								-0.2101
NS								0.0727
PRICE								-0.0213
FAILURE								0.2771
R2	0.013	0.046	0.049	0.364	0.365	0.372	0.365	0.452

Table 8: Forecasting style-based return spreads: Sub-sample results

This table presents the results of regressing equal-weighted characteristic-based long-short portfolio returns on prior one-month characteristic-based long-short earnings announcement returns (EAR). Characteristic-based return spreads are calculated only for the "All" firms sample. Panel A shows univariate and multivariate regression results for the period before January 1992, panel B shows results for the same regression models for the period from January 1992 onwards. In the multivariate design the market excess return, and the Fama/French factors HML and SMB are added as controls. * indicates significance at the 10% level, ** indicates significance at the 5% level and *** indicates significance at the 1% level. All t-statistics are based on the heteroskedasticity-consistent standard errors of White (1980). See appendix for details about characteristics.

Style	Panel A: Q1:1972 - Q4:1991			
	Univariate regressions		Multivariate regressions	
	b	t-stat	b	t-stat
Firm Size	0.7802***	(2.766)	0.4641***	(3.625)
Age	0.3942**	(2.439)	0.1208	(1.060)
Beta	0.3329	(1.013)	0.0214	(0.184)
Residual Vol	0.9089***	(3.023)	0.4860***	(3.633)
Asset Growth	0.3582**	(2.487)	0.2723**	(2.561)
Accruals	0.1728	(1.518)	0.0939	(0.932)
Sales Growth	0.4456***	(3.261)	0.2589**	(2.537)
Return on Assets	0.5046***	(3.214)	0.3704***	(2.883)
Book-to-Market	0.3037	(1.295)	0.0730	(0.503)
Dividend Yield	0.6347***	(2.827)	0.4181***	(3.355)
Investments/Assets	0.1015	(0.952)	0.1064	(0.983)
Net Stock Issuance	0.0628	(0.524)	0.0493	(0.456)
Price	0.4297	(1.237)	0.5054***	(3.185)
Momentum	-0.2830	(-0.849)	-0.2266	(-0.813)
Distress	0.0400	(0.141)	0.1480	(0.872)
Style	Panel B: Q1:1992 - Q4:2011			
	Univariate regressions		Multivariate regressions	
	b	t-stat	b	t-stat
Firm Size	0.4872**	(2.199)	0.4058***	(3.250)
Age	0.5727***	(3.083)	0.4496***	(3.251)
Beta	0.7513***	(2.620)	0.2113	(1.287)
Residual Vol	1.2419***	(3.818)	0.7047***	(3.187)
Asset Growth	0.3883**	(2.076)	0.3196*	(1.936)
Accruals	0.0773	(0.914)	0.0226	(0.296)
Sales Growth	0.1504	(1.276)	0.1324	(1.336)
Return on Assets	0.5341***	(2.850)	0.4315**	(2.274)
Book-to-Market	0.8542***	(4.229)	0.2983**	(2.307)
Dividend Yield	0.4607*	(1.886)	0.2681*	(1.830)
Investments/Assets	0.1165	(0.985)	0.0998	(0.865)
Net Stock Issuance	0.5803***	(2.772)	0.3908***	(2.993)
Price	0.8223***	(3.623)	0.6050***	(3.363)
Momentum	0.4553	(1.057)	0.3420	(0.899)
Distress	0.6820***	(3.251)	0.6244***	(3.408)

Table 9: EAR-SUE-SESM-strategy: Three-factor alphas of triple sorted portfolios

This table presents three-factor alphas (expressed in % per month) of various stock portfolios which result from a sequential triple sorting. Stocks are first sorted into quintiles based on their most recent earnings announcement return (EAR), then into quintiles based on their most recent standardized unexpected quarterly earnings (SUE), and finally into quintiles according to their style-based earnings surprises measure (SESM). The portfolio rebalancing frequency is monthly. The "high-low" rows and columns show the abnormal returns of long-short portfolios, and the abnormal return of the ("high/high/high"-"low/low/low")-portfolio is highlighted in bolt. Three-factor alphas come from a time-series regression of portfolio returns (in excess of the risk-free rate if the portfolio is long-only) on the market excess return, and the Fama/French factors HML and SMB. The sample period is from Q1:1972-Q4:2011. * indicates significance at the 10% level, ** indicates significance at the 5% level and *** indicates significance at the 1% level. All t-statistics are based on the heteroskedasticity-consistent standard errors of White (1980). For brevity, asterisks and t-statistics are reported for the "high-low" rows and columns only.

EAR	SUE	SESM Quintile						
Quintile	Quintile	low	2	3	4	high	high-low	t-stat high-low
1	1	-2.04	-1.72	-1.19	-0.93	-0.54	1.49***	(4.23)
2	1	-1.67	-1.26	-0.71	-0.62	-0.36	1.31***	(4.29)
3	1	-1.10	-1.08	-0.57	-0.01	0.28	1.37***	(3.85)
4	1	-0.90	-0.71	-0.25	0.47	0.91	1.80***	(5.50)
5	1	-0.62	-0.30	0.43	0.55	1.04	1.65***	(4.88)
1	2	-1.48	-1.13	-0.60	-0.51	0.06	1.54***	(5.55)
2	2	-1.21	-0.58	-0.36	0.13	0.25	1.46***	(5.39)
3	2	-0.79	-0.12	0.08	0.46	0.78	1.57***	(5.43
4	2	-0.47	-0.07	0.14	0.48	0.93	1.40***	(5.33)
5	2	-0.37	0.10	0.51	0.71	1.21	1.58***	(6.61)
1	3	-1.38	-1.01	-0.45	-0.31	0.13	1.50***	(4.97)
2	3	-0.78	-0.40	-0.01	0.13	0.58	1.36***	(4.98)
3	3	-0.65	-0.29	0.35	0.37	0.92	1.57***	(6.52)
4	3	-0.51	0.03	0.50	0.65	1.25	1.76***	(6.28)
5	3	-0.06	0.21	0.76	0.92	1.38	1.44***	(6.22)
1	4	-1.17	-0.98	-0.58	-0.33	0.46	1.63***	(5.55)
2	4	-0.69	-0.05	0.14	0.30	0.48	1.18***	(4.43)
3	4	-0.35	0.08	0.43	0.66	0.89	1.25***	(5.19)
4	4	-0.15	0.18	0.44	0.86	1.45	1.60***	(6.11)
5	4	0.10	0.42	0.75	0.99	1.45	1.35***	(5.73)
1	5	-1.36	-0.91	-0.44	-0.39	0.42	1.78***	(5.27)
2	5	-0.51	0.24	0.65	0.62	1.05	1.56***	(4.94)
3	5	0.06	0.52	0.94	1.19	1.60	1.54***	(5.42)
4	5	0.39	0.67	0.97	1.51	1.75	1.36***	(4.65)
5	5	0.41	0.96	1.47	1.81	1.97	1.57***	(5.62)
high-low		2.45***	2.68***	2.67***	2.74***	2.52***	**4.01*** **	
t-stat high-low		(8.68)	(8.24)	(9.64)	(9.40)	(9.67)	**(10.89)**	

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