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Market Reaction to an Earnings Shock: A Test of the Conservatism Effect

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Abstract

In this paper, I empirically test the conservatism effect of Barberis, Shleifer and Vishny (1998). Conditioning on a shock to quarterly earnings, firms ranking in the top (bottom) earnings shock quintile exhibit substantial price momentum over the next three-month periods following the initial earnings shock. In the subsequent quarter, firms reporting earnings performance that maintain their ranking positions in the highest (lowest) earnings quintile exhibit a marginal incremental price run above that of the initial earnings signal. However, firms that fail to keep (succeed at moving out of) their ranking positions in the highest (lowest) earnings quintile experience a strong price reversal. These findings are robust to the four-factor regression (the Fama-French three-factor model extended by the momentum factor) and various robustness tests. Evidence reported in this paper is not consistent with the view that investors underreact to a recent earnings change. Rather, the evidence points to a market that systematically overreacts to extreme earnings news.

Key words: Earnings shock; Confirming earnings signals; Disconfirming earnings evidence; Conservatism effect; Overreaction; Price reversals;

JEL classification: G12; G14; M41

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1. Introduction

The objective of this paper is to empirically test whether investors exhibit a conservatism bias as predicted by Barberis, Shleifer and Vishny (1998). Drawing on evidence from the cognitive psychology literature, Barberis et al. (1998, BSV) construct a model based on two salient human cognitive biases, i.e., conservatism and representativeness to capture the momentum and reversal anomalies. According to the BSV (1998) model, conservatism leads to an inadequate investors' response to a firm's recent earnings signals because investors believe this earnings change will be reversed. On the other hand, a good (bad) trend in a firm's reported earnings is assumed to be representative of the firm's future prospects and as a result it triggers an overreaction.

The BSV (1998) model provides a clear and testable prediction about the mechanism by which investors process, interpret and internalize accounting earnings data and how this information affects their investment decisions. In the BSV (1998) model, unrepeated earnings changes are largely dismissed by investors as noises that carry no predictive value for subsequent earnings performance. As a result, the price impact of these earnings signals are not fully reflected immediately into market prices. Rather, it takes the market up to 6-12 months to completely absorb information contained in these signals (e. g., Bernard and Thomas, 1989, 1990).

To test the conservatism effect of the BSV (1998) model, I employ a two-step test as illustrated in Figure I. First, using quarterly data from 1976 to 2007, I identify a group of publicly traded firms that have good (bad) earnings shocks that place them in the top (bottom) quintiles.[1] Then, I track their stock price performance over the next quarter, starting from the month following the quarter in which the initial earnings shocks occur to measure how the market reacts to these earnings signals.[2] Second, at the end of the first quarter following the initial earnings shock, I decompose these firms into two groups: confirming and disconfirming firms based on their quarterly earnings performance. The confirming category includes firms that maintain their initial earnings shock positions in the highest (lowest) earnings quintile while the

[1] A firm's earnings shock is defined as the difference between the firm's current quarterly earnings and its earnings from the same quarter of one year ago. I use this crude definition of unexpected earnings for three reasons: First, it is consistent with the spirit of the BSV (1998) model, which assumes that earnings follow a random walk. Second, it is consistent with the findings of the earnings momentum literature (e.g., Bernard and Thomas, 1989, 1990) which shows that investors fail to understand the time-series behavior of a firm's earnings and expect the firm's earnings to follow a random walk. Third, the naïve expectation model fits my data and produces a balanced sample, i.e., the number of firms with confirming and disconfirming earnings signals in the second step of my test is roughly the same (see Table I). In an unreported robustness test, I define an earnings shock as the difference between reported quarterly earnings and the mean analysts' earnings forecasts and I obtain similar results to those reported in this study. However, analysts appear to overreact to good earnings news, resulting in fewer observations in my confirming high earnings shock subsample firms relative to the naïve expectation model in which unexpected earnings is defined as the difference between current earnings and the results of the same quarter from one year ago. Further, analysts' earnings forecasts cover slightly shorter period, i.e., 1984 – 2007 instead of 1976 – 2007.

[2] Skinner and Sloan (2002) show that the bulk of a firm's stock price reaction to the announcement of its quarterly earnings is concentrated in the 31 days leading up to the announcement date. Further, empirical studies (e.g., Kasznik and Lev, 1995; Skinner, 1994, 1997; Soffer, Thiagarajan and Walther, 2000) find that earnings preannouncement is pervasive. Kasznik and Lev (1995) and Soffer et al. (2000) report that about 75 percent of all firms' earnings preannouncements occur within two weeks of both sides of the fiscal quarter end.

disconfirming group contains firms that fail to keep (succeed at moving out of) their ranking positions, i.e., the top (bottom) quintile.

Under the efficient market hypothesis, a firm's stock prices will fully reflect the firm's permanent earnings shock in a timely fashion and without bias when it becomes known as shown in Figure Ia. On the other hand, if this earnings change is temporary, it will be dismissed by the market and the stock prices of the firm's shares will not be affected.

However, in a conservative market context, investors expect to respond cautiously to the firm's good (bad) earnings change because they believe that this earnings signal is likely to be reversed. Although this market reaction is positively correlated with the initial earnings signal as shown in Figure IIb, a disproportionately large price impact of this earnings shock is not fully captured by the market prices. This inadequate response is a manifestation of investors' failure to revise their expectations by taking into account the implication of the initial earnings shock for future earnings performance.

If investors respond conservatively to unrepeated performance signals as predicted by the BSV (1998) model, market prices' reaction to the initial earnings shock will be weak and timid compared to the market's response to confirmatory news that assures investors that the initial earnings shock is not a stand-alone event (see Figure IIb). In other words, the investors' reaction to the confirming signal should be stronger than their response to the initial earnings change. Therefore, the confirmatory earnings performance should lead to a greater price reaction relative to that of the initial earnings signal. On the other hand, disconfirming news, i.e., earnings performance that contradicts the initial change in a firm's quarterly earnings should have no or weak negative price impact because the reversal of the initial earnings signal is already built into the market expectations.

In comparison, if the market's response to the initial earnings news is an overreaction as illustrated in Figure IIc, confirmatory news will probably create incremental momentum (i.e., overreaction) above that caused by the initial response to the earnings shock. However, this additional overreaction should not be as strong as the initial momentum because investors expect the initial earnings shock to be followed by similar good (bad) performance. On the contrary, firms with disconfirmatory performance will experience a strong price reversal for two reasons (see Figure IIc). First, the market's reaction to the initial earnings signal pushes their share prices above (below) their fair values. Second, the reversal of the initial earnings signal is contrary to investor expectations. In other words, the market expects earnings changes to drift in the same direction.

In this study, I present empirical evidence that casts doubt on the views that investors underreact to unrepeated earnings shocks. Rather, my findings point to a market that is prone to overreact to earnings news. First, initial earnings shocks generate statistically and economically significant earnings momentum in the first quarter i.e., three months following the initial shocks. Firms reporting favorable initial earnings news outperform their counterparts with unfavorable earnings signals by about 2.5 percent a month over the three-month period. Second, firms that maintain their initial earnings rankings in the immediate quarter following the first earnings shocks experience a very weak incremental price continuation, i.e., momentum above that of the initial earnings shock.

Finally, disconfirming evidence indicates that firms exhibit a strong price reversal over the three-month horizons. This reversal not only wiped out the initial momentum but initial earnings shock losers marginally beat their initial winner cohorts. For example, the return for high earnings disconfirming firms is 0.41 percent a month while the return for firms with low

earnings disconfirmatory news is 0.56 percent per month, resulting in an average monthly return differential of -0.15 percent between these two groups.

My finding is robust to the four-factor regression, the three factor Fama-French model (Market-RF, size and book-to-market ratios) and the momentum factor as well as to a number of robustness check tests. It is evident from the results reported in this study that my finding provides no support for the prevailing view that investors dismiss or at least give little weight to a recent earnings change in their pricing decisions. To put it succinctly, I find no evidence of an investor conservatism bias in evaluating and interpreting accounting data as predicted by the BSV (1998) model. On the contrary, my finding points to a potential market overreaction to an initial earnings shock that is subsequently corrected (or even overcorrected) in a prompt and swift manner.

There are other theories that have a role for private information (e.g., Daniel, Hirshleifer and Subrahmanyam, 1998; Hong and Stein, 1999).[3] In these models, investors who trade on their private information may create price momentum that is eventually culminated in a market overreaction. Given the nature of my data, it is difficult to measure the impact of private information signals on market prices. However, the magnitude of the initial earnings shock driven financial momentum and price reversal following contradictory earnings news is unlikely to be explained by the trading activities of a few well-informed investors.

My finding contributes to the existing literature in four ways. First, I extend the growing stream of investor behavior literature by providing evidence about how earnings shocks create biased investor expectations. My finding shows that investors are prone to overreact to extreme earnings news causing stock prices to swing in a prompt and swift manner. Further, results reported in this paper cast serious doubt on the view that the market is likely to dismiss or, at least, give little weight to a firm's recent earnings change. On the contrary, this evidence suggests a market in which recent good (bad) fundamental signals are weighted heavily in investor expectations.

Second, my evidence suggests a possible alternative explanation to the findings of the earnings momentum literature (e.g., Bernard and Thomas, 1989) that characterizes the price movements following good (bad) earnings surprises as evidence of a market underreaction to information signals contained in a firm's recent earnings change. Rather, my finding suggests that the post-earnings announcement drift can be a manifestation of a market overreaction to an earnings shock that will recover to underlying values as the market eventually corrects with evidence pointing to the opposite direction of the initial earnings shock.

Third, I contribute to recent empirical and theoretical studies (e.g., Lee and Swaminathan, 2000; Alwathainani, 2012) that view a short-term positive correlation in market returns and a return reversal at the long horizon as a manifestation of equity prices that systematically overreact to information signals leading to significant price-value divergence that is subsequently corrected. Lee and Swaminathan (2000) report evidence suggesting that the bulk of the momentum returns is negated by price reversals in years 2 through 5. They argue that their findings contradict the notion that the momentum evidence is a manifestation of investors' failure to respond timely to new information. Rather, they argue that a disproportionately large part of the momentum returns should be characterized as a market price overreaction.

Alwathainani (2012) finds stocks with a string of relatively high (low) returns over the past two to four months to exhibit strong price momentum over the ensuing 12-month period. However, the bulk of this price momentum is wiped out by subsequent return reversal in the long

[3] I will discuss these theories in some detail in the next section.

run. He interprets his finding as a market overreaction to a string of good (bad) price performance.

Finally, my finding sheds light on how investors process, interpret and internalize publicly available accounting data and how this mechanism is factored into their expectations and decisions about asset prices. This evidence of how publicly disseminated accounting data shapes investor perceptions and consequently affects asset market prices and wealth allocation in the economy has very significant implications for capital market researchers in general and accounting scholars in particular as well as it should be of significant importance for accounting reporting and disclosure, accounting standard setters and policy makers.

The outline of the paper is as follows: in section 2, I discuss the BSV (1998) model and related psychology-based theories. Section 3 describes data sources and my empirical research tests. Section 4 presents empirical tests and discusses findings of these tests as well as discussing the results of robustness check tests. Finally, in section 5, I provide a summary of the findings of this study and its contributions to the existing literature.

[Figures I and II]

2. The BSV model and related psychology-based models

The traditional economic model is predicated on two assumptions: first, asset market prices reflect their fair values and second, economic agents are rational and wealth-maximizing individuals. This means new information signals are assimilated and reflected into market prices immediately and in an unbiased manner. However, empirical studies over the last three decades indicate that market prices do diverge significantly and frequently from their fundamental values and this divergence can be predicted and exploited.

These empirical studies fall into two broad categories: the momentum and reversal literature. The momentum effect is the relatively short-term strong (weak: possibly negative) firm's stock returns following good (bad) earnings news or price performance. It is frequently cited as evidence of investor failure to fully appreciate the future implications of recent earnings or price trends (e. g., Bernard and Thomas, 1989, 1990; Ball and Brown, 1968; Foster, Olsen and Shevlin, 1984; Jegadeesh and Titman, 1993). On the other hand, the reversal refers to well-documented empirical evidence showing that prior good (bad) performing stocks experience future reversals in market price over the long horizon (i.e., two to five years). It is attributed to biased market expectations about stocks with extremely high (low) performance in the past three to five years (e.g., Lakonishok, Shleifer and Vishny, 1994; La Porta, Lakonishok, Shleifer, and Vishny, 1997; DeBondt and Thaler, 1985, 1987).

The accumulation of these empirical studies showing the pervasiveness and frequency of asset mispricing patterns paves the way for the rise of psychology-based theories as a viable alternative to the traditional market model. The BSV (1998) model is one of these behavioral theories that should be of significant interest to accounting scholars because it describes how investors process, interpret, and internalize accounting data and how this mechanism is factored into their decision making and its eventual impact on asset prices. The BSV (1998) model is drawn on two salient evidences, i.e., conservatism and representativeness from the cognitive psychology literature to capture the momentum and reversal anomalies. The focus of this paper is on the conservatism effect of the BSV (1998) model, but I will touch briefly on the representativeness bias. The model builds on the representativeness heuristics, i.e., the simple

rules of thumb of Tversky and Kahneman (1974) to show how historical patterns of accounting data may lead to a market overreaction. In their model, BSV (1998) argue that consistency in a firm's accounting earnings may cause investors to mistakenly believe that these patterns are representative of the future prospects of the firm's performance. As a result, share prices of these firms will be driven to a level that is not justified by their fundamentals.

On the other hand, the role of the conservatism bias in the BSV (1998) model is to explain the empirical evidence suggesting a failure of the market to respond quickly and in a biased manner to new information signals (e.g., Bernard and Thomas, 1989, 1990; Bernard, Thomas, and Abarbanell, 1993; Jegadeesh and Titman, 1993). Conservatism as defined by Edwards (1968) is the tendency of individuals to rely heavily on their prior beliefs. As a result, recent evidence is dismissed or underweighted at best in forecasting future outcomes. According to the BSV (1998) model, conservatism leads to an inadequate market response to a firm's recent earnings news because investors believe this earnings signal will be reversed. This causes information contained in the current earnings change to be reflected into asset prices over an extended period of time up to 12 months, creating a price run or momentum effect.

If investors underreact to unrepeated earnings signals as predicted by the BSV (1998) model, the market price response to an earnings shock should be weak and timid relative to the market response to an earnings change that affirms the direction of prior earnings signals because investors are likely to view this shock as a stand-alone earnings change. In other words, the confirmatory earnings news should generate a stronger price reaction than that of the initial earnings shock because it gives some assurance to the market that the initial earnings change is likely to continue rather than reversing as previously expected. However, a disconfirming earnings signal should have no or a minimal negative price impact since investors expect the initial earnings shock to revert as predicted by the BSV (1998) model. In other words, the reversal of the initial earnings change is already built into the market expectation.

On the other hand, if the initial market response to the earnings shock is a manifestation of an investor overreaction, the confirmatory earnings news may create an incremental price drift, i.e., overreaction. However, this additional market overreaction should not be as strong as the initial price run because the market expects earnings performance to trend in the same direction as the initial shock. Contrary evidence should lead to a strong price reversal for two reasons. First, the initial market reaction has driven market prices too high (low) relative to their fair values. Second, it contradicts investor expectations.

Experimental studies that examine the predictions of the BSV (1998) model provide mixed evidence. Bloomfield and Hales (2002) show that experimental participants assume a change in a firm's past earnings to continue unless it was preceded by a significant number of reversals. Their finding suggests that individuals are likely to overweigh a firm's current earnings signal when forecasting its future earnings performance.

In recent years, a number of empirical studies (e.g., Chan, Frankel and Kothari, 2004; Frieder, 2008; Alwathainani, 2009) have used consistency of past earnings performance to test the market overreaction hypothesis motivated by the representativeness heuristic of Tversky and Kahneman (1974) and report mixed results. However, none of these studies has directly tested the conservatism effect (i.e., the market underreaction) except Chan et al. (2004) who have attempted to test a group of behavioral theories motivated by the conservatism effect including the BSV (1998) model using annual trends in firms' quarterly earnings.

Chan et al. (2004) examine whether a trend in a firm's annual earnings performance sways investor expectations not investors' reaction to a shock in the firm's quarterly earnings.

They measure the trend in a firm's annual earnings as the difference between the total earnings per share in the four quarters of the current year and the total earnings per share from the same four quarters of one year ago. In other words, what they measure is not a shock to a firm's quarterly earnings. Rather, it is a change in the firm's earnings from one year to another. In this study, however, an earnings shock to a firm's earnings is measured as the difference between the firm's current quarterly earnings and its earnings from the same quarter of one year ago. I use this crude definition of unexpected earnings for three reasons: First, it is consistent with the spirit of BSV (1998) model, which assumes that earnings follow a random walk. Second, it is consistent with the finding of the earnings momentum literature (e.g., Bernard and Thomas, 1989, 1990) that shows that investors fail to understand the time-series behavior of a firm's earnings and expect the firm's earnings to follow a random walk. Third, the naïve expectation model fits my data and produces a balanced sample, i.e., the number of firms with confirming and disconfirming earnings signals in the second step of my test is roughly the same (see Table I). In an unreported robustness test, I define an earnings shock as the difference between reported quarterly earnings and the mean analysts' earnings forecasts and I obtain similar results to those reported in this study. However, analysts appear to overreact to good earnings news, resulting in fewer observations in my confirming high earnings shock subsample firms relative to the naïve expectation model in which unexpected earnings is defined as the difference between current earnings and the results of the same quarter from one year ago.

Further, Chan et al. (2004) examine market reaction to the initial earnings change, but they did not study the market reaction to subsequent earnings signals to determine how investors respond to earnings changes that confirm or disconfirm prior earnings news. On the other hand, in this study, I investigate investors' response to both the initial earnings news and their reaction to the subsequent confirmatory or contradictory earnings signals. Thus, my research design provides a sharper and stronger test of whether investors' reaction to the initial earnings change is a manifestation of a market underreaction than that of Chan et al. (2004).

Now, I turn to other models (e.g., Daniel et al., 1998; Hong and Stein, 1999) that have attempted to explain how the market under-and-overreaction can co-exist. Daniel et al. (1998) construct a model based on overconfidence and self-attribution biases. In their model, well-informed investors are overly confident in their privately obtained information and trading on these information signals creates price momentum. Due to the self-attribution bias, the subsequent release of public reports that confirm investor private information should trigger an incremental overreaction. The continuing overreaction in these two stages eventually will be corrected as the market realizes that prices are not justified by future performance, resulting in a long-horizon price reversal.

Unlike Barberis et al. (1998) and Daniel et al. (1998), Hong and Stein (1999) do not use evidence from the psychology literature to build their model. Their model is based on two groups of investors. One group is actively searching for fundamental signals that predict future performance and trade on them moving prices closer to fair values while the other group is watching market prices and basing their investment decisions on the price movements. As new watchers push stock prices towards their fundamentals, price trackers come in waves and cause market prices to swing to the other side of their underlying value. This mechanism creates a market momentum and subsequent price reversal.

3. Data sources and empirical tests

3.1 Sample and variables

My sample consists of all firms on the Compustat quarterly tape from 1976 to 2007 with at least six quarters of operating earnings data prior to the ranking and portfolio formation date. This is required for computing changes in quarterly operating earnings (OEG).[4] As well, my empirical test required a firm to have monthly return data on the CRSP monthly file. The initial earnings shock as well as subsequent confirming or disconfirming earnings changes are calculated as the difference between per share operating earnings (after depreciation) for the current quarter (Q_t) and the corresponding per share quarterly operating earnings (Q_{t-4}) of the past year divided by the absolute value of the average per share lagged operating earnings.[5]

3.2 Initial earnings shocks, confirming and disconfirming earnings signals

To empirically test the conservatism effect of the BSV (1998) model, I design a two-step test as illustrated in Figure I. First, using quarterly data from 1976 to 2007, I sort firms by the change in their current quarterly operating earnings (Q_t) from the same quarter of one year ago (Q_{t-4}) into quintiles. Firms with the highest earnings change are included in the top quintile while firms with the lowest earnings change are put in the bottom quintile. These two groups are referred to as high initial earnings shock firms (HES) and low initial earnings shock firms (LES). I track the return performance of these firms for the next quarter (Q_{t+1}) to test the price impact of the initial earnings shocks on their subsequent returns.

Second, at the end of the first quarter (Q_{t+1}) following the initial earning signals, I measure the earnings performance of these firms using the same method as in step one. Firms that maintain their ranking positions, i.e., achieve earnings performance that places them in the top (bottom) earnings quintile for the second consecutive quarters are classified as confirming earnings signal firms while firms that fail to keep (succeed at moving out of) their ranking positions are defined as disconfirming earnings signal firms. These firms are held for the next quarter (Q_{t+2}) and their returns are measured to determine whether confirmatory or disconfirmatory earnings news has an impact on subsequent market prices.

3.3 Portfolio formation

[4] In an unreported analysis, I use earnings before extraordinary items and operating cash flow as a robustness check and my findings remain unchanged.

[5] $(EPS_{jq} - EPS_{jq-4})/|((EPS_{jq-4}+EPS_{jq-5})/2)|$. I divide the quarterly earnings change by the absolute value of the operating earnings per share lagged value for the last two quarters because some firms report negative operating earnings. Due to extremely rare but substantially large increases/decreases in quarterly operating earnings per share (EPS), the quarterly earnings change is deleted if its absolute value is greater than 5 and EPS for the current quarter (Q_t) and the EPS for the same quarter from one year ago (Q_{t-4}) have opposite signs. This procedure is to mitigate the impact of statistical noise on the calculation of quarterly earnings change. This method is similar to that used by Morck et al. (2000). As well, quarterly earnings growth is winsorized to the 99 percent and 1 percent to mitigate the influence of outliers. As a robustness check, I use market price and average asset per share as deflators and my key findings remain unchanged. I exclude a closed-end fund, a real estate investment trust (REIT) and foreign companies or American Depository Receipts (ADRs).

In this section, I describe the formation of a group of equally weighted portfolios which are considered in this study (see Figure III)[6]. The three groups of firms identified in the previous sections are the initial earnings shock firms, confirming earnings signal firms, and disconfirming earnings signal firms. Each group (i.e., the initial, confirming and disconfirming categories) includes three portfolios. For simplicity, I refer to them as high earnings shock firms (HES), low earnings shock firms (LES) and their return differential, i.e., the HES – LES. The total test period is six months (months 1 to 6), but the return for each group is measured for three months only. The return performance for the first group, i.e., the initial earnings shock portfolios is tracked for the first three months 1 to 3 (Q_{t+1}) while the returns for the confirming and disconfirming earnings firms are measured for the second three months 4 to 6 (Q_{t+2}).

My portfolio tests allow me to capture market price reactions to preannouncements of earnings news (Skinner and Sloan, 2002).[7] To test the market response to the earnings news of value and growth firms, Skinner and Sloan (2002) use a holding period that begins 12-trading days before the end of the current fiscal quarter (Q_t). They argue that their research design provides a more powerful test than prior research that tracks the reaction of investors to earnings announcements because it allows them to incorporate the full market price response to preannouncements of earnings news. Further, they argue that their research methodology avoids the shortcomings of prior research because the earnings news of many firms is frequently preannounced. They show that the bulk of a firm's stock price reaction to the announcement of its quarterly earnings is concentrated in the 31 days leading up to the announcement date.[8]

Empirical studies (e.g., Kasznik and Lev, 1995; Skinner, 1994, 1997; Soffer, Thiagarajan and Walther, 2000) find that the number of firms that preannounce their earnings is disproportionately large. Kasznik and Lev (1995) and Soffer et al. (2000) report that about 75 percent of all firms' earnings preannouncements occur within two weeks of both sides of the fiscal quarter end.

[Figure III]

3.4 Descriptive statistics

Summary descriptive statistics of firms with required data are presented in Table I. As shown in Table I, as expected the earnings growth from high earnings signal firms is high, ranging from 1.31 for confirming high earnings firms and 1.11 for their disconfirming counterparts. On the other hand, the earnings growth for low earnings signal firms is negative varying from -1.38 for confirming low earnings firms to -1.15 for their disconfirming cohorts.

[6] All my tests are repeated using value-weighted portfolios and I find no difference between value-weighted returns and equally weighted returns reported in this paper.

[7] I repeat my portfolio tests with a one month lag as well as on the earnings announcement date and my key findings remain unchanged although the magnitude of the price reaction to initial earnings shocks and subsequent contradicting performance becomes slightly smaller. This is consistent with the finding of other studies (e.g., Kasznik and Lev, 1995; Soffer et al., 2000; Skinner, 1994, 1997) suggesting that firms preannounce their earnings. As well, this evidence is consistent with the finding of insider trading literature (e.g., Piotroski and Roulstone, 2005; Roulstone, 2011).

[8] Consistent with Skinner and Sloan (2002), in an unreported analysis I find that the movement of the price momentum of initial earnings shock firms and the price reversal of disconfirming firms begins more than 30 trading days prior to the end of the quarter in which the initial earnings shock and disconfirmatory earnings are measured.

As well, the table indicates that the number of firms in both confirming and disconfirming firms is roughly the same.

Generally, compared to the average book-to-market ratios (B/M) of firms in the sample, LES firms tend to have slightly higher B/M ratios while HES portfolios have slightly smaller B/M ratios. Both HES and LES firms have slightly greater betas than those of the average firms in the sample.

[Table I]

4. Empirical test results

4.1 Portfolio results

In Table II, I present the return performance of the three portfolio groups considered in this paper. These groups are the initial earnings shock firms, confirmatory earnings firms and disconfirmatory earnings firms. As shown in Table II, within each group there are three portfolios. For simplicity of presentation, I refer to them as high earnings shocks (HES), low earnings shocks (LES) and their return differential (HES – LES). The HES – LES is a portfolio that goes long on HES firms and short on LES firms.

I will start by describing the return performance for the initial earnings shock firms that is presented in the first row of Table II. Results show that the initial earnings shock generates substantial momentum. Over the entire sample period, the monthly returns increase monotonically from 0.18 percent a month for the LES firms to 2.65 percent per month for the HES portfolio. The return differential between these two groups, i.e., the HES – LES return is a statistically and economically significant at 2.48 percent (t = 18.25) per month (see the first row of Table II under the HES – LES column).

Now, I turn to the price performance of confirming and disconfirming firms. The initial earnings shock firms that report earnings performance confirming their ranking positions in the highest (lowest) earnings quintile as their performance in the immediate past quarter (Q_t) have experienced mild incremental price momentum over the next quarter (Q_{t+2}) as shown in the second row of Table II. For example the average monthly return is 0.01 percent for confirmatory LES firms and 3.09 percent for their confirmatory HES counterparts. This results in a return differential (HES – LES) of 3.08 percent (t = 26.71) per month for firms with confirming signals relative to 2.48 percent (t = 18.25) a month for the initial HES firms in the prior three months (Q_{t+1}).

On the other hand, firms reporting quarterly earnings that disconfirms their prior ranking position, i.e., firms that fail to maintain (succeed at moving out of) their initial ranking in the top (bottom) earnings quintile suffer a large price reversal in the next three months (Q_{t+2}) following the disconfirming evidence. As the HES column of Table II indicates the average monthly return for HES firms drops from 2.65 percent to 1.31 percent. The LES firms tell a similar story, but in the opposite direction. The return for the LES portfolio increases from 0.18 percent per month to 1.44 percent a month (see Table II under the LES column). The difference in returns between the HES and LES portfolios, that is, the HES – LES declines from 2.48 percent (t = 18.25) a month to -0.13 percent (t = -1.05) per month as shown under the HES – LES column.

[Table II]

4.2 Regression test results

In this section, I report the average monthly regression alphas from the three-factor Fama-French model (Market-RF, size, and B/M) and the momentum factor. The average monthly regression estimates (alphas) for all three group portfolios considered in this study are reported in Table III.

Similar to the evidence reported in Table II, the initial earnings shock leads to strong financial momentum ranging from 2.01 percent a month for the HES firms to -0.43 percent per month for their LES counterparts over the three-month periods subsequent to the initial earnings shock. This results in a return differential between these two groups, that is, the HES – LES return of 2.43 percent (t = 14.22) per month as shown under the HES – LES column.

On the other hand, firms reporting quarterly earnings changes that enable them to keep their ranking in the highest (lowest) quintile (i.e., confirmatory firms) exhibit a slightly stronger (weaker) return than the initial earnings shock firms (see under the HES column). The average monthly alphas for the confirming high earnings firms is 2.20 percent relative to 2.01 percent for the initial earnings shock firms. The return for confirmatory low earnings firms exhibits similar patterns. The return for the low earnings firms reporting confirming evidence is -0.79 percent a month compared to -0.43 percent per month for the initial earnings shock firms.

This weak incremental momentum generated by the confirmatory performance evidence is reflected in the return gap between the HES and LES portfolios. For instance, the return differential for the confirmatory firms, i.e., the HES – LES is 2.98 percent (t = 22.89) per month while the difference in returns for the initial earnings shock firms, that is, the HES – LES is 2.43 percent (t = 14.22) per month (see Table III under the HES – LES column).

On the contrary, the disconfirming earnings signal firms experience a substantial price reversal as shown in the last row of Table III. High earnings shock firms that fail to maintain their positions in the top earnings quintile earn an average monthly return of 0.41 percent (t = 1.95) over a three-month period relative to 2.01 percent for the top initial earnings firms. As well, low earnings shock firms that succeed at moving out of the bottom group generate average return of 0.56 percent (t = 2.74) per month in comparison with –0.43 percent (t = -1.08) a month for the low initial earnings shock firms (see Table III under the HES – LES column).

The strong price reversal for the disconfirming firms can be accentuated by the return gap (i.e., the HES – LES) of these two groups, i.e., the earnings shock firms and the disconfirming firms shown under the HES – LES column. The differential return for the disconfirming firms, i.e., the HES – LES is -0.15 percent (t = -1.36) a month relative to 2.43 percent (t = 14.22) per month for the earnings shock group.

In a nutshell, as illustrated in Figure IV the initial earnings shock generates strong financial momentum while confirming performance results lead to a marginal incremental price run above that of the initial earnings signal. However, firms reporting quarterly earnings performance that contradicts the initial earnings shock exhibit a substantial return reversal. This evidence is not consistent with the market underreaction hypothesis. Rather, my finding points to a market overreaction.

[Table II and Figure IV]

4.3 Relation of my finding to behavioral models

Taken together, evidence reported in Tables II and III is not consistent with the BSV (1998) model which predicts that investors are likely to put little weight on a firm's recent earnings change when predicting the future earnings prospect of the firm because investors believe that the recent earnings change will be reversed. On the contrary, my finding points to a market that is prone to overreact to good and bad earnings news. This inclination of the market to overreact to extreme performance causes market prices to swing promptly and swiftly from one side of fundamentals to another in a short period of time.

As well, my finding presents serious challenges to the post-earnings announcement literature (e.g., Bernard and Thomas, 1989) that views a positive correlation in stock returns following a firm's unexpected earnings report as evidence of a market that fails to respond quickly and in a biased manner to an information signal conveyed by the earnings surprise about the firm's future financial performance.

Daniel et al. (1998) argue that informed investors are excessively overconfident in their own private information and models and this can lead to an initial overreaction. The initial price run will be followed by an incremental market overreaction as future public reports confirm investors' prior biased expectations. Given the nature of my data, it is difficult to determine whether the evidence of a strong price run and reversal documented in this study following initial earnings shocks and disappointing earnings performance, respectively can be attributed to trading activities of informed investors.

However, my finding shows securities markets in which share prices swing promptly and swiftly from one side of their fundamentals to another in response to extreme good and bad earnings data. This is evidence of a price formation process that is too sensitive to extreme information signals and I do not think a group of well-informed investors can have such a large impact on market prices.

To some degree, the same thing can be said about the Hong and Stein (1999) model. Like the BSV (1998) model, the Hong and Stein (1999) model generates a market underreaction, but at the same time it has a role for private information as does the Daniel et al. (1998) model. In the Hong and Stein (1999) model, slow diffusion of information creates a market underreaction while waves of price chasers trigger an overreaction. However, the Hong and Stein (1999) model is unlikely to be descriptive of the magnitude, frequency and speed of the market price reactions to extreme accounting earnings data reported in this paper.

4.3 Robustness test results

4.3.1 Sub-sample period results

Table IV presents the result of a regression analysis in which I test the robustness of the return performance for the portfolio that goes long on the HES firms and short on the LES firms, that is, the HES – LES returns across three sub-sample periods. The first sub-period covers 1976 to 1986. The second sub-period spans 1987 to 1997, and the last sub-period covers 1998 to 2007. As shown in Table IV, the results exhibit the same patterns documented in Table III suggesting that my finding is not limited to a particular sub-period. In other words, the HES – LES return is statistically and economically significant across all three sub-periods.

[Table IV]

4.3.2 Large cap vs. small cap

Table V separately presents the average monthly alphas from the three-factor Fama-French model (Market-RF, size, and book) and the momentum factor for large and small stocks. Firms with equity market capitalizations above the median at the ranking period are classified as large stocks while firms with market capitalizations below the median are defined as small stocks.[9] It is often expensive to include small firms in active trading strategies. For this reason, I examine these sub-samples separately. Specifically, in this analysis I am interested in examining the robustness of return performance of large firms.

Because it is cheaper to trade stocks of large firms, it is reasonable to expect the documented initial earnings shock driven momentum and price reversal for firms with disconfirmatory earnings evidence to be eliminated by institutional investors. However, as shown in Table V, the returns for large stocks are economically and statistically significant suggesting that my findings are not likely to be driven by small illiquid stocks with high transaction costs.

[Table V]

5. Conclusions

In this paper, I empirically test the conservatism effect of BSV (1998) suggesting that investors ignore or give little weight to a firm's recent earnings change when forecasting the firm's future earnings performance. In a two-step test that examines market prices to initial earnings shocks and subsequent confirming or disconfirming earnings performance, I provide empirical evidence that contradicts the prevailing view that investors dismiss or give little weight to a firm's recent earnings change in their prediction of the future earnings of the firm. This finding is inconsistent with the conservatism bias of the BSV (1998) model.

This study establishes three major findings. First, I show that firms in the top (bottom) earnings shock quintile have substantial earnings shock driven momentum in the next three months. Second, firms that report earnings performance confirming their positions in the highest (lowest) earnings quintile exhibit a marginal price momentum over the following three months. Three, firms that fail to keep (succeed at moving out of) the top (bottom) earnings quintile as they have in the initial earnings shocks, experience a significant price reversal. This evidence is not consistent with a market that responds cautiously to new information as predicted by the BSV (1998) model. Rather, my findings indicate securities markets are prone to overreact to extreme information signals.

Theories that include private information signals (e.g., Daniel et al., 1998; Hong and Stein, 1999) may capture some of my findings. However, the magnitude of initial earnings shock driven financial momentum and disconfirming performance related price reversals are unlikely to be explained by the trading behavior of a few well-informed investors.

Evidence reported in this paper extends the existing literature in four ways. First, I contribute to the growing empirical evidence of literature that examines how investor sentiments

[9] I repeat my analysis using the mean instead of the median as well as the median of NYSE firms and my finding remains the same.

affect market prices. In this study, I provide evidence that casts serious doubt on the view that investors are likely to dismiss or, at least, give little weight to unrepeated earnings news. Rather, my finding suggests securities markets in which investors are prone to overreact to unexpected earnings news. This inclination for overreaction to extreme accounting data on the investor's part causes stock prices to swing strongly and frequently from one side of their fundamentals to the other over a short period of time.

Second, my evidence suggests a possible alternative interpretation to the findings of the post-earnings announcement literature that characterizes the positive correlation in returns following a good (bad) earnings surprise as evidence of a market dismissal of (or failure to see) a new information signal contained in the unexpected earnings. Results reported in this paper suggest that the earnings momentum can be a manifestation of an earnings shock driven market overreaction that will recover to fundamentals as the market eventually incorporates evidence pointing to the opposite direction of the initial earnings shock.

Third, my finding contributes to recent empirical and theoretical studies (e.g., Lee and Swaminathan, 2000; Alwathainani, 2012) that view a short-term market momentum and a long-horizon share price reversal as two major components of a systematic market overreaction followed by a correction period. Lee and Swaminathan (2000) provide evidence indicating that the bulk of momentum profits in the first twelve months are negated by price reversals in years 2 through 5. They argue that their evidence contradicts the notion that the finding of the momentum literature is a manifestation of a market underreaction. Rather, they argue that the bulk of the momentum gains should be characterized as a market price overreaction.

Alwathainani (2012) shows stocks with a string of relatively high (low) returns over the past two to four months have exhibit strong price momentum over the next 12-month period. However, more than 80 percent of this price momentum is offset by subsequent return reversal in years 2 through 5. He argues that his evidence suggests a market overreaction to a string of positive (negative) price performance signals.

Finally, results reported in this study show how investors process, interpret, and internalize accounting earnings data and how this mechanism is factored into their decisions about equity prices. This finding of how publicly disseminated accounting data influences investor perceptions and consequently asset prices and wealth allocation in the economy should be of significant importance to accounting scholars, accounting reporting and disclosure, accounting standard setters and policy makers.

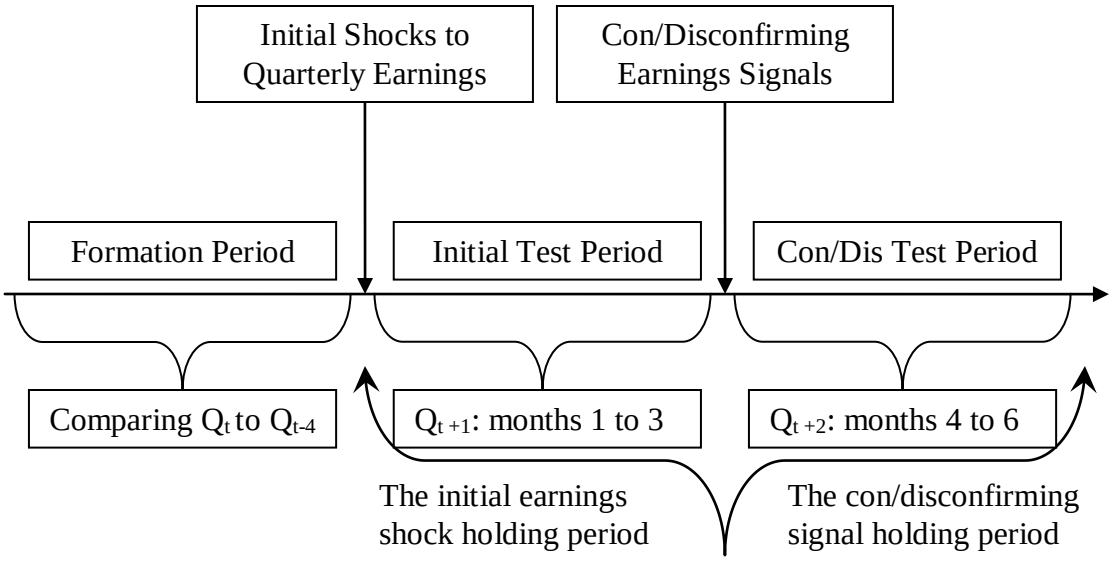

Figure I: Time line showing sample periods and the two-step tests: the initial earnings shock and the subsequent confirming/disconfirming earnings signal. In the first step (Q_t), I sort firms into quintiles by the change in their current quarterly operating earnings from the same quarter (Q_{t-4}) of one year ago. Firms in the top (bottom) earnings change are classified as high (low) initial earnings shock firms. The return performance of these firms is tracked over the next quarter (Q_{t+1}). In the second step, I decompose my initial earnings shock firms into two groups: confirming and disconfirming earnings performance groups (see Figure II). The confirming group is firms that report earnings in Q_{t+1}that lead them to maintain their ranking in the highest (lowest) earnings quintile while the disconfirming group includes firms that fail to keep (succeed to move out of) the top (bottom) earnings quintile. The price performance of these firms is measured over the following quarter (Q_{t+2}).

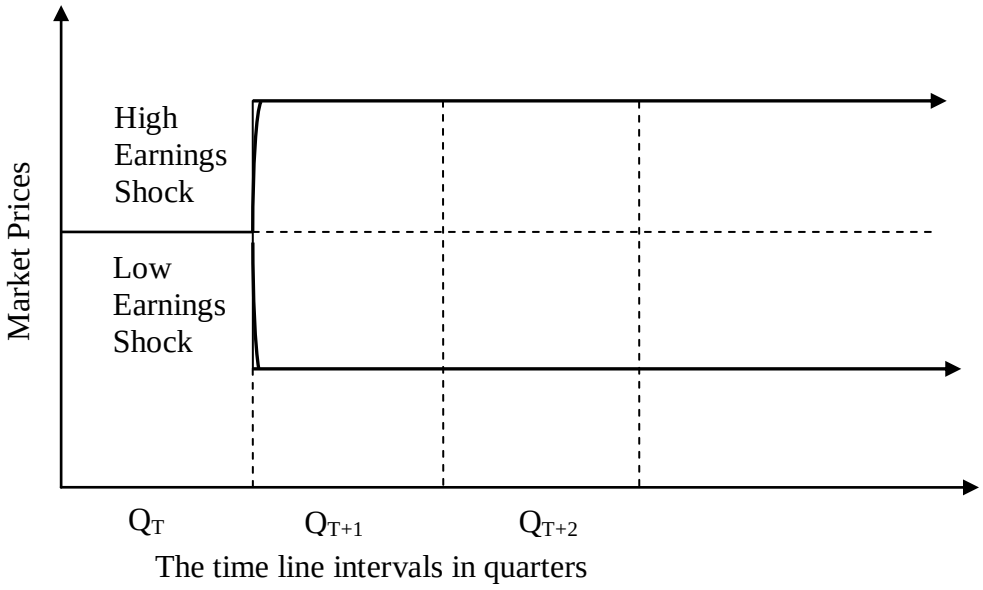

Figure IIa: Efficient market hypothesis

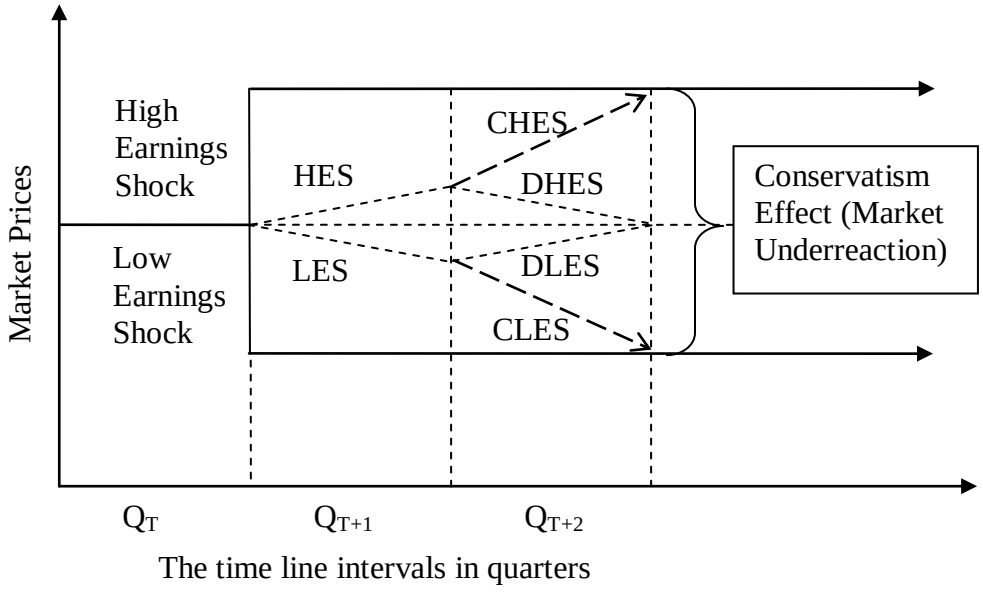

Figure IIb: Underreaction:
HES: High earnings shock; LES: Low earnings shock; CHES: Confirming high earnings shock; CLES: Confirming low earnings shock; DHES: Disconfirming high earnings shock; DLES: Disconfirming low earnings shock.

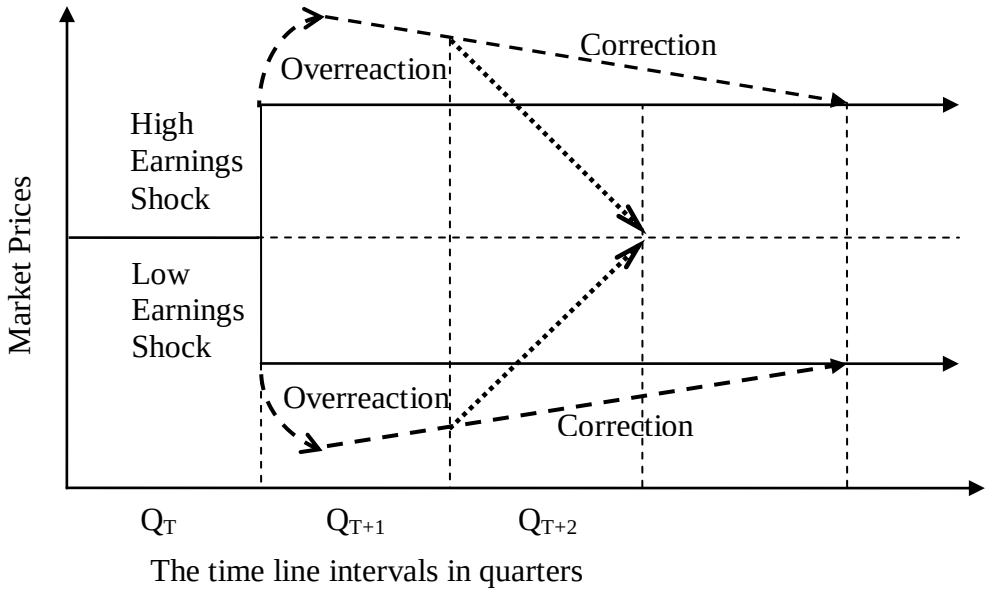

Figure IIc: Overreaction

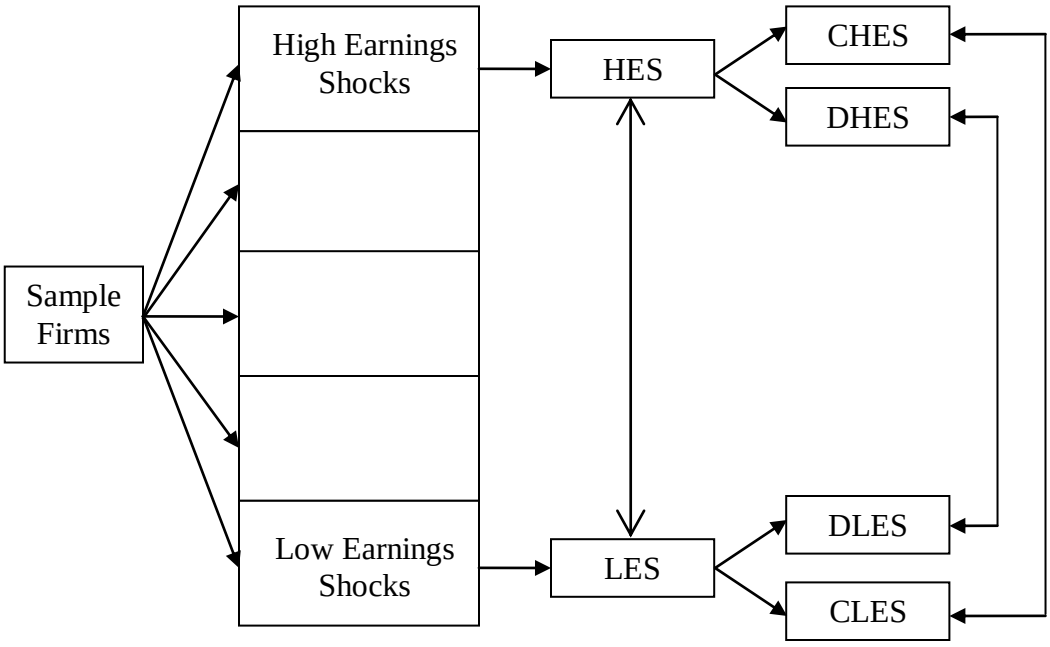

Figure III: The method used to implement my two-step test and to track portfolio returns in Tables II, III, IV, and V.

Predictions:
(1) The initial earnings shock portfolio returns. i.e., HES – LES > 0;
(2) The confirming earnings portfolio returns, i.e., CHES – CLES > 0. The confirming evidence in the second quarter should lead to stronger price momentum than that of the HES – LES in the initial earnings shock because investors expect the initial shock to reverse;
(3) The disconfirming earnings portfolio returns, i.e., DHES – DLES < 0. The DHES – DLES should generate weak negative returns because the market expects the initial market returns to reverse.

Notes: in the text, I refer to all portfolios as HES, LES and HES – LES for simplicity of presentation.

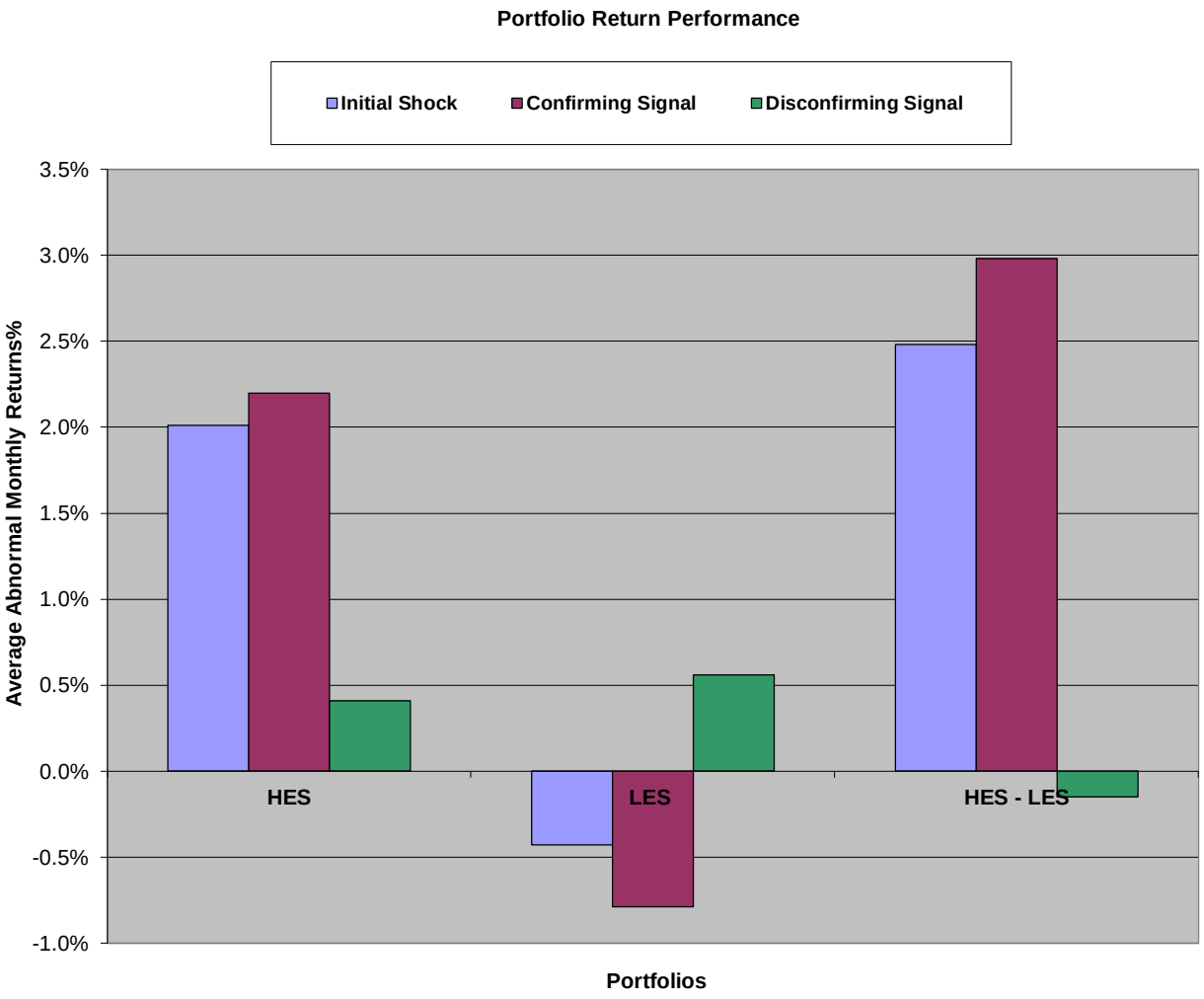
Portfolio Return Performance
Initial Shock
Confirming Signal
Disconfirming Signal
3.5%
3.0%
2.5%
2.0%
1.5%
1.0%
0.5%
0.0%
-0.5%
-1.0%
Average Abnormal Monthly Returns%
HES
LES
HES - LES
Portfolios

Figure IV: In this figure, I graph the average monthly regression alphas from the Fama-French three-factor model (Market – RF, size, and book) and the momentum factor for the three groups of firms: initial earnings shock firms, confirming earnings firms and disconfirming earnings firms. Each group has three portfolios. For simplicity of presentation, I refer to them as high earnings shock (HES) and low earning shock (LES) portfolios as well as their return differential, i.e., the HES – LES. The three groups on the X-axis from the left to the right refer to HES, LES and HES – LES portfolios, respectively. Color code: the light blue is for the initial earning shock firms, the burgundy is for the confirming group and the light green is for the disconfirming firms.

Each quarter from 1976 to 2007, I sort firms by the change in their current quarterly operating earnings compared to the same quarter of one year ago into quintiles. Firms in the highest earnings change quintile are classified as high earnings shock firms (HES) and firms in the lowest earnings quintile are defined as low earnings shock firms (LES). I track their price performance for the next quarter (three months: 1 to 3). Conditional on their earnings performance in the immediate quarter following the initial earnings shocks, I decompose my sample, i.e., the initial earnings shock firms into two groups: confirming earnings signal firms and disconfirming earnings signal firms. The confirming group includes firms that maintain their initial ranks, i.e., positions in the top (bottom) earnings quintile while the disconfirming group contains firms that fail to keep (succeed at moving out of) their initial positions, the highest (lowest) earnings quintile. The dependent variables in these cross-sectional monthly regressions are the monthly return for each portfolio less the risk-free rate except for the return differentials, i.e., the HES – LES.

Table I

Summary/descriptive statistics

Earnings Signals	Statistics	Portfolios		
		HES	**LES**	**ALL**
Initial Earnings Shocks	**Firm**	622	622	3114
	OEG	1.22	-1.18	0.04
	BETA	1.15	1.10	1.01
	B/M	0.78	0.91	0.84
	SIZE	930	859	1256
Confirming Earnings Signals	**Firm**	310	306	3175
	OEG	1.31	-1.38	0.03
	BETA	1.17	1.15	1.02
	B/M	0.74	0.94	0.82
	SIZE	1010	896	1368
Disconfirming Earnings Signals	**Firm**	305	298	3175
	OEG	1.11	-1.15	0.04
	BETA	1.18	1.08	1.00
	B/M	0.84	0.88	0.82
	SIZE	1244	903	1430

This table provides the average time-series characteristics for the three groups of portfolios considered in this study: the initial earnings shock firms, the confirming earnings signal group, and the disconfirming earnings signal firms. Each group includes three portfolios: high earnings shock firms (HES), low earnings shock firms (LES) and their return differential, i.e., the HES – LES. Each quarter from 1976 to 2007, I sort firms by the change in their current quarterly operating earnings compared to the same quarter of one year ago into quintiles. Firms in the highest earnings change quintile are classified as high earnings shock firms (HES) and firms in the lowest earnings quintile are defined as low earnings shock firms (LES). I track their price performance for the next quarter (three months: 1 to 3). Conditional on their earnings performance in the immediate quarter following the initial earnings shocks, I decompose my sample, i.e., the initial earnings shock firms into two groups: confirming earnings signal firms and disconfirming earnings signal firms. The confirming group includes firms that maintain their initial ranks, i.e., positions in the top (bottom) earnings quintile while the disconfirming group contains firms that fail to keep (succeed at moving out of) their initial positions, the highest (lowest) earnings quintile.

Table II

Average monthly buy-and-hold returns for earnings shock portfolios

Holding Periods	Earnings Signals	Portfolios		
		HES	**LES**	**HES – LES**
Months 1 to 3	**Initial Earnings Shocks**	2.65 **12.17**	0.18 **0.76**	2.48 **18.25**
Months 4 to 6	**Confirming Earnings Signals**	3.09 **16.49**	0.01 **0.28**	3.08 **26.71**
	Disconfirming Earnings Signals	1.31 **7.32**	1.44 **7.50**	-0.13 **-1.05**

This table provides the average monthly buy-and-hold returns for three groups of portfolios: the initial earnings shock, confirming earnings signal, and disconfirming earnings signal portfolios. Each group includes three portfolios. For the simplicity of presentation, I refer to these portfolios as high earnings shock firms (HES), low earnings shock firms (LES) and their return differential, i.e., the HES – LES. The return performance for the first group, i.e., the initial earnings shock portfolios are tracked for months 1 to 3 while the returns for the confirming and disconfirming earnings firms are measured for months 4 to 6. Each quarter from 1976 to 2007, I sort firms by the change in their current quarterly operating earnings compared to the same quarter of one year ago into quintiles. Firms in the highest earnings change quintile are classified as high earnings shock firms (HES) and firms in the lowest earnings quintile are defined as low earnings shock firms (LES). I track their price performance for the next quarter (three months: 1 to 3). Conditional on their earnings performance in the immediate quarter following the initial earnings shocks, I decompose my sample, i.e., the initial earnings shock firms into two groups: confirming earnings signal firms and disconfirming earnings signal firms. The confirming group includes firms that maintain their initial ranks, i.e., positions in the top (bottom) earnings quintile while the disconfirming group contains firms that fail to keep (succeed at moving out of) their initial positions, the highest (lowest) earnings quintile. The return performance for all three groups of portfolios is calculated as average monthly buy-and-hold returns over three months. The Newey-West *t*-statistics are reported in **bold** below portfolio returns.

Table III

Average monthly four-factor alphas for earnings shock portfolios

Holding Periods	Earnings Signals	Portfolios		
		HES	**LES**	**HES – LES**
Months 1 to 3	**Initial Earnings Shock**	2.01 **4.98**	-0.43 **-1.08**	2.43 **14.22**
Months 4 to 6	**Confirming Earnings Signal**	2.20 **8.50**	-0.79 **-3.06**	2.98 **22.89**
	Disconfirming Earnings Signal	0.41 **1.95**	0.56 **2.74**	-0.15 **-1.36**

In this table, I present the average monthly four-factor regression alphas from the Fama-French three-factor model (Market – RF, size, and book) and the momentum factor for the initial earnings shock firms, confirming earnings firms, and disconfirming earnings firms. Each group has three portfolios. For the simplicity of presentation, I refer to these portfolios as high earnings shock firms (HES), low earnings shock firms (LES) and their return differential, i.e., the HES – LES. The return performance for the first group, i.e., the initial earnings shock portfolios are tracked for months 1 to 3 while the returns for the confirming and disconfirming earnings firms are measured for months 4 to 6. Each quarter from 1976 to the end of 2007, I sort firms by the change in their current quarterly operating earnings compared to the same quarter of one year ago into quintiles. Firms in the highest earnings change quintile are classified as high earnings shock firms (HES) and firms in the lowest earnings quintile are defined as low earnings shock firms (LES). I track both their price and earnings performance for the next quarter (three months: 1 to 3). Conditional on their earnings performance in the immediate quarter following the initial earnings shocks, I decompose my sample, i.e., the initial earnings shock firms into two groups: confirming earnings signal firms and disconfirming earnings signal firms. The confirming group includes firms that maintain their initial ranks, i.e., positions in the top (bottom) earnings quintile while the disconfirming group contains firms that fail to keep (succeed at moving out of) their initial positions, the highest (lowest) earnings quintile. The dependent variables in these cross-sectional monthly regressions are the monthly return for each portfolio less the risk-free rate except for the return differentials, i.e., the HES – LES. The Newey-West *t*-statistics are reported in **bold** below portfolio returns.

Table IV

Average monthly four-factor alphas for the HES – LES portfolios

Holding Periods	Portfolios / Earnings Signals	Sub-Sample Periods		
		1976 – 1986	**1987 – 1997**	**1998 – 2007**
Months 1 to 3	**Initial Earnings Shock**	1.79 **16.06**	2.58 **12.44**	2.66 **12.48**
Months 4 to 6	**Confirming Earnings Signal**	2.86 **18.51**	3.31 **14.04**	2.84 **14.44**
	Disconfirming Earnings Signal	0.07 **0.76**	-0.02 **-1.44**	-0.34 **-4.75**

In this table, I provide the average monthly four-factor regression alphas from the Fama-French three-factor model (Market – RF, size, and book) and the momentum factor for three sub-sample periods of my data. The first sub-period covers from 1976 to 1986, the second sub-period spans from 1987 to 1997, and the third sub-period covers from 1998 to 2007. For the simplicity of presentation, I refer to these portfolios as high earnings shock firms (HES), low earnings shock firms (LES) and their return differential, i.e., the HES – LES. The return performance for the first group, i.e., the initial earnings shock portfolios are tracked for months 1 to 3 while the returns for the confirming and disconfirming earnings firms are measured for months 4 to 6. In this sub-sample analysis, I test the robustness of the return performance for the portfolio that goes long on the HES firms and short on the LES firms, that is, the HES – LES returns across the sub-sample periods. Each quarter from 1976 to 2007, I sort firms by the change in their current quarterly operating earnings compared to the same quarter of one year ago into quintiles. Firms in the highest earnings change quintile are classified as high earnings shock firms (HES) and firms in the lowest earnings quintile are defined as low earnings shock firms (LES). I track both their price and earnings performance for the next quarter (three months: 1 to 3). Conditional on their earnings performance in the immediate quarter following the initial earnings shocks, I decompose my sample, i.e., the initial earnings shock firms into two groups: confirming earnings signal firms and disconfirming earnings signal firms. The confirming group includes firms that maintain their initial ranks, i.e., positions in the top (bottom) earnings quintile while the disconfirming group contains firms that fail to keep (succeed at moving out of) their initial positions, the highest (lowest) earnings quintile. The dependent variables in these cross-sectional monthly regressions are the monthly return differentials, i.e., the HES – LES. The Newey-West *t*-statistics are reported in **bold** below portfolio returns.

Table V

Average monthly four-factor alphas for the HES – LES Portfolios

Holding Periods	Earnings Signals	Portfolios	
		Large Cap	**Small Cap**
Months 1 to 3	**Initial Earnings Shock**	1.90 **16.98**	2.94 **12.36**
Months 4 to 6	**Confirming Earnings Signal**	2.20 **14.25**	3.65 **18.40**
	Disconfirming Earnings Signal	-0.43 **-4.85**	0.36 **1.52**

In this table, I present the average monthly four-factor regression alphas from the Fama-French model (Market – RF, size, and book) and the momentum factor for the large and small stocks. Firms with equity market capitalizations above the median at the ranking period are classified as large stocks while firms with market capitalizations below the median are defined as small stocks. In this table, I test the robustness of the return performance for the portfolio that goes long on the HES firms and short on the LES firms, that is, the HES – LES returns for large and small firms. Each quarter from 1976 to 2007, I sort firms by the change in their current quarterly operating earnings compared to the same quarter of one year ago into quintiles. Firms in the highest earnings change quintile are classified as high earnings shock firms (HES) and firms in the lowest earnings quintile are defined as low earnings shock firms (LES). I track their price performance for the next quarter (three months: 1 to 3). Conditional on their earnings performance in the immediate quarter following the initial earnings shocks, I decompose my sample, i.e., the initial earnings shock firms into two groups: confirming earnings signal firms and disconfirming earnings signal firms. The confirming group includes firms that maintain their initial ranks, i.e., positions in the top (bottom) earnings quintile while the disconfirming group contains firms that fail to keep (succeed at moving out of) their initial positions, the highest (lowest) earnings quintile. Each group has three portfolios to which I refer to as high earnings shock firms (HES), low earnings shock firms (LES) and their return differential, i.e., the HES – LES for simplicity of presentation. The dependent variables in these cross-sectional monthly regressions are the monthly return differentials, i.e., the HES – LES. The Newey-West *t*-statistics are reported in **bold** below portfolio returns.

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