Analyst Activities and Short-Term Price Momentum: Evidence from the U.K. Market

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ABSTRACT

This study examines weekly momentum strategies that buy prior week's winners and sell prior week's losers, holding one to 52-weeks. The results in the UK market reveal that such long-short strategies lead to negative subsequent returns for a brief period and then become profitable as the holding period is extended, i.e., exhibiting an initial return reversal followed by return continuations. Consistent with the gradual information diffusion hypothesis, the weekly momentum strategies in the UK are found most profitable among stocks with less analyst coverage. Moreover, consistent with the information uncertainty hypothesis, greater weekly momentum returns are observed among those stocks that have had bad forecast records among analysts.

Keywords*:* *Analyst coverage; Analyst forecast bias; Information diffusion; Information uncertainty; Price momentum*

1. Introduction

An extensive empirical evidence of finance literature documents that stock returns are predictable based on past price history. For instance, Jegadeesh and Titman (1993) document strategy that buying winner stocks and simultaneously selling loser stocks generate significant positive returns (about 1% per month) over 3 to 12-month holding periods. This return pattern is found to be robust in different markets. Similar findings of momentum returns have been reported for European markets (e.g., see Hon and Tonks (2003) and Rouwenhorst (1998, 1999), and Schiereck et al. (1999)) and also for Asian markets (Chui et al. (2010)). In contrast, DeBondt and Thaler (1985, 1987) find that buying losers and selling winners based on their returns over a three to five year period performs well in subsequent holding periods of three to five years. Meanwhile, Lehmann (1990) and Jegadeesh (1990) find that stock returns reverse in the short run horizon. The contrarian strategy constructed by buying (selling) previous one week or month losers (winners) earn positive profit because of the microstructure issue such as bid-ask spread (Jegadeesh and Titman (1995)) or delayed price reaction (Lo and Mackinlay(1990)). Conrad and Kaul (1998) test the contrarian and momentum strategies over various horizons, and confirm that contrarian strategies work both in short and long horizons, while the momentum strategies perform well for medium horizon between one month and one year.

Gutierrez and Kelley (2008) construct a strategy by buying prior one week winner portfolio and selling prior one week loser portfolio and find the result of the brief reversal in subsequent holding periods of one to three weeks and followed by momentum in individual stock returns up to one year. They also find that this significant result is not associated with the past mid-term (3 or 6 month) return momentum found by Jegadeesh

and Titman (1993).

In this study we extend the analysis of weekly momentum strategies to the U.K. stocks listed on London Stock Exchange (LSE), with particular attention addressed to the relationship between weekly momentum returns and analyst activities. The finding of significant weekly momentum returns in the UK market will lend further support to the phenomenon in the US market such that one should not attribute such anomalies to simply data snooping biases. Examination of the effectiveness of weekly momentum strategies in the UK stock market is interesting, considering that UK is ranked among the world's largest economies in term of real GDP and real GDP per capita, that the UK stock market is one of the largest in the world and plays a major role in global finance and investment, and that monthly momentum strategy is also found to perform well in the UK stock market (e.g., Rouwenhurst (1998)).

Our results find that the weekly momentum strategy in the UK market, similar to the finding for the US market by Gutierrez and Kelley (2008), generates negative returns initially for a brief period and then becomes profitable when the holding period is extended over a longer period of time.

Another main objective of this study is to explain the weekly momentums. Considering that momentum returns based on prior one-week returns are less likely to be attributed to missing risk factors, we attempt to explain such phenomenon with the gradual information diffusion hypothesis by Hong and Stein (1999) and the information uncertainty hypothesis suggested by Zhang (2006). In the gradual information diffusion hypothesis, we argue that stocks that are slow in reacting to firm-specific information tend to yield drift returns. It follows that the profits to weekly momentum strategy are greater and persist longer for those stocks exhibiting less efficiency in firm-specific

information. In the information uncertainty hypothesis, we argue that investors' psychological biases expect to exhibit more aggravated effects on stocks with greater information uncertainty. It follows that, holding other things constant, the weekly momentum strategies are expected to yield more significant returns and persist longer when the strategy is performed over those stocks with greater information uncertainty.

This study measures proxies for the rate of information diffusion and for the level of information uncertainty based on analyst activities associated with a stock. We measure the rate of information diffusion by firm size, by residual analyst coverage, and by frequencies of forecast revisions. In addition, we measure a stock's level of information uncertainty by the magnitude of forecast revisions, by dispersions in forecasts, and by historical forecast bias.

Consistent with the gradual information diffusion hypothesis, the weekly momentum strategies in the UK are found most profitable among stocks with less analyst coverage. Moreover, consistent with the information uncertainty hypothesis, greater weekly momentum returns are observed among those stocks that have had bad forecast records among analysts.

The remainder of the paper is organized as follows. In Section 2, we develop the research hypotheses. Section 3 introduces the sample, defines assorted measures of information efficiency and the method of weekly momentum strategies. Section 4 discusses the results. Section 5 concludes the paper

2. Research Hypotheses

Recent empirical finance research has widely documented the profitability of monthly momentum strategy formed by buying past winner and selling past loser stocks with the

formation and holding period of one to six months. Several explanations have been proposed to interpret the momentum effects in stock returns. Some have argued that abnormal returns from trading strategies are compensations for risk (e.g., see Conrad and Kaul (1998) and Fama and French (1996)). Others argued that momentum profit arises because of investors' psychological biases when faced with information. For examples, Barberis et al. (1998) argue that momentum originates in investors' conservatism bias, and that investors do not update their beliefs adequately based on the strength and weight of new information. Daniel et al. (1998) suggest that momentum occurs because traders overreact to prior information when new information confirms it. Long-term reversals occur as the overreaction is corrected in the long run. Hong and Stein (1999) propose a gradual information diffusion model by emphasizing on the interaction between two types of confined rational agents which are news watchers and momentum traders. If information diffuses gradually across news watchers underreact in the short-run, momentum traders can profit from trend-chasing. Hong et al. (2000) examine gradual-information diffusion model proposed by Hong and Stein (1999), and show that momentum strategies work better among stocks with low analyst coverage, and the effect of residual analyst coverage on the momentum profits is almost entirely driven by the loser stocks. Zhang (2006) also consider that if any psychological biases induce momentum, then uncertainty regarding a stock's valuation should emphasize these biases and enlarge the momentum in returns. He finds that momentum strategies work better among stocks with greater dispersion in analyst forecast.

The weekly momentum strategy suggested by Gutierrez and Kelley (2008) offers another venue for us to examine the source of momentum returns. Considering that the formation period is as short as one week, return predictability based on prior one week

price performance should not be attributable to missing risk factors, such as the claim by Conrad and Kaul (1998). Meanwhile, the analysis of weekly returns for momentum portfolios held following the formation period allows us to examine with more detailed frequencies how the market reacts to the information contained in prior one-week returns.

According to the information diffusion model proposed by Hong and Stein (1999), the momentum returns arise from information that diffuses gradually across a heterogeneous set of investors. Analysts, providing firm performance estimation and forecasting, help investors collect information about firms. Stocks followed by different levels of analyst activities will affect the speed of information diffusion and represent different levels of information uncertainty. This study attempts to explain weekly momentum returns based on the gradual information diffusion model by Hong and Stein (1999) and by the information uncertainty hypothesis by Zhang (2006). In particular, we aim to test the following hypotheses.

Hypothesis 1:

Stocks that are slow in reacting to firm-specific information tend to yield drift returns. It follows that the profits to weekly momentum strategy are greater and persist longer for those stocks exhibiting less efficiency in firm-specific information.

Hypothesis 1a:

Stocks that are followed by less number of analysts tend to suffer from slower speed of information diffusion and make the stock less information efficient. Therefore, the profits to weekly momentum strategy are expected to be greater and persist longer for stocks with less analyst coverage.

Hypothesis 1b:

Stocks that are followed by analysts who pay greater attentions to the stocks and update the forecast with more timely information tend to experience greater speed of information diffusion and make the stock more information efficient. Therefore, the profits to weekly momentum strategy are expected to be greater and persist longer for stocks with lower frequencies of analyst forecast revisions.

That is, dissemination of firm-specific information is positively related to firm size, analyst coverage and frequencies of forecast revision.

Daniel et al. (1998) investors are overconfident with their private information and therefore underreact to public signals. Daniel et al. (1998, 2001) further propose that investors tend to be more overconfident when firms' businesses are hard to value. If significant momentum returns is due to investors' psychological biases such as overconfidence, it is expected to observe greater investor behavioral biases and stronger price drifts when there is greater information uncertainty. According consideration of this, I develop theoretical postulation and hypothesis as following:

Hypothesis 2：

Investors' psychological biases are expected to exhibit more aggravated effects on stocks with greater information uncertainty. It follows that, holding other things constant, the weekly momentum strategies are expected to yield more significant returns and persist longer when the strategy is performed over those stocks with greater information uncertainty.

Hypothesis 2a:

Stocks with larger sizes of analyst forecast revision, greater dispersion in analyst earnings forecast, or worse records of analyst forecasts are expected to suffer from greater uncertainty in their firm-specific information. Therefore, holding other things constant, the profits to weekly momentum strategy are greater and persist longer for those stocks with forecast revisions of larger sizes, with greater dispersions, or with greater forecast bias.

Forecast dispersion and historical forecast bias have been widely used in the related studies to proxy for the uncertainty about future earnings or the degree of consensus among analysts or market participants (e.g., see Barron et al. (1998); Diether et al. (2002); Lim (2001)). Accordingly, this study applies those measures to proxy for information uncertainty. The detailed definitions of those measures will be described in the next section.

3. Data and Methodology

This section discusses the sample data used in this study. In addition, we discuss those measures, constructed on the basis of analyst activities, proxy for the degree of information diffusion and the degree of information uncertainty associated with a stock.

3.1 Data

The sample stocks of this research include firms listed on London Stock Exchange (LSE) for the U.K. stock market. The sample period extends from January, 1975 to September,

2009. We exclude stocks traded with foreign currency as denomination and with trading days less than 225 days. Daily stock prices are collected from Datastream to calculate stock returns and serve as basis for administering weekly momentum strategies. Accounting information is collected from Worldscope. Moreover, this research requires variables serving as proxies for amount of information and information uncertainty, including analyst coverage, analyst forecast revision, dispersion in analyst forecast and historical forecast bias. The relevant analyst data are compiled from International I/B/E/S Summary History data sets, which contain summary statistic for analyst forecasts, including forecast mean, median and standard deviation as well as information about the number of analysts making forecasts, and the number of upward and downward revision.

3.2 Trading Strategies

Following Gutierrez and Kelley (2008), we perform weekly momentum strategies as follows. All the sample stocks are sorted based on the weekly returns of week *t*. Each stock is assigned into one of three portfolios, P1, P2, and P3, where P1 includes the worst performing 30 percent of stocks, P2 includes the middle 40 percent, and P3 includes the best performing 30 percent of stocks. That is, portfolio P3 contains winner stocks in terms of prior one week return, while portfolio P1 contains loser stocks. All winner and loser portfolios are equally weighted across all component stocks. A zero investment portfolio is formed by buying the winner portfolio and selling the loser portfolio and held for subsequent 1 to 52 weeks. We repeat such portfolio formation process each week and apply the same portfolio rebalancing procedure as Jegadeesh and Titman (1993). We then obtain a weekly calendar-time series of return on winner and loser portfolio.

3.3 Measures of Analyst Activities

This subsection describes those variables that are related to analyst activities and serve to proxy for the rate of information diffusion to the investing public and information uncertainty. We employ two measures to assess the rate of information diffusion of a stock. The first measure is the analyst coverage, i.e., the total number of analysts providing forecasts for the firm the one-year-ahead earnings. Considering the strong positive correlation between firm size and analyst coverage, we follow Hong et al. (2000) and run a cross-sectional regression for the logarithm of (1+Analyst Coverage) against firm size. The residuals obtained are the residual analyst coverage, which will be employed as the measure for analyst coverage in this study.

A second variable used to proxy for the rate of information distribution is the frequency of analyst revisions. We define the measure as the sum of number of estimates raised or lowered over the past year divide by total number of estimates. That is, we have

$$\mathrm{Re}vAtt = \frac{NumUp_t + NumDown_t}{Numest_{t-1}} \qquad (1)$$

Here, *NumUp* (*NumDown*) refers to the number of upward (downward) revisions. Note that this measure serves to assess the degree of attentions paid by analysts to the stock. A greater value of *RevAtt* indicates greater attentions and greater speed of adjustment to information by analysts.

In addition, we apply the following measures to estimate the degree of information uncertainty associated with a stock. The first measure, also constructed with the forecast revisions, is calculated by the size of forecast revision, as estimated by the change of mean EPS forecast, divided by the stock price. That is, we have

$$\mathrm{Re}vUnc = \frac{EPS_t^{mean} - EPS_{t-1}^{mean}}{\mathrm{Pr}ice_{t-1}} \qquad (2)$$

A greater value of *RevUnc* indicates greater magnitude of historical forecast revisions and means greater information uncertainty associated with the stock.

Greater differences of opinions among analysts also suggest greater information uncertainty associated with the stock. We use two measures of forecast dispersions to assess the degree of differences of opinions among analysts for a stock. One is calculated by the ratio of the standard deviation of earnings estimates divided by the stock price, i.e.,

$$DISP_1 = \frac{Stdev\ of\ \ Analyst\ Forecast_t}{\Pr ice_{t-1}} \tag{3}$$

The second measure of forecast dispersion is calculated by the difference between the highest and the lowest earnings forecast divided by the price, i.e.,

$$DISP_2 = \frac{HighEst_t - LowEst_t}{\Pr ice_{t-1}} \tag{4}$$

Another measure to evaluate the information uncertainty is based on the historical analyst forecast bias, which is defined as the deviation of mean analyst forecasts of earnings from the actual earnings per share. The deviation is normalized by price per share and is taken an absolute value as we are only concerned with the magnitude of the forecast bias. Specially, we have

$$Bias\ = \frac{|\ EPS_t^{mean} - EPS_t^{actual}\ |}{\Pr ice_{t-1}} \tag{5}$$

All these measures will be applied to test for the relationship between the rate of information diffusion, information uncertainty and weekly momentum returns.

4. Empirical Results

Table 1 presents the summary statistics for the sample stocks during the period from 1988 to 2008. Panel A reports statistics for all LSE stocks while Panel B reports the descriptive

statistics for those stocks with analyst forecast information available from I/B/E/S. A stock is termed as ‘eligible’ in the table if it has a fiscal one year earnings estimate data from I/B/E/S. Panel A shows that there are about 40% to 60% of the sample stocks with more than one analyst forecast over various times during the sample period. We do not observe significant differences in market capitalization between those with analyst forecast data and those without. Also note that the analyst coverage in the UK market is relatively lower compared to those stocks in the US market.

[Insert Table 1 about here]

4.1 Returns to Weekly Momentum Strategies

In this section we examine the results of momentum strategies based on one-week lagged returns and held over 1- to 52-week holding periods in the U.K. market. Table 2 reports the average weekly returns to the winner and loser portfolios as well as the zero-cost, winner minus loser (WML) portfolio when those portfolios are held for 1 week to 52 weeks. Panel A presents the results for the entire sample period and Panel B presents the results for three sub-sample periods.

The results of Panel A indicate that no significant momentum returns are observed until the holding period is extended to 13 weeks and beyond. The average weekly return to the momentum strategy is 0.023% or approximately 1.20% on annual term when the holding period is 13 weeks, while the corresponding market-risk adjusted return is 0.027% per week or 1.40% per year. When the holding period is extended to 26 weeks, the average weekly momentum return is 0.040% or approximately 2.08% on annual term, and the corresponding market-risk adjusted return is 0.043% per week or 2.24% per year. Note that the weekly momentum returns are comparatively smaller in size compared to

those 6-month/6-month strategies. The results are generally similar to the case of the US market as reported by Gutierrez and Kelley (2008) in that the momentum strategy based on 1-week lagged returns generates negative returns for a brief period in UK and only becomes profitable when the holding period is extended over a longer period of time.

Panel B reports the results for three sub-sample periods and indicates that the first sub-period, from 1975 to 1988, shows quite different return patters over various holding period lengths when compared to the remaining years. During the first sub-sample period, the weekly momentum portfolio exhibit strong reversals when the holding period is less than 13 weeks, while we do not observe similar patter for the rest of the sample period.

[Insert Table 2 about here]

In order to identify the week-by-week contributions of momentum returns, we examine the returns to the momentum portfolios in event time. We track the average momentum portfolio returns in each of the 52 weeks following the portfolio formation week. Table 3 presents the results in terms of both raw returns and market-risk adjusted returns. The results clearly indicate a reversal of the momentum portfolio (WML) in the second week after portfolio formation with a statistically significant weekly return about -0.119%. Such reversal however becomes much weakened and insignificant in the third week. The momentum portfolio starts yielding positive returns from the fourth week following the portfolio formation. These observations suggest that stocks with winning prior one-week returns will initially reverse their performance for the first few weeks but then continue their winning performance later.

Table 3 shows that the return contribution from week 4 to week 13 is statistically significant at 0.034% per week, and the return contribution from week 14 to week 26 is 0.108% per week or about 5.62% on annual term, which also accounts for the largest

quarterly return contribution to the weekly momentum portfolio. It should be noted that these are predictable returns simply based on prior one-week return performance, compared to prior 3- to 12-month returns in the case of Jegadeesh and Titman (1996) and a large literature researching such price momentum.

Figure 1 plots the cumulative raw profits to the weekly portfolios across the 52 weeks following portfolio formation, estimating the profits in each event week separately. The figure shows a run-up in the cumulative profits after week 3, and the run-up is strong enough to overcome the initial reversal, with cumulative profits exceeding 1.5 percent one year after portfolio formation.

[Insert Table 3 about here]

[Insert Figure 1 about here]

4.2 Weekly Momentum and Information Diffusion

This research attempts to take advantage of the weekly observations of the momentum portfolio performance and find implications on the information diffusion course for those U.K. stocks. We have assembled a group of measures serving to proxy for the rate of information diffusion and the degree of information uncertainty for stocks. This section will first explore the relationship between the rate of information diffusion and the weekly momentums.

Hong and Stein (1999) proposed gradual information diffusion model to explain the phenomenon of price momentum. Hong et al. (2000) later suggest that analyst activities may be used to proxy for the speed of information diffusion or information efficiency. We hypothesize that the profits to weekly momentum strategy are greater and persist longer for those stocks exhibiting less efficiency in firm-specific information. Two

different measures of analyst activities are used in this study to proxy for the rate of information diffusion. One is analyst coverage and the other is frequencies of forecast revisions.

In addition to analyst activities, it has been well documented in the literature that stocks of larger sized firms tend to be more information efficient and yield less momentum returns. Various explanations have been offered for such observation. Larger firms are usually widely followed by financial analysts and other professionals, and their information tends to be better circulated among investing public when compared to smaller firms. Also, larger firms usually suffer from less limits to arbitrage. Considering these evidences, the first proxy for the rate of information diffusion to be tested in relation to weekly momentum is firm size.

Sorts by Firm size

To examine the relationship between firm size and weekly momentum, we form two-way dependent sorts. All sample stocks are first sorted into three groups, using 30-40-30 partitions, based on stocks' market capitalization at the end of formation week. Then, the weekly momentum portfolios are formed within each size group based on prior one week returns. The results are presented in Table 4.

The returns to weekly momentum exhibit different patterns for three groups of stocks of different sizes. For the smallest size group (Sub1), there appear only insignificant reversals for holding periods less than 8 weeks and then followed by insignificant momentums when the holding period extends to 52 weeks. For those stocks in the mid-size group (Sub1), we do not observe any reversals in the first few weeks, and instead, the weekly momentum strategies start yielding significantly positive momentum

returns right following the formation week and continue to grow. As to the group of large stocks (Sub3), we observe significantly reversals when the holding period is less than 8 weeks and no significant momentum returns are found for this group of stocks even when the holding period extends to 52 weeks.

Simply put, among the three size groups, only mid-size stocks exhibit significantly positive momentum effects, with the strongest momentum returns to occur when the holding period is as brief as one week showing a 0.163% weekly or 8.48% annual return. Figure 2 depicts the cumulative returns to weekly momentum strategies and shows that mid-sized stocks exhibit the strongest and the most persistent returns.

When comparing the results in Table 4 to those in Table 2, where different sized stocks are pooled to form weekly momentum portfolios, the initial reversals observed in the full-sample results seem to be contributed by large sized stocks while the positive momentum returns observed in the full sample are contributed by mid-size stocks.

[Insert Table 4 about here]

[Insert Figure 2 about here]

Sorts by Residual Analyst Coverage

Now, we consider two measures of analyst activities as proxies for rate of information diffusion, analyst coverage and analyst forecast revision frequencies. Here, we first test whether stocks that are followed by less number of analysts tend to suffer from slower speed of information diffusion and make the stocks less information efficient; therefore, the profits to weekly momentum strategy are expected to be greater and persist longer for stocks with less analyst coverage. This study sorts the stocks based on stocks residual analyst coverage, which purged the effect of firm size by applying the residuals from the

regression of log(1+Analyst Coverage) against the logarithm of firm size (see Hong et al., 2000). Then, we follow the same two-way dependent sorts described in the previous sub-section. Those stocks without any analyst coverage are assigned to a group, Sub0. Then the remaining stocks are sorted into three groups, on a 30-40-30 basis, according to residual analyst coverage. We have group Sub1 containing those stocks with the lowest residual analyst coverage while group Sub3 containing those stocks with the greatest residual analyst coverage. We then perform weekly momentum strategies within each group sorted on analyst coverage. The results are presented in Panel A of Table 5.

For those stocks most covered by analysts (Sub3), the weekly momentum strategy yields significantly negative returns when the holding period is shorter than 8 weeks, and then remains virtually insignificant returns for longer holding periods. On the other hand, the patterns of momentum returns are similar for those stocks which are not covered by analysts (Sub0) and those least covered by the analysts (Sub1). For those two groups, the weekly momentum strategies start generating significantly positive returns right after the formation week and extend their profits to 52 weeks after the formation. The largest momentum return occurs when the weekly momentum is performed on those non-covered stocks and the portfolio is held for 26 weeks, and the resulting momentum return is 0.093% per week or about 4.84% per year. In comparison, the corresponding weekly momentum return for stocks followed by most analysts is only insignificant at -0.001% per week.

Figure 3 also depicts the cumulative returns to such weekly momentums for stocks of different analyst coverage. Those stocks with either zero or least analyst coverage exhibit the strongest and the most persistent momentum returns. The results in Table 5 and Figure 3 support our Hypothesis 1 of gradual information diffusion, stating that

stocks followed by less analysts tend to suffer from slower speed of information diffusion and make the stock less information efficient, and therefore the profits to weekly momentum strategy are expected to be greater and persist longer for stocks with less analyst coverage.

[Insert Table 5 about here]

[Insert Figure 3 about here]

Hong et al. (2000) suggest that the effect of analyst coverage is greater for stocks that are past losers than for past winners. In order to examine whether the weekly momentum results in U.K. are also consistent with the view that analysts play a crucial role in disseminating bad news instead of good news. To proceed testing this implication, we apply the following two-way dependent sorts. The stocks are first sorted into three groups based on one-week lagged return at the end of formation week (P1 to P3) and then within each winner (P3) or loser (P1) group stocks are further sorted on residual analyst coverage. Panel B of Table 5 reports the weekly returns to such loser-analyst-spread trade (LAST) strategy in which buying the stocks in P1/Sub3 and selling those in Pl/Subl. We observe that among loser stocks the return spread between Sub1 and Sub3 is negative and highly statistically significant throughout various lengths of holding period. On the other hand, we do not observe such strong return spreads among winner stocks. Such result supports the proposition of Hong et al. (2000) in that analyst coverage is especially important in propagating bad news.

Sorts by Frequencies of Forecast Revisions

Our second measure of analyst activities to proxy for the rate of information diffusions is

the frequency of forecast revisions as defined by *RevAtt* , in equation (1). We assume that those stocks with most frequent forecast revisions tend to be those receiving most attentions from analysts and therefore enjoying greater speed of adjustment to information. In particular we test our Hypothesis 1b that stocks followed by analysts who pay greater attentions to the stocks and update the forecast with more timely information tend to experience greater speed of information diffusion and make the stock more information efficient, and therefore the profits to weekly momentum strategy are expected to be greater and persist longer for stocks with lower frequencies of analyst forecast revisions.

Similar two-way dependent sorts are performed by first sorting stocks on the frequencies of revision and then on their prior one week returns. The results are reported in Table 6. The momentum returns tend to be significantly positive when performed over stocks receiving less frequent revisions (Sub1). On the other hand, the momentum returns tend to be negative and then reversed to positive for longer holding periods when the strategies are performed over stocks receiving more frequent revisions (Sub3). Overall, the momentum is stronger for those stocks with less frequent revisions, which is consistent with our hypothesis 1b; however, the difference between Sub1 and Sub3 is not significant.

[Insert Table 6 about here]

4.3 Weekly Momentum and Information Uncertainty

In this section, we examine the relation between weekly momentum and information uncertainty. Daniel et al. (1998, 2001) propose that investors tend to be more overconfident when firms' businesses are hard to value. If significant momentum returns

arise from investors' psychological biases such as overconfidence, we expect to observe greater investor behavioral biases and stronger price drifts when there is greater information uncertainty. This study applies three measures of analyst activities, including the magnitude of analyst forecast revision (*RevUnc*), dispersions in analyst forecast (*DISP1, DISP2*) and historically analyst forecast bias (*Bias*), as proxies for information uncertainty. We test our second hypothesis that investors' psychological biases are expected to exhibit more aggravated effects on stocks with greater information uncertainty. It follows that, holding other things constant, the weekly momentum strategies will yield more significant returns and persist longer when the strategy is performed over those stocks with greater information uncertainty.

Sorts by Magnitude of Forecast Revision

The measure of *RevUnc* is defined as the absolute difference between the mean earnings forecast and the actual earnings, as specified in equation (2). The two-way sorted portfolios are formed by first sorting on the size of forecast revision (*RevUnc*) and then on prior one week return. Table 7 reports the results.

Those stocks that have experienced greater sizes of forecast revision (Sub3) are indeed found to yield greater weekly momentum return when the holding period is extended to 26 weeks and longer. In comparison, those stocks with small sizes of forecast revisions (Sub1) do not demonstrate significant weekly momentum returns throughout the various holding periods. For example, when momentum portfolios are held for 52 weeks, the weekly momentum return is significantly positive at 0.04% per week for stocks with greater *RevUnc* (Sub3) while the corresponding return is only insignificant at -0.001% for stocks with lower *RevUnc* (Sub1). Such findings are consistent with our

hypothesis that stocks with larger sizes of analyst forecast revision suffer from greater uncertainty in their firm-specific information, and therefore yield greater and more persistent profits to weekly momentum strategies.

[Insert Table 7 about here]

Sorts by Analyst Forecast Dispersions

The level of information uncertainty may be alternatively measured by dispersions in analyst forecasts. We use two measures of forecast dispersions to assess the degree of differences of opinions among analysts for a stock. One is calculated by the ratio of the standard deviation of earnings estimates divided by the stock price (*DISP1*) and a second measure is calculated by the difference between the highest and the lowest earnings forecast divided by the price (*DISP2*).

Similar two-way dependent sorts are performed for our sample stocks. The results are reported in Table 8, where Panel A lists the results when *DISP1* is used as the proxy while Panel B lists the results when *DISP2* is used. For both measures, the momentum portfolio returns show slight reversals in the beginning. The only significant returns are present when the weekly momentum portfolios are held for 26 weeks following the formation week. However, we do not observe significant differences between those stocks subject to greater forecast dispersions and those subject to lower forecast dispersions. That is, we do not find support to our second hypothesis when forecast dispersions are used to proxy for the level of information uncertainty for stocks.

[Insert Table 8 about here]

Sorts by Historical Forecast Bias

Our third measure of analyst activities to proxy for the level of information uncertainty is a stock's historical forecast bias as defined in equation (5). Similar two-way dependent sorts are performed by first sorting stocks on their forecast records (*Bias*) and then on their lagged one week returns. The results are reported in Table 9.

The table shows that those stocks with good records of historical forecast (Sub1) only reveal initial negative returns to weekly price momentums. In contrast, we indeed find significant weekly momentum returns among those stocks suffering from bad records of historical forecast (Sub3), or greater information uncertainty. For example, when the weekly momentum portfolio is held for 26 weeks, the momentum return is insignificant at 0.015% per week if the momentum portfolio is formed with low bias stocks (Sub1) while it is significant at 0.057% per week if formed with high bias stocks (Sub3). Such findings are consistent with our hypothesis on information uncertainty in that stocks with worse records of analyst forecasts tend to suffer from greater uncertainty in their firm-specific information, and therefore generate greater and more persistent profits to weekly momentum strategy.

[Insert Table 9 about here]

5. Conclusions

This study documents evidences on weekly momentum strategy that buy last week's winner portfolio and sell last week's loser portfolio in the U.K. market. We find such weekly momentum strategy leads to negative returns for a brief period and then becomes profitable when the holding period is extended over a longer period of time. Our results therefore conform to the finding by Gutierrez and Kelley (2008) for the U.S. market,

suggesting that the phenomenon of weekly momentum is real and not the result of data mining.

Considering that momentum returns based on prior one-week returns are less likely to be attributed to missing risk factors, we attempt to explain such phenomenon with the gradual information diffusion hypothesis and the information uncertainty hypothesis. In particular, this study measures proxies for the rate of information diffusion and for the level of information uncertainty based on analyst activities associated with a stock. Consistent with the gradual information diffusion hypothesis, the weekly momentum strategies in the UK are found most profitable among stocks with less analyst coverage. Moreover, consistent with the information uncertainty hypothesis, greater weekly momentum returns are observed among those stocks that have had bad forecast records among analysts.

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Table 1 Summary Statistics of Analyst Forecasts

This table presents the descriptive statistics for sample stocks listed on London Exchange (LSE) during the period from January 1988 to September 2008. Panel A reports the statistics for all sample stocks. Panel B reports the statistics for those stocks with earnings estimates data from I/B/E/S. Size refers to the market value at the end of each year and is denoted in British Pounds (£). Analyst Coverage is the number of analysts providing earnings forecast for the firm. RevAtt is the sum of number of estimates raised or lowered over the past year divide by total number of estimates. RevUnc is the monthly change in the one-year-ahead forecasted earnings by taking the change in the current month's forecast over the forecast in the previous month normalized by price. DISP1 is the standard deviation of analyst EPS forecasts normalized by stock price at end of past month. DISP2, dispersion in analyst forecast, is the difference between the highest value and the lowest value among all analysts' EPS forecasts in one firm normalized by price at end of past month. Bias is the absolute value of difference between the actual EPS and mean of analyst's EPS forecasts in the one-year-ahead forecasted earnings (FY1) normalized by price at end of past month.

	Panel A: Datastream Stocks			Panel B: Eligible Stocks with Earnings Forecasts from IBES								
	Number of Firms	Mean Size (Million)	Percentage of Firms Eligible	Number of Firms	Mean Size (Million)	Analyst Coverage		RevAtt	RevUnc	DISP1	DISP2	Bias
						Mean	Median					
198812	1218	286.2	43.27%	527	212.2	6.06	4	0.246	0.000	0.005	0.014	0.012
199012	995	400.3	46.23%	460	270.3	4.80	3	0.208	-0.004	0.011	0.030	0.031
199212	784	722.3	52.81%	414	467.1	6.03	4	0.273	-0.006	0.020	0.051	0.141
199412	917	745.2	52.56%	482	535.4	5.79	4	0.195	-0.001	0.009	0.024	0.035
199612	1043	904.7	56.28%	587	644.9	5.55	4	0.205	-0.002	0.008	0.020	0.024
199812	1164	1110.4	65.55%	763	820.0	5.72	4	0.211	-0.003	0.010	0.024	0.037
200012	1079	1595.0	60.61%	654	1502.1	4.45	3	0.168	-0.002	0.013	0.032	0.069
200212	1017	1083.8	47.69%	485	1523.4	3.49	2	0.573	-0.005	0.027	0.062	0.135
200412	1083	1296.1	45.98%	498	1337.3	3.22	1	0.344	0.001	0.313	0.685	0.079
200612	1234	1459.5	51.38%	634	1703.3	5.20	3	0.290	-0.003	0.006	0.016	0.048
200812	1124	1062.9	56.23%	632	1188.4	6.36	4	0.296	-0.004	0.016	0.044	0.134

Table 2 Returns to Weekly Momentum Strategies

This table presents the weekly momentum returns using stocks listed on London Stock Exchange (LSE). The stocks with bottom 5% market capitalization at the end of formation week are excluded. The momentum portfolios are formed based on one-week lag return. Portfolio P1 (Loser) contains the worst performing 30% stocks, and Portfolio P3 (Winner) contains the best performing 30% stocks. Return of winner and loser portfolios are equally weighted across all component stocks. The returns of portfolios are in percent. The t-statistics are reported in parentheses. The sample period is from January 1975 to September 2008.

	Holding Period (weeks)								
	1	2	3	4	8	13	26	39	52
Panel A: Total Sample Period Analysis 1975/01~2008/09									
P3(Winner)	0.349	0.321	0.324	0.326	0.329	0.333	0.338	0.342	0.347
	(6.75)	(6.26)	(6.30)	(6.33)	(6.33)	(6.38)	(6.38)	(6.40)	(6.46)
P1(Loser)	0.305	0.335	0.334	0.331	0.324	0.310	0.298	0.301	0.307
	(5.33)	(5.90)	(5.90)	(5.86)	(5.76)	(5.52)	(5.31)	(5.37)	(5.46)
P3-P1	0.044	-0.014	-0.010	-0.004	0.004	0.023	0.040	0.040	0.040
	(1.89)	(-0.82)	(-0.65)	(-0.30)	(0.37)	(2.37)	(5.02)	(5.74)	(6.38)
CAPM(α)	0.049	-0.009	-0.005	0.001	0.008	0.027	0.043	0.042	0.042
	(2.10)	(-0.52)	(-0.32)	(0.04)	(0.74)	(2.82)	(5.47)	(6.20)	(6.82)
Panel B: Sub-period Analysis									
Period I: 1975/01 ~1988/12									
P3-P1	0.001	-0.104	-0.086	-0.097	-0.068	-0.035	0.002	0.007	0.015
	(0.04)	(-4.51)	(-4.27)	(-5.87)	(-5.43)	(-3.47)	(0.27)	(1.03)	(2.65)
CAPM(α)	0.005	-0.098	-0.082	-0.093	-0.064	-0.030	0.006	0.010	0.018
	(0.15)	(-4.25)	(-4.06)	(-5.64)	(-5.15)	(-3.07)	(0.74)	(1.52)	(3.23)
Period II: 1989/01~1998/12									
P3-P1	0.181	0.113	0.067	0.080	0.056	0.059	0.065	0.067	0.062
	(5.08)	(4.49)	(2.58)	(3.42)	(2.95)	(3.35)	(4.63)	(5.65)	(5.46)
CAPM(α)	0.191	0.120	0.077	0.089	0.063	0.065	0.070	0.071	0.065
	(5.50)	(4.91)	(3.12)	(3.99)	(3.49)	(3.82)	(5.17)	(6.13)	(5.88)
Period III: 1999/01~2008/09									
P3-P1	-0.034	-0.017	0.019	0.043	0.056	0.070	0.069	0.060	0.053
	(-0.61)	(-0.39)	(0.49)	(1.24)	(1.83)	(2.84)	(3.33)	(3.26)	(3.27)
CAPM(α)	-0.039	-0.024	0.013	0.037	0.051	0.066	0.066	0.058	0.051
	(-0.70)	(-0.55)	(0.35)	(1.11)	(1.72)	(2.76)	(3.26)	(3.19)	(3.20)

Table 3 Returns to Weekly Momentum Strategies in Event Time

This table presents the average weekly momentum returns in even time for those stocks traded on London Stock Exchange (LSE). Those stocks with bottom 5% market capitalization at the end of formation week are excluded. The momentum portfolios are formed based on one-week lag return. Portfolio P1 (Loser) contains the worst performing 30% stocks, and Portfolio P3 (Winner) contains the best performing 30% stocks. Return of winner and loser portfolios are equally weighted across all component stocks. The returns of portfolios are in percent. The t-statistics are reported in parentheses. The sample period is from January 1975 to September 2008.

	Event Week								
	1	2	3	4 to 13	14 to 26	27 to 39	40 to 52	4 to 52	1 to 52
All Sample Period:1975/01~2008/09									
P3(Winner)	0.351	0.285	0.321	0.307	0.556	0.292	0.572	0.295	0.297
	(6.43)	(5.24)	(5.85)	(12.87)	(13.75)	(13.77)	(13.90)	(27.59)	(28.35)
P1(Loser)	0.370	0.404	0.354	0.272	0.447	0.249	0.477	0.250	0.257
	(6.17)	(6.75)	(5.95)	(10.79)	(10.38)	(11.07)	(10.91)	(21.46)	(22.54)
P3-P1	-0.019	-0.119	-0.033	0.034	0.108	0.043	0.095	0.046	0.040
	(-0.77)	(-5.10)	(-1.35)	(4.23)	(8.11)	(6.56)	(7.62)	(12.05)	(10.69)
CAPM(α)	-0.019	-0.118	-0.035	0.034	0.108	0.043	0.095	0.046	0.040
	(-0.77)	(-5.06)	(-1.44)	(4.20)	(8.12)	(6.53)	(7.64)	(12.05)	(10.68)

Table 4 Returns to Weekly Momentum Strategies for Stocks Sorted by Size

This table presents the results for sample stocks traded on London Stock Exchange (LSE). Stocks with bottom 5% market capitalization at the end of formation week are excluded. The portfolios are formed based on two-way dependent sorts. Stocks are first sorted into 3 groups, using a 30-40-30 strategy, based on firm size at the end of formation week. The momentum portfolios in each size group are formed based on one-week lag return. Portfolio P1 (Loser) contains the worst performing 30%, while portfolio P3 (Winner) contains the best performing 30% stocks. Return of winner and loser portfolios are equally weighted across all component stocks. The returns of portfolios are in percent. The t-statistics are reported in parentheses. The sample period is from January 1975 to September 2008.

		Holding Period (weeks)								
		1	2	3	4	8	13	26	39	52
Weekly Momentums for Stocks of Different Sizes										
Sub1 (Small Size)	P3(Winner)	0.373	0.352	0.354	0.357	0.342	0.353	0.363	0.381	0.375
	P1(Loser)	0.376	0.383	0.374	0.375	0.364	0.349	0.348	0.345	0.344
	P3-P1	-0.003	-0.030	-0.021	-0.019	-0.021	0.003	0.015	0.036	0.031
		(-0.12)	(-1.34)	(-1.06)	(-1.06)	(-1.37)	(0.17)	(0.89)	(1.26)	(1.25)
Sub2	P3(Winner)	0.385	0.351	0.345	0.342	0.338	0.332	0.335	0.344	0.354
	P1(Loser)	0.222	0.265	0.284	0.287	0.295	0.303	0.285	0.289	0.291
	P3-P1	0.163	0.086	0.061	0.055	0.044	0.029	0.050	0.055	0.063
		(6.80)	(4.51)	(3.68)	(3.58)	(3.06)	(2.24)	(3.67)	(3.38)	(4.12)
Sub3 (Large Size)	P3(Winner)	0.207	0.210	0.228	0.247	0.276	0.284	0.298	0.300	0.310
	P1(Loser)	0.375	0.379	0.370	0.344	0.332	0.324	0.320	0.321	0.318
	P3-P1	-0.168	-0.169	-0.141	-0.097	-0.056	-0.040	-0.022	-0.021	-0.008
		(-6.66)	(-8.89)	(-8.66)	(-6.78)	(-4.27)	(-1.89)	(-0.81)	(-0.56)	(-0.22)

Table 5 Returns to Weekly Momentum Strategies for Stocks Sorted by Analyst Coverage

This table presents the results for sample stocks traded on London Stock Exchange (LSE). Stocks with bottom 5% market capitalization at the end of formation week are excluded. The portfolios are formed based on two-way dependent sorts. Panel A reports the results when stocks are first sorted into 4 groups based on analyst coverage. The Sub0 group contains those stocks with no earnings forecast data available from IBES. Those stocks with earnings forecast data available are then further partitioned, using a 30-40-30 strategy, based on residual analyst coverage. The momentum portfolios in each size group are formed based on one-week lag return. Portfolio P1 (Loser) contains the worst performing 30%, while portfolio P3 (Winner) contains the best performing 30% stocks. Return of winner and loser portfolios are equally weighted across all component stocks. Panel B reports the returns on LAST strategies, where the stocks are first sorted on prior one-week returns and then sorted on analyst coverage. The returns of portfolios are in percent. The t-statistics are reported in parentheses. The sample period is from January 1975 to September 2008.

		Holding Period (weeks)								
		1	2	3	4	8	13	26	39	52
Panel A: Weekly Momentums for Stocks with Different Levels of Residual Analyst Coverage										
Sub0	P3(Winner)	0.162	0.157	0.162	0.170	0.163	0.167	0.171	0.178	0.186
(Zero	P1(Loser)	0.094	0.095	0.098	0.090	0.089	0.075	0.078	0.089	0.104
Analyst	P3-P1	0.068	0.062	0.065	0.080	0.074	0.092	0.093	0.089	0.082
Coverage)		(1.64)	(1.99)	(2.32)	(3.17)	(3.65)	(5.55)	(6.62)	(6.97)	(7.13)
Sub1	P3(Winner)	0.212	0.183	0.153	0.149	0.140	0.130	0.109	0.106	0.113
(Low	P1(Loser)	0.020	0.036	0.052	0.043	0.055	0.039	0.030	0.037	0.050
Analyst	P3-P1	0.192	0.146	0.101	0.106	0.085	0.091	0.078	0.069	0.062
Coverage)		(3.80)	(3.73)	(2.97)	(3.44)	(3.39)	(4.51)	(4.98)	(5.25)	(5.23)
Sub3	P3(Winner)	0.129	0.132	0.137	0.167	0.177	0.177	0.187	0.192	0.194
(High	P1(Loser)	0.271	0.276	0.254	0.233	0.219	0.207	0.188	0.192	0.192
Analyst	P3-P1	-0.141	-0.144	-0.117	-0.066	-0.043	-0.030	-0.001	0.000	0.002
Coverage)		(-2.91)	(-3.88)	(-3.51)	(-2.26)	(-1.81)	(-1.48)	(-0.05)	(-0.00)	(0.20)
Panel B: Returns on Loser-Analyst-Spread-Strategies (LAST) based on Residual Analyst Coverage										
P1 (Loser)	Sub0(Zero)	0.095	0.098	0.101	0.092	0.090	0.078	0.083	0.094	0.108
	Sub1(Low)	0.006	0.031	0.043	0.031	0.049	0.038	0.031	0.037	0.052
	Sub3(High)	0.262	0.279	0.258	0.235	0.209	0.198	0.180	0.183	0.185
	Sub1-Sub3	-0.256	-0.248	-0.215	-0.204	-0.159	-0.160	-0.149	-0.146	-0.133
		(-4.56)	(-4.89)	(-4.35)	(-4.23)	(-3.39)	(-3.48)	(-3.37)	(-3.32)	(-3.01)
P3 (Winner)	Sub0(Zero)	0.159	0.154	0.162	0.169	0.161	0.166	0.172	0.177	0.185
	Sub1(Low)	0.189	0.176	0.155	0.154	0.138	0.130	0.113	0.112	0.119
	Sub3(High)	0.162	0.168	0.167	0.186	0.196	0.190	0.190	0.193	0.197
	Sub1-Sub3	0.027	0.008	-0.012	-0.032	-0.057	-0.060	-0.078	-0.081	-0.078
		(0.51)	(0.17)	(-0.26)	(-0.72)	(-1.39)	(-1.48)	(-1.93)	(-2.01)	(-1.93)

Table 6 Returns to Weekly Momentum Strategies for Stocks Sorted by Frequencies of Forecast Revisions (*RevAtt*)

This table presents the results for sample stocks traded on London Stock Exchange (LSE). Stocks with bottom 5% market capitalization at the end of formation week are excluded. The portfolios are formed based on two-way dependent sorts. Stocks are first sorted into 3 groups, using a 30-40-30 strategy, based on frequencies of revisons (*RevAtt)* at the end of formation week. The momentum portfolios in each RevAtt group are formed based on one-week lagged return. Portfolio P1 (Loser) contains the worst performing 30%, while portfolio P3 (Winner) contains the best performing 30% stocks. Return of winner and loser portfolios are equally weighted across all component stocks. The returns of portfolios are in percent. The t-statistics are reported in parentheses. The sample period is from January 1975 to September 2008.

		Holding Period (weeks)								
		1	2	3	4	8	13	26	39	52
Weekly Momentums for Stocks with Different Levels of Forecast Revision Frequencies (RevAtt)										
Sub1	P3(Winner)	0.238	0.243	0.244	0.246	0.239	0.233	0.226	0.222	0.219
(Low	P1(Loser)	0.166	0.164	0.160	0.155	0.150	0.146	0.147	0.142	0.139
Number of	P3-P1	0.073	0.080	0.083	0.091	0.090	0.087	0.079	0.080	0.081
Revision)		(1.50)	(1.74)	(1.87)	(2.07)	(2.09)	(2.05)	(1.87)	(1.90)	(1.92)
Sub3	P3(Winner)	0.121	0.110	0.106	0.121	0.144	0.145	0.147	0.152	0.156
(High	P1(Loser)	0.166	0.173	0.165	0.146	0.137	0.121	0.114	0.116	0.128
Number of	P3-P1	-0.045	-0.063	-0.060	-0.025	0.008	0.024	0.033	0.035	0.028
Revision)		(-1.07)	(-1.92)	(-2.07)	(-0.99)	(0.33)	(1.18)	(1.93)	(2.27)	(1.92)
Sub1-Sub3	P3-P1	0.118	0.143	0.143	0.116	0.082	0.063	0.046	0.044	0.053
		(1.91)	(2.54)	(2.69)	(2.30)	(1.69)	(1.33)	(1.02)	(0.99)	(1.20)

Table 7 Returns to Weekly Momentum Strategies for Stocks Sorted by Forecast Revision Magnitude (*RevUnc*)

This table presents the results for sample stocks traded on London Stock Exchange (LSE). Stocks with bottom 5% market capitalization at the end of formation week are excluded. The portfolios are formed based on two-way dependent sorts. Stocks are first sorted into 3 groups, using a 30-40-30 strategy, based on the size of analyst forecast revisions (*RevUnc*) at the end of formation week. The momentum portfolios in each RevUnc group are formed based on one-week lagged return. Portfolio P1 (Loser) contains the worst performing 30%, while portfolio P3 (Winner) contains the best performing 30% stocks. Return of winner and loser portfolios are equally weighted across all component stocks. The returns of portfolios are in percent. The t-statistics are reported in parentheses. The sample period is from January 1975 to September 2008.

		Holding Period (weeks)								
		1	2	3	4	8	13	26	39	52
Weekly Momentums for Stocks with Different Levels of Forecast Revisions (RevUnc)										
	P3(Winner)	0.136	0.138	0.139	0.149	0.159	0.163	0.158	0.165	0.158
Sub1	P1(Loser)	0.205	0.196	0.190	0.179	0.175	0.174	0.167	0.162	0.159
(Low)	P3-P1	-0.069	-0.059	-0.051	-0.030	-0.016	-0.011	-0.009	0.003	-0.001
		(-1.56)	(-1.59)	(-1.49)	(-0.94)	(-0.54)	(-0.38)	(-0.35)	(0.14)	(-0.06)
	P3(Winner)	0.265	0.261	0.259	0.271	0.285	0.267	0.243	0.228	0.210
Sub3	P1(Loser)	0.295	0.294	0.286	0.274	0.261	0.239	0.206	0.185	0.169
(High)	P3-P1	-0.030	-0.033	-0.027	-0.003	0.024	0.028	0.038	0.043	0.041
		(-0.74)	(-1.04)	(-0.98)	(-0.11)	(1.13)	(1.46)	(2.29)	(2.88)	(2.98)
Sub1-Sub3	P3-P1	-0.039	-0.026	-0.024	-0.027	-0.040	-0.039	-0.046	-0.040	-0.042
		(-0.72)	(-0.60)	(-0.60)	(-0.72)	(-1.20)	(-1.25)	(-1.70)	(-1.51)	(-1.65)

Table 8 Returns to Weekly Momentum Strategies for Stocks Sorted by Forecast Dispersions

This table presents the results for sample stocks traded on London Stock Exchange (LSE). Stocks with bottom 5% market capitalization at the end of formation week are excluded. The portfolios are formed based on two-way dependent sorts. Stocks are first sorted into 3 groups, using a 30-40-30 strategy, based on two measures of forecast dispersions DISP1 and DISP2 at the end of formation week. The momentum portfolios in each DISP group are formed based on one-week lagged return. Portfolio P1 (Loser) contains the worst performing 30%, while portfolio P3 (Winner) contains the best performing 30% stocks. Return of winner and loser portfolios are equally weighted across all component stocks. Panel A reports the results when sorted on DISP1 while Panel B reports the results when stocks are sorted on DISP2. The returns of portfolios are in percent. The t-statistics are reported in parentheses. The sample period is from January 1975 to September 2008.

		Holding Period (weeks)								
		1	2	3	4	8	13	26	39	52
Panel A: Weekly Momentums for Stocks with Different Levels of DISP1										
	P3(Winner)	0.165	0.134	0.127	0.155	0.166	0.165	0.169	0.161	0.171
Sub1	P1(Loser)	0.194	0.218	0.203	0.186	0.168	0.172	0.137	0.155	0.148
(Low)	P3-P1	-0.029	-0.084	-0.076	-0.031	-0.002	-0.007	0.031	0.007	0.023
		(-0.67)	(-2.50)	(-2.61)	(-1.07)	(-0.07)	(-0.35)	(1.95)	(0.40)	(1.13)
	P3(Winner)	0.207	0.161	0.157	0.169	0.173	0.164	0.178	0.162	0.161
Sub3	P1(Loser)	0.164	0.189	0.175	0.157	0.137	0.129	0.134	0.137	0.120
(High)	P3-P1	0.043	-0.028	-0.018	0.011	0.036	0.035	0.043	0.025	0.041
		(0.83)	(-0.71)	(-0.49)	(0.34)	(1.21)	(1.27)	(1.93)	(1.19)	(1.64)
Sub1-Sub3	P3-P1	-0.072	-0.056	-0.058	-0.043	-0.037	-0.042	-0.012	-0.018	-0.018
		(-1.24)	(-1.28)	(-1.47)	(-1.09)	(-1.15)	(-1.37)	(-0.48)	(-0.72)	(-0.56)
Panel B: Conditional Momentums for Stocks with Different Levels of DISP2										
	P3(Winner)	0.189	0.151	0.139	0.159	0.166	0.160	0.165	0.158	0.166
Sub1	P1(Loser)	0.160	0.183	0.175	0.164	0.164	0.168	0.125	0.145	0.138
(Low)	P3-P1	0.029	-0.032	-0.035	-0.005	0.002	-0.007	0.040	0.014	0.028
		(0.67)	(-0.94)	(-1.16)	(-0.17)	(0.08)	(-0.39)	(2.44)	(0.78)	(1.34)
	P3(Winner)	0.215	0.170	0.172	0.180	0.200	0.192	0.200	0.204	0.196
Sub3	P1(Loser)	0.199	0.210	0.211	0.190	0.174	0.163	0.159	0.177	0.165
(High)	P3-P1	0.016	-0.040	-0.039	-0.010	0.026	0.029	0.041	0.027	0.031
		(0.31)	(-1.00)	(-1.08)	(-0.30)	(0.87)	(1.02)	(1.85)	(1.22)	(1.22)
Sub1-Sub3	P3-P1	0.013	0.008	0.004	0.005	-0.024	-0.036	-0.001	-0.013	-0.003
		(0.22)	(0.17)	(0.09)	(0.11)	(-0.75)	(-1.19)	(-0.04)	(-0.50)	(-0.10)

Table 9 Returns to Weekly Momentum Strategies for Stocks Sorted by Forecast Bias

This table includes all domestic stocks trading in London Stock Exchange (LSE). The stocks with bottom 5% market capitalization at the end of formation are excluded. The portfolios formed using a two way dependent sort. The stocks are first sorted into 3 subsamples, using a 30-40-30 strategy, based on Bias2a at the end of formation week. The momentum portfolios in each subsample are formed based on one-week lag return. Portfolio P1 (Loser) is the worst performing 30%, and Portfolio P3(Winner) is the best Performing 30%. Return of winner and loser portfolios are equally weighted across all component stocks. The returns of portfolios are in percent. The t-statistics are reported in parentheses. The sample period is from Jan. 1989 to Sept. 2008.

		Holding Period (weeks)								
		1	2	3	4	8	13	26	39	52
Weekly Momentums for Stocks with Different Levels of Historical Forecast Bias (Bias)										
	P3(Winner)	0.173	0.170	0.166	0.177	0.186	0.184	0.182	0.164	0.171
Sub1	P1(Loser)	0.272	0.276	0.269	0.258	0.245	0.222	0.167	0.160	0.154
(Low)	P3-P1	-0.099	-0.106	-0.104	-0.081	-0.058	-0.038	0.015	0.004	0.016
		(-2.61)	(-3.63)	(-3.92)	(-3.37)	(-2.76)	(-2.23)	(0.96)	(0.27)	(1.24)
	P3(Winner)	0.142	0.103	0.102	0.096	0.115	0.117	0.138	0.154	0.170
Sub3	P1(Loser)	0.033	0.039	0.057	0.053	0.050	0.058	0.081	0.106	0.123
(High)	P3-P1	0.109	0.065	0.045	0.043	0.065	0.059	0.057	0.049	0.047
		(2.06)	(1.60)	(1.25)	(1.33)	(2.45)	(2.37)	(3.04)	(2.23)	(2.18)
Sub1-Sub3	P3-P1	-0.208	-0.171	-0.149	-0.124	-0.123	-0.097	-0.042	-0.045	-0.031
		(-3.72)	(-3.99)	(-4.02)	(-3.77)	(-4.38)	(-3.72)	(-1.96)	(-1.92)	(-1.26)

Figure 1 Cumulative Profit of Weekly Momentum Strategy

This figure presents the weekly momentum results for sample stocks traded on London Stock Exchange (LSE). The graph depicts the cumulative raw profits to the weekly WML portfolios across the 52 weeks following portfolio formation. The momentum portfolios are formed based on one-week lag return. The sample period is from January 1975 to September 2008.

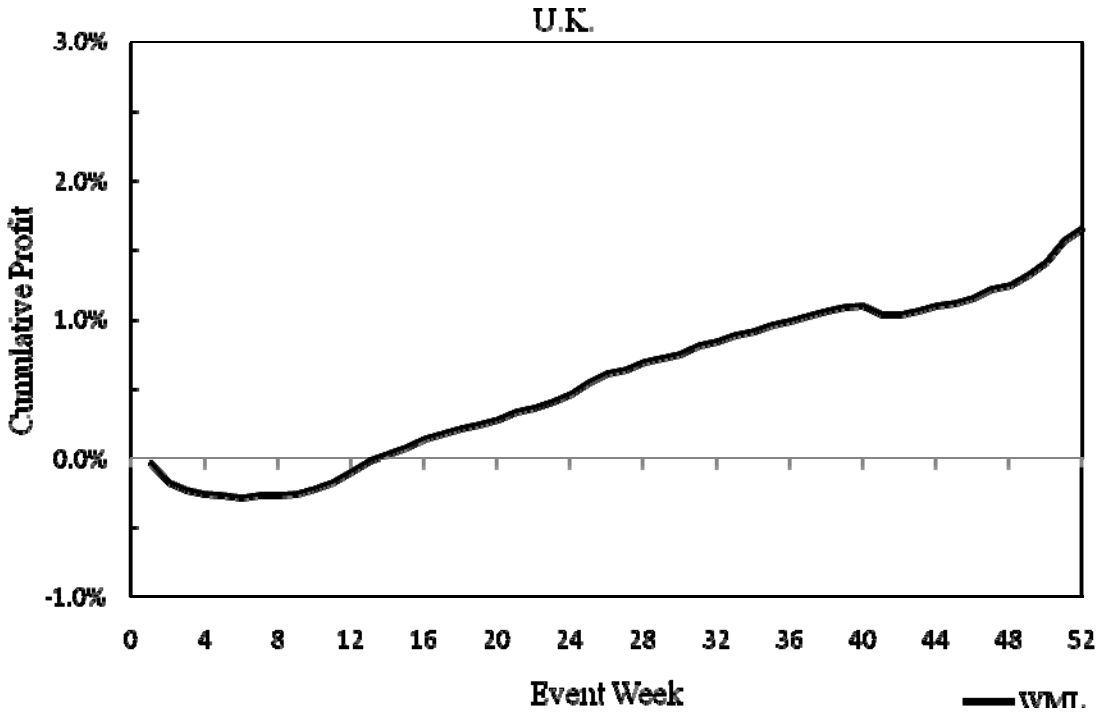

Figure 2 Cumulative Profit of Weekly Momentum Strategy Sorting by Size

This figure presents the weekly momentum results for sample stocks traded on London Stock Exchange (LSE). Stocks are first partitioned into three groups, Large, MID, and Small, based on firm size. The graph depicts for each portioned stocks the cumulative raw profits to the weekly WML portfolios across the 52 weeks following portfolio formation. The momentum portfolios are formed based on one-week lag return. The sample period is from January 1975 to September 2008.

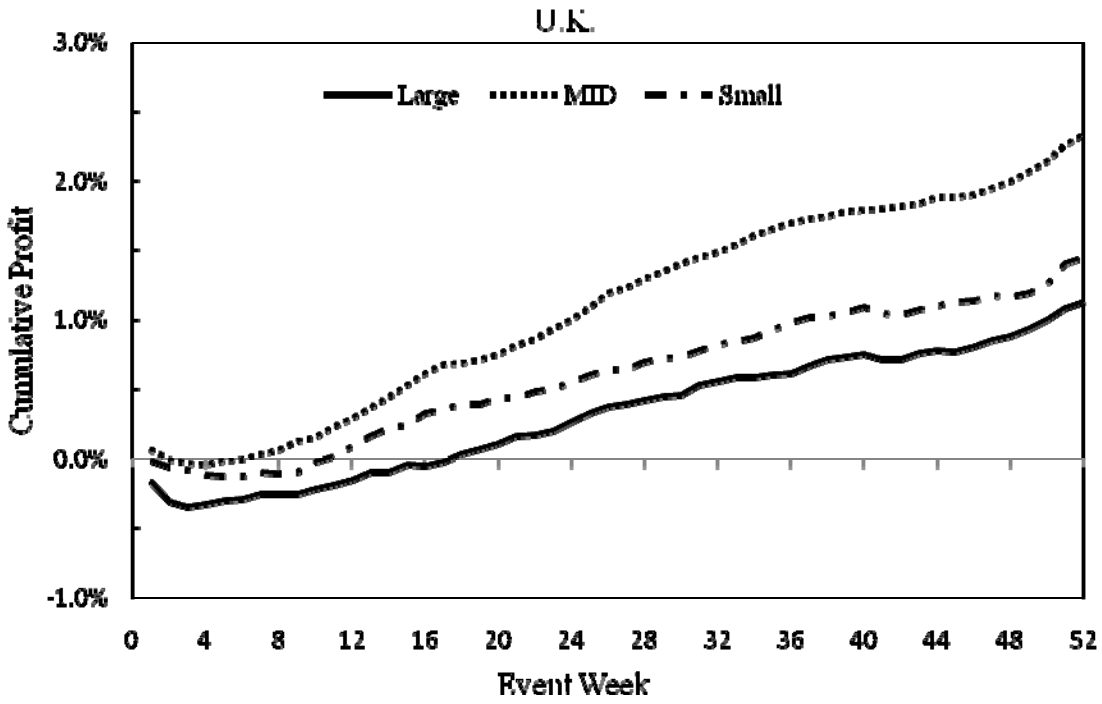

Figure 3 Cumulative Profit of Weekly Momentum Strategy Sorting by Residual Analyst Coverage

This figure presents the weekly momentum results for sample stocks traded on London Stock Exchange (LSE). Stocks are first partitioned into four groups based on analyst coverage. The 'Zero' group contains those stocks with no earnings forecast data available from IBES. Those stocks with earnings forecast data available are then further partitioned, using a 30-40-30 strategy, into High, Med, and Low, three groups based on residual analyst coverage. The graph depicts for each portioned stocks the cumulative raw profits to the weekly WML portfolios across the 52 weeks following portfolio formation. The momentum portfolios are formed based on one-week lag return. The sample period is from January 1975 to September 2008.