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Original Paper

The Effect of Volatility Expectations on Large Stock Price Changes

Andrey Kudryavtsev[1*]

[1] The Economics and Management Department, The Max Stern Yezreel Valley Academic College, Emek Yezreel, Israel

[*] Andrey Kudryavtsev, The Economics and Management Department, The Max Stern Yezreel Valley Academic College, Emek Yezreel, 19300, Israel

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Abstract

My study explores the effect of future volatility expectations, embedded in VIX index, on large daily stock price changes and on subsequent stock returns. Following both psychological and financial literature claiming that good (bad) mood may cause people to perceive positive (negative) future outcomes as more probable and that the changes in the value of VIX may be negatively correlated with contemporaneous investors' mood, I hypothesize that if a major positive (negative) stock price move takes place on a day when the value of VIX falls (rises), then its magnitude may be amplified by positive (negative) investors' mood, creating price overreaction to the initial company-specific shock, which may result in subsequent price reversal. In line with my hypothesis, I document that both positive and negative large price moves accompanied by the opposite-sign contemporaneous changes in VIX are followed by significant reversals on the next two trading days and over five- and twenty-day intervals following the event, the magnitude of the reversals increasing over longer post-event windows, while large stock price changes taking place on the days when the value of VIX moves in the same direction are followed by non-significant price drifts. The results remain robust after accounting for additional company (size, beta, historical volatility) and event-specific (stock's return and trading volume on the event day) factors, and are stronger for small and volatile stocks.

Keywords

behavioral finance, large price changes, mood, overreaction, stock price reversals, volatility expectations, VIX

1. Introduction

Stock prices are affected by an enormous, and virtually indefinite, number of factors. Some of these factors may be clearly established, giving rise to a vast strand of literature dealing with the possibilities for price prediction, while others remain unobserved and may be revealed only in a broader perspective. In many instances, the stock price changes themselves are analyzed in attempt to predict future price patterns.

This paper focuses on the behavior of stock prices after significant price moves. The latter can be driven by a number of factors, including new information about a firm's prospects, liquidity shocks affecting current shareholders and shifts in demand by uninformed investors, and are considered to capture the magnitude of information signals. There is an extensive literature examining short-term stock return predictability following large price changes. A number of studies document subsequent reversals, and therefore, suggest that the initial changes contain some element of overreaction (e.g., Cooper, 1999; Sturm, 2003; Avramov et al., 2006). Others either do not detect reversals following major price changes (e.g., Ratner & Leal, 1998; Lasfer et al., 2003; Mazouz et al., 2009), or conclude that the reversals are too small to generate profitable arbitrage opportunities (e.g., Lehmann, 1990; Hamelink, 1999; Fehle & Zdorovtsov, 2003). Another group of studies concentrates on the link between the large stock price changes and the public information (e.g., Ikenberry & Ramnath, 2002; Larson & Madura, 2003; Vega, 2006; Savor, 2012). The general conclusions arising from this literature are that large price moves accompanied by public information releases are followed by drifts, indicating that investors tend to underreact to news about fundamentals, while those that are not accompanied by any public news result in reversals, suggesting that investors tend to overreact to other shocks that move stock prices, such as shifts in investor sentiment or liquidity shocks.

In the present study, I focus on another factor which may potentially contribute to large stock price changes and may be subsequently connected to post-event returns. Namely, I consider the direction of change in the investors' market volatility expectations, represented by the changes in the value of VIX index, which is calculated from the prices of S&P 500 Index options and is widely known as investors' "fear gauge", since in most cases, high VIX reflects increased investors' fear and low VIX suggests complacency (Whaley, 2000, 2008). In addition to analyzing VIX as an indicator of future economic conditions, recent literature increasingly pays attention to its potential psychological components. Following the psychological "risk-as-feelings" model by Loewenstein et al. (2001), claiming that good (bad) mood may cause people to perceive positive (negative) future outcomes as more probable, Kliger and Kudryavtsev (2013) suggest that the changes in the value of VIX may be negatively correlated with contemporaneous investors' mood, and empirically document that positive (negative) excess stock returns following analyst recommendation upgrades (downgrades) are stronger when accompanied by decreases (increases) in the daily value of VIX, the latter serving as a proxy for relatively good (bad) contemporaneous investors' mood. Following the same logic, I expect that if a major positive stock price move takes place on a day when the value of VIX falls, then its magnitude may be amplified by positive investors' mood, and similarly, if a major negative stock price move takes place on a day when the value of VIX rises, then its magnitude may be amplified by negative investors' mood. In other words, I suggest that if a positive company-specific shock, either public or unobserved, occurs on a day when the value of VIX falls, then from the investors' point of view, positive mood (or decreased volatility expectations) increase the subjective probability that the shock will lead to a major positive stock price move and, therefore, amplify the magnitude of the price move itself, and similarly, if a negative company-specific shock occurs on a day when the value of VIX rises, then from the investors' point of view, negative mood (or increased volatility expectations) increase the subjective probability that the shock will lead to a major negative stock price move and, thus, amplify the magnitude of the move. In both cases, investors' mood may modify their perceptions and cause price overreaction to the company-specific shock, or in other words, to make the major stock price move resulting from the shock even more pronounced. Therefore, I hypothesize that large stock price changes taking place on the days when the value of VIX moves in the opposite direction may contain an element of overreaction and should be followed by significantly more pronounced reversals.

I employ daily price data for all S&P 500 index constituents over the period from 1993 to 2016. I define events (large daily stock price moves) according to a number of alternative proxies, employing both raw and abnormal stock returns, and both absolute and relative (scaled by the respective stock's volatility) return thresholds. Consistently with most of the previous literature, looking at the total sample of events, for different post-event periods, I find either non-significant or marginally significant reversals following both positive and negative price moves. Moreover, the magnitude and the significance of the post-event reversals appear to be virtually independent of the magnitude of the initial price shocks. On the other hand, after classifying the large stock price moves according to the direction of change in VIX on the event day, I find supportive evidence for my research hypothesis. Namely, both positive and negative stock price moves accompanied by the opposite-sign daily changes in the value of VIX are followed by significant reversals on each of the next two trading days and over five- and twenty-day intervals following the event, the magnitude of the reversals increasing over longer post-event windows, while large stock price changes taking place on the days when the value of VIX moves in the same direction are followed by non-significant price drifts. The results remain robust after accounting for additional company-specific (size, beta, historical volatility) and event-specific (stock's return and trading volume on the event day) factors, and are stronger for low capitalization and high volatility stocks.

The rest of the paper is structured as follows. Section 2 briefly reviews the literature dealing with stock returns following large price changes, as well as the literature focusing on mood, and its economic applications, and VIX index. In Section 3, I define and explain my research hypothesis. Section 4 presents the database and the methodology. Section 5 describes the empirical tests and reports the results. Section 6 concludes and provides a brief discussion.

2. Literature Review

2.1 Stock Returns Following Large Price Changes

Many authors have analyzed stock returns following large price changes, which are also in the focus of this study. A number of studies document stock price reversals following large price moves, and respectively, following the logic of a broad strand of literature dealing with the nature of reversals (e.g., DeBondt & Thaler, 1985; Lo & MacKinlay, 1990; Jegadeesh & Titman, 1993; Daniel et al., 1998; Hong & Stein, 1999), suggest that the large price moves contain some element of overreaction to unobserved stimuli. Renshaw (1984) and Bremer and Sweeney (1991) argue that on average, stocks whose prices declined by at least 10% exhibit reversals and significantly outperform the market as a whole. Howe (1986) examines more extreme weekly stock changes over the period 1963-1981, setting the absolute trigger value to 50%. His results indicate that the overreaction phenomenon in the short run cannot be accounted for by the December-January seasonal pattern. Neither the size of the trigger return nor the period in which the extreme return occurred significantly influences his findings. Brown et al. (1988) analyze the reaction of monthly stock returns to an extremely negative one-period return. Testing for the directional effect, the magnitude effect and the intensity effect, the authors reveal evidence consistent with overreaction. Extending the work based on monthly data, Zarowin (1989) tests the short-run market overreaction also using their portfolio approach, following DeBondt and Thaler (1985, 1987). He confirms the evidence regarding the existence of stock market overreaction in the short run. Conrad et al. (1994) show that return reversals for relatively small NASDAQ stocks decrease with trading volume, while Cooper (1999) states that return reversals for larger NYSE stocks increase with trading volume. Sturm (2003) documents that negative price shocks generally trigger positive post-event abnormal returns, but this relationship is altered when the shocks are cross-sectionalized by certain pre-event characteristics, which may proxy for investor confidence. Additionally, he argues that post-event reversals are smaller for larger price shocks, since investors are more likely to attribute the latter to stable causes. Avramov et al. (2006) find that volume-induced return reversals increase with stock illiquidity.

On the other hand, Atkins and Dyl (1990), in their search for excess profits during the first few days after extreme price declines, find evidence supporting the Efficient Market Hypothesis. Using bid-ask spreads, they show that the positive abnormal returns resulting from reversals are too small to generate profitable arbitrage. Lehmann (1990) detects the existence of short-term corrections to negative events for weekly returns, but after including transaction costs, these positive returns obtained actually vanish. Cox and Peterson (1994) also reject the overreaction hypothesis. They investigate the role of the bid-ask bounce and market liquidity in explaining price reversals in the 3-day period immediately following one-day price drops of at least 10%. The authors show that large one-day price declines are associated with strong selling pressure, which increases the probability that the closing transaction is made at the bid price. The reversal found for the next day is therefore set about by the bid-ask bounce. Furthermore, they find that the degree of the reversals following large price declines wanes through time, and these events experience negative cumulative abnormal returns over 4-20 days following the event. Using the mid-point of bid-ask prices, Park (1995) shows that predictable variation in stock returns following large price changes is in part driven by the bid-ask bounce. Controlling for this effect, he finds that the short-run price reversals are not tradable. Similarly, Hamelink (1999) looks at stocks listed on the French stock exchange, and discovers significant post-extreme return patterns but taking the bid-ask spread into account, cannot support the overreaction hypothesis. Fehle and Zdorovtsov (2003) support his findings. Ratner and Leal (1998) perform their research on emerging markets of Latin America and Asia and find no evidence of any price reversals. Bremer et al. (1997) discover the reversal pattern for the Japanese stock market, but conclude that investors cannot earn arbitrage profits. Their results indicate that the market absorbs the information causing stock prices to change almost immediately. Lasfer et al. (2003), studying the price behavior of daily market indices of both developed and emerging markets worldwide, are also unable to gather any evidence in favor of the price reversal hypothesis. Mazouz et al. (2009) calculate abnormal post-event (large price move) returns according to three alternative stock pricing models, and find no evidence in support of overreaction. Moreover, they present some evidence of price drifts following positive price shocks.

More recently, the emphasis has moved to the link between the large stock price changes and the public information. Pritamani and Singal (2001) study a subset of NYSE and AMEX stocks that experienced large price changes between 1990 and 1992. They also collect for this subset of stocks daily news stories from the Wall Street Journal and the Dow Jones News Wire, and document that conditional on a public announcement or volume increase associated with a large price change, these stocks exhibit momentum, yet, unconditional post-event abnormal returns are economically insignificant, though sometimes statistically significant. Chan (2003) constructs an index of news headlines for a random subset of Center for Research in Security Prices stocks that have experienced large price moves, and finds momentum after news, which is in line with a number of studies suggesting that investors tend to underreact to news about fundamentals (e.g., Michaely & Womack, 1999; Ikenberry & Ramnath, 2002; Vega, 2006), and reversals after no news, with the effect mostly driven by loser stocks. The reversals are statistically significant, even after controlling for size and book-to-market value. He also finds that the effects diminish, but are present, when one eliminates low-priced stocks, and are stronger among smaller and more illiquid stocks than among larger ones. A possible explanation he suggests is that some investors are slow to react to information, and transaction costs prevent arbitrageurs from eliminating the lag. Larson and Madura (2003) show that large price changes unaccompanied by public (newspaper) announcements favor the overreaction hypothesis, while extreme price declines after news being revealed publicly, merely display price continuation. Tetlock (2010) uses the entire daily Dow Jones news archive from 1979 to 2007 to study how presence of public news affects subsequent returns, and finds that reversals are significantly lower after news days and that for many stocks, volume-induced momentum exists only on these days. In line with Chan (2003), Savor (2012) finds that price events accompanied by information (analyst recommendation revisions) are followed by drifts, while no-information ones result in reversals. The drifts exist only when the direction of the price move and of the change in analyst recommendations have the same sign. The author's interpretation of these results is that investors underreact to news about fundamentals and overreact to other shocks that move stock prices (such as shifts in investor sentiment or liquidity shocks). He also argues that analysts can distinguish between these two potential drivers of stock returns, but the market does not fully take into account the information (or lack thereof) analysts provide.

2.2 Mood: Psychological Aspects and Economic Applications. VIX Index

Hilgard's Introduction to Psychology (Hilgard, 2000, p. 404) defines mood as an enduring emotional state that affects people's evaluation of other people and inanimate objects. Mood also affects judgments about the frequency of various risks. Good (bad) mood leads people to see risks as less (more) likely. Being in a bad mood makes the world seem more dangerous. The influence of mood on people's perceptions and decisions is the focus of a large body of psychological research. One of the central conclusions in this respect is that people in positive mood tend to make optimistic judgments, while people in negative mood tend to make pessimistic judgments (e.g., Isen et al., 1978; Johnson & Tversky, 1983; Forgas, 1992; Schwarz & Clore, 1983), Kahneman and Riis (2006)). Furthermore, Schwarz (1990) finds that individuals in good mood engage in more simplifying heuristics to aid decisions, and Isen (2000) argues that positive mood increases cognitive flexibility. Schwarz (1990), however, suggests that bad mood tends to stimulate people to engage in detailed analytical activity, and subsequently, Schwarz (2002) concludes that negative mood is related to increased attention, more search of new alternatives, and a more thorough processing of available information.

A number of psychological studies analyze the relationship between people's subjective evaluations of future risk and their contemporaneous feelings and emotions. Constans and Mathews (1993) indicate that contemporaneous people's mood is negatively correlated with their subjective evaluations of future risk. Wright and Bower (1992) argue that people's mood affects their judgments with respect to uncertain future events, by documenting that people in good (bad) mood report higher (lower) probabilities for positive future events and lower (higher) probabilities for negative future events. Loewenstein et al. (2001) employ their "risk-as-feelings" model primarily to incorporate the fact that the emotions people experience at the time of making a decision influence their eventual decision. They argue that various aspects of the decision-making process, in particular, those involving risk and uncertainty are influenced by the feelings of the decision-maker.

The effects of mood on financial markets are widely-documented in recent literature. Bad mood, being expressed by a number of psychologically motivated proxies, like high levels of cloudiness (e.g., Saunders, 1993; Hirshleifer & Shumway, 2003; Kliger & Levy, 2003a, 2003b), high temperatures (Cao & Wei, 2005), heightened geomagnetic storms (Krivelyova & Robotti, 2003), cycles of full moon (Dichev & Janes, 2003; Yuan et al., 2006), Daylight Savings Time Changes (Kamstra et al., 2000) and small number of daylight hours (Kamstra et al., 2003) result in significantly lower stock returns. In addition, Mehra and Sah (2002) suggest that investors' mood has an effect on equity prices if it affects investors' "subjective parameters" (such as level of risk aversion and judgment of the appropriate discount factor). Baker and Wurgler (2006) find that stocks that are attractive to optimists and speculators and at the same time unattractive to arbitrageurs-younger stocks, small stocks, unprofitable stocks, non-dividend paying stocks, high volatility stocks, extreme growth stocks, and distressed stocks are especially likely to be disproportionately sensitive to broad waves of investor sentiment. Kliger and Levy (2003a) employ option price data to recover risk preferences, finding that good (bad) mood is associated with investors being less (more) willing to tolerate risk, and Kliger and Levy (2003b) find that bad mood, proxied by high cloud cover and precipitation volume, is characterized by investors placing higher-than-usual probabilities on adverse events, Kliger and Levy (2008) employing option prices, show that seasonal mood effects distort investors' probability perceptions, and Kliger et al. (2012) document seasonal impact on investors' demand for initial public offerings.

One of the financial indices that may be directly connected to investors' mood is the implied Volatility Index (VIX), introduced by Whaley (1993) and launched by the Chicago Board Options Exchange (CBOE) in 1993. VIX is based on the prices of S&P 500 index options, providing thereby a benchmark for the expected future market volatility over the next month. The index is calculated in real-time and is continuously disseminated throughout each trading day. VIX is widely followed and has been cited in hundreds of news articles in leading financial publications. Along with the view of VIX as an indicator of future economic conditions, it is also known as the investors' "fear gauge" (see Whaley, 2000, 2008). According to this interpretation, though there are other factors affecting this index, in most cases, high VIX reflects increased investors' fear and low VIX suggests complacency. Whaley (2008) documents negative correlation between daily S&P 500 index returns and VIX changes, and interprets it as indicating that changes in the VIX are partially driven by investors demanding portfolio insurance in times of high current market volatility.

Following the "risk-as-feelings" model by Loewenstein et al. (2001), indicating that decision-makers' feelings may affect their way of treating risk and uncertainty, Kliger and Kudryavtsev (2013) suggest that the changes in the value of VIX may be negatively correlated with contemporaneous investors' mood. They find supportive empirical evidence, documenting that positive (negative) excess stock returns following analyst recommendation upgrades (downgrades) are stronger when accompanied by decreases (increases) in the daily value of VIX. The basic intuition behind this finding is that investors in good (bad) mood should perceive positive (negative) future financial outcomes as more probable and, thus, react in a stronger way to analyst recommendation upgrades (downgrades).

3. Research Hypothesis

The goal of the present study is to analyze if investors' mood may cause them to overreact to both public and private news, amplifying the magnitude of the large stock price moves. Based on the evidence presented in the previous Subsection, I employ the daily changes in the value of VIX as a proxy for the contemporaneous investors' mood.

Following the model by Loewenstein et al. (2001), which suggests that good (bad) mood may cause people to perceive positive (negative) future outcomes as more probable, I hypothesize that major positive (negative) stock price moves taking place on the days when the value of VIX falls (rises) may incorporate a component driven by investors' mood, which corresponds in these cases to the direction of the price moves. In other words, I expect that if the direction of a company-specific shock, either public or unobserved, corresponds to the quality of the contemporaneous investors' mood, proxied by the daily changes in VIX, then investors may consider the shock to have a greater subjective probability of leading to stock returns of the respective sign, which increases the magnitude of the shock, creating overreaction. This hypothesis is consistent with the findings by Kliger and Kudryavtsev (2013), suggesting that abnormal stock price reactions to positive (negative) company-specific news are more pronounced if the latter are accompanied by decreases (increases) in the daily value of VIX.

Since stock price overreaction to news results in subsequent reversals, this study's main hypothesis may be formulated as:

Hypothesis: *Negative (positive) stock price reversals following large positive (negative) daily stock price changes should be significantly more pronounced if on the day of the initial price change, the daily value of VIX index falls (rises).*

4. Data Description and Methodology

In my empirical analysis, I employ the adjusted daily price and volume data for all the constituents of S&P 500 Index over the period from 1993 to 2016, as recorded at www.finance.yahoo.com by May 2017. Daily values of the S&P 500 Index, which I use as a proxy for the general stock market index, and those of the VIX Index are downloaded from this website as well. For each large price move (as defined in the sequel), I match the underlying firm's market capitalization, as recorded on a quarterly basis at http://ycharts.com/, for the closest preceding date.

I define large daily stock price changes using three alternative proxies, and two return thresholds for each of them:

Proxy A: Daily raw stock returns with absolute values exceeding 8% ($|SR0_i| > 8\%$) and 10% ($|SR0_i| > 10\%$), where $SR0_i$ represents the event-day (Day 0) stock return corresponding to event (large stock price move) i: The 10-percent threshold is commonly used in previous literature and should be high enough to screen out most price movements that do not reflect either substantial changes in fundamentals (or market perception thereof) or in investor sentiment, defined by Shleifer (2000, pp. 11-12) as "beliefs based on heuristics rather than Bayesian rationality". The 8-percent threshold allows to substantially increase the working sample (Note 1).

Proxy B: Daily raw stock returns with absolute values exceeding three ($|SR0_i| > 3\sigma_i$) and four standard deviations ($|SR0_i| > 4\sigma_i$) of the respective stock's daily returns over 250 trading days (roughly a year) preceding the event: The logic behind this approach, employed in a number of studies (e.g., Pritamani

& Singal, 2001) is that what constitutes a significant price change is different for high-volatility and low-volatility stocks.

Proxy C: Daily abnormal stock returns (ARs) with absolute values exceeding 8% ($|AR0_i| > 8\%$) and 10% ($|AR0_i| > 10\%$), where $AR0_i$ (Day-0 AR corresponding to event *i*) is calculated using Market Model Adjusted Returns (MMAR) (Note 2) with beta estimated for the respective stock over 250 trading days preceding event *i*: Once again, the 10-percent threshold is the one commonly used in previous literature (e.g., Atkins & Dyl, 1990; Bremer & Sweeney, 1991), while the 8-percent threshold increases the sample of events.

Employing absolute (Proxies A and C), rather than relative (Proxy B), thresholds has its relative advantages. Return volatility is not exogenous, reflecting the industry a firm operates in and the degree to which investor sentiment or liquidity shocks affect trading activity in the stock. For example, Internet stocks in the late 1990s were extremely volatile, at least partly due to the influence of shifting investor sentiment, which makes those stocks of particular interest for my analysis. If I adjusted their returns to take into account their high volatility, I would lose many observations where significant changes in fundamentals or investor sentiment occurred. Absolute thresholds do mean that my sample is biased towards highly volatile stocks, but again, those stocks might be the ones I am more interested in the first place. In any case, this assumption is not crucial for my findings, all of which continue to hold if I scale returns by their lagged volatility.

I include large stock price changes in my working sample, provided (i) there were historical trading data for at least 250 trading days before, and 20 days after the event; (ii) market capitalization information was available for the respective stocks; and (iii) the absolute value of the price changes did not exceed 50%. The intersection of these filtering rules yields a working sample of the following sizes for the three definition proxies and the first (second) threshold:

- For proxy A: 6,123 (3,914) large price moves, including 2,825 (1,591) increases and 3,298 (2,323) decreases.
- For proxy B: 6,564 (3,934) large price moves, including 2,992 (1,627) increases and 3,572 (2,307) decreases.
- For proxy C: 5,503 (3,540) large price moves, including 2,431 (1,251) increases and 3,072 (1,989) decreases.

5. Results Description

5.1 Stock Returns Following Large Price Moves: Total Sample

First of all, I employ the total sample of large stock price moves and analyze the respective stocks' returns following the initial moves. Table 1 comprises average ARs, calculated using MMAR (Note 3), and their statistical significance, for the period of up to 20 trading days following large stock price increases and decreases, defined according to the three above-mentioned proxies and two thresholds for each of them. Day 1 refers to the first trading day after the initial price move.

Table 1. Abnormal Stock Returns Following Large Stock Price Increases and Decreases: Total Sample

Panel A: Large stock price increases						
Days relative to event	Average AR following initial price changes, % (2-tailed p-values)					
	|*SR0i*|>8% (2,825 events)	|*SR0i*|>10% (1,591 events)	|*SR0i*|>3*σi* (2,992 events)	|*SR0i*|>4*σi* (1,627 events)	|*AR0i*|>8% (2,431 events)	|*AR0i*|>10% (1,251 events)
1	-0.12 (30.15%)	-0.13 (31.20%)	-0.14 (29.77%)	-0.18 (24.01%)	-0.17 (26.11%)	-0.19 (24.51%)
2	-0.13 (29.98%)	-0.12 (34.82%)	-0.11 (39.10%)	-0.12 (38.25%)	-0.11 (38.41%)	-0.13 (35.53%)
1 to 5	-0.17 (30.21%)	-0.22 (26.15%)	-0.18 (29.75%)	-0.16 (34.25%)	-0.14 (39.88%)	-0.15 (43.41%)
1 to 20	-0.18 (32.56%)	-0.21 (29.87%)	-0.20 (28.66%)	-0.18 (31.05%)	-0.19 (30.23%)	-0.19 (34.13%)
Panel B: Large stock price decreases						
Days relative to event	Average AR following initial price changes, % (2-tailed p-values)					
	|*SR0i*|>8% (3,298 events)	|*SR0i*|>10% (2,323 events)	|*SR0i*|>3*σi* (3,572 events)	|*SR0i*|>4*σi* (2,307 events)	|*AR0i*|>8% (3,072 events)	|*AR0i*|>10% (1,989 events)
1	0.18 (23.44%)	0.17 (24.56%)	0.19 (20.37%)	0.17 (21.41%)	0.16 (28.71%)	0.18 (21.54%)
2	0.13 (31.33%)	0.15 (33.34%)	0.14 (30.98%)	0.15 (32.25%)	0.14 (37.03%)	0.15 (30.88%)
1 to 5	0.36 (19.05%)	0.34 (22.62%)	0.42 (13.47%)	0.36 (22.10%)	0.38 (18.23%)	0.39 (14.98%)
1 to 20	0.42 (14.21%)	0.41 (16.02%)	*0.46 (9.92%)	0.43 (12.35%)	0.41 (15.64%)	*0.44 (9.83%)

Asterisks denote 2-tailed p-values: *$p<0.10$.

The results in the Table are consistent with most of the previous literature. For the total sample of large price moves, there are non-significant reversals following positive price moves, and either non-significant or marginally significant reversals following negative price moves, the former being slightly more pronounced for the time window 1 to 20. The results are similar for all the proxies according to which the events are defined and for all the thresholds. Moreover, the magnitude and the significance of the post-event reversals appear to be virtually independent of the magnitude of the initial price shocks.

5.2 Effect of Mood on Stock Returns Following Large Price Moves

In order to perform the first general test of my research hypothesis, similarly to Kliger and Kudryavtsev (2013), I divide the total sample of events (large stock price moves) by the direction of change in the value of VIX corresponding to Day 0.

Tables 2A, 2B and 2C report average ARs following large price moves, by the sign of Day-0 VIX change (ΔVIX), as well as the respective AR differences and their statistical significance, for event definition proxies A, B and C, respectively. The results corroborate my research hypothesis with respect to the effect of event-day investors' mood, proxied by the sign of ΔVIX, on post-event ARs. First of all, with all the proxies, large price increases (decreases) are followed by significant price reversals if the initial price moves take place on the days when the value of VIX falls (rises), suggesting that in these cases, the price moves may contain an element of overreaction. The magnitude of these price reversals increases for longer post-event periods, so that for the post-event window 1 to 20, average ARs following large price increases, which took place on the days when $\Delta VIX<0$, reach -0.72%, -0.69% and -0.71%, for the lower threshold, according to proxies A, B and C, respectively, while average ARs following large price decreases, which took place on the days when $\Delta VIX>0$, are even more pronounced and equal 1.11%, 1.13% and 1.15%, according to proxies A, B and C, respectively, all the ARs being highly statistically significant. On the other hand, large price increases (decreases) which occur on the days when the value of VIX rises (falls) result in non-significant stock price drifts for all the post-event windows. AR differences for the post-event period between the two mood-related conditions are highly significant and also become more pronounced for longer event windows. According to the three event definition proxies, for the Days 1 to 20, AR differences between $\Delta VIX>0$ and $\Delta VIX<0$ conditions equal 1.00%, 0.96% and 1.02%, following large price increases, and even more impressive 1.53%, 1.56% and 1.59%, following large price decreases.

Table 2A. Abnormal Stock Returns Following Large Stock Price Increases and Decreases, by the Sign of ∆VIX: Proxy A for Defining Large Price Moves

Panel A: Large stock price increases

Days relative to event	Average AR following initial price changes, % (2-tailed p-values)					
	$\|SR0i\|$>8%			$\|SR0i\|$>10%		
	ΔVIX>0 (1,378 events)	ΔVIX<0 (1,447 events)	Difference	ΔVIX>0 (773 events)	ΔVIX<0 (818 events)	Difference
1	0.15	**-0.39	***0.54	0.16	**-0.40	***0.56
	(29.57%)	(1.87%)	(0.19%)	(31.41%)	(1.75%)	(0.12%)
2	0.02	*-0.18	*0.20	0.03	*-0.17	*0.20
	(58.66%)	(8.92%)	(5.87%)	(51.71%)	(9.68%)	(6.44%)
1 to 5	0.24	***-0.67	***0.91	0.26	***-0.69	***0.95
	(25.81%)	(0.77%)	(0.11%)	(24.78%)	(0.58%)	(0.06%)
1 to 20	0.28	***-0.72	***1.00	0.29	***-0.73	***1.02
	(21.03%)	(0.25%)	(0.03%)	(19.68%)	(0.21%)	(0.02%)

Panel B: Large stock price decreases

Days relative to event	Average AR following initial price changes, % (2-tailed p-values)					
	$\|SR0i\|$>8%			$\|SR0i\|$>10%		
	ΔVIX>0 (1,594 events)	ΔVIX<0 (1,704 events)	Difference	ΔVIX>0 (1,128 events)	ΔVIX<0 (1,195 events)	Difference
1	**0.58	-0.24	***0.82	**0.59	-0.25	***0.84
	(1.50%)	(19.56%)	(0.13%)	(1.48%)	(19.12%)	(0.11%)
2	*0.22	-0.07	*0.29	*0.24	-0.07	*0.31
	(8.87%)	(44.01%)	(5.52%)	(8.04%)	(45.14%)	(5.12%)
1 to 5	***0.90	-0.20	***1.10	***0.92	-0.21	***1.13
	(0.05%)	(30.68%)	(0.05%)	(0.04%)	(31.05%)	(0.03%)
1 to 20	***1.11	-0.42	***1.53	***1.13	-0.43	***1.56
	(0.02%)	(18.20%)	(0.00%)	(0.02%)	(17.75%)	(0.00%)

Asterisks denote 2-tailed p-values: *p<0.10; **p<0.05; ***p<0.01.

Table 2B. Abnormal Stock Returns Following Large Stock Price Increases and Decreases, by the Sign of ∆VIX: Proxy B for Defining Large Price Moves

Panel A: Large stock price increases

Days relative to event	Average AR following initial price changes, % (2-tailed p-values)					
	$\|SR0i\|>3\sigma i$			$\|SR0i\|>4\sigma i$		
	$\Delta VIX>0$ (1,438 events)	$\Delta VIX<0$ (1,554 events)	Difference	$\Delta VIX>0$ (791 events)	$\Delta VIX<0$ (836 events)	Difference
1	0.14	**-0.39	***0.53	0.15	**-0.40	***0.55
	(30.24%)	(1.78%)	(0.22%)	(32.70%)	(1.68%)	(0.13%)
2	0.02	*-0.17	*0.19	0.02	*-0.16	*0.18
	(57.62%)	(9.25%)	(6.33%)	(62.01%)	(9.75%)	(7.02%)
1 to 5	0.23	***-0.65	***0.88	0.25	***-0.68	***0.93
	(26.84%)	(0.90%)	(0.17%)	(25.23%)	(0.59%)	(0.07%)
1 to 20	0.27	***-0.69	***0.96	0.28	***-0.71	***0.99
	(22.61%)	(0.31%)	(0.04%)	(20.31%)	(0.23%)	(0.03%)

Panel B: Large stock price decreases

Days relative to event	Average AR following initial price changes, % (2-tailed p-values)					
	$\|SR0i\|>3\sigma i$			$\|SR0i\|>4\sigma i$		
	$\Delta VIX>0$ (1,723 events)	$\Delta VIX<0$ (1,849 events)	Difference	$\Delta VIX>0$ (1,122 events)	$\Delta VIX<0$ (1,185 events)	Difference
1	**0.59	-0.25	***0.84	**0.60	-0.26	***0.86
	(1.35%)	(18.67%)	(0.09%)	(1.40%)	(18.23%)	(0.08%)
2	*0.21	-0.08	*0.29	*0.25	-0.07	*0.32
	(9.08%)	(39.85%)	(5.45%)	(7.53%)	(48.03%)	(5.10%)
1 to 5	***0.91	-0.21	***1.12	***0.93	-0.22	***1.15
	(0.03%)	(28.42%)	(0.02%)	(0.03%)	(30.41%)	(0.01%)
1 to 20	***1.13	-0.43	***1.56	***1.15	-0.44	***1.59
	(0.00%)	(16.65%)	(0.00%)	(0.01%)	(15.81%)	(0.00%)

Asterisks denote 2-tailed p-values: *$p<0.10$; **$p<0.05$; ***$p<0.01$.

Table 2C. Abnormal Stock Returns Following Large Stock Price Increases and Decreases, by the Sign of ΔVIX: Proxy C for Defining Large Price Moves

Panel A: Large stock price increases

Days relative to event	Average AR following initial price changes, % (2-tailed p-values)					
	$\|AR0i\|>8\%$			$\|AR0i\|>10\%$		
	$\Delta VIX>0$ (1,176 events)	$\Delta VIX<0$ (1,255 events)	Difference	$\Delta VIX>0$ (605 events)	$\Delta VIX<0$ (646 events)	Difference
1	0.17	**-0.41	***0.58	0.18	**-0.43	***0.61
	(24.21%)	(1.12%)	(0.12%)	(29.66%)	(1.11%)	(0.08%)
2	0.04	*-0.18	*0.22	0.03	*-0.18	*0.21
	(46.35%)	(9.01%)	(5.36%)	(55.40%)	(9.26%)	(5.87%)
1 to 5	0.27	***-0.67	***0.94	0.28	***-0.69	***0.97
	(22.31%)	(0.83%)	(0.06%)	(20.57%)	(0.54%)	(0.03%)
1 to 20	0.31	***-0.71	***1.02	0.32	***-0.73	***1.05
	(18.43%)	(0.26%)	(0.00%)	(20.02%)	(0.18%)	(0.00%)

Panel B: Large stock price decreases

Days relative to event	Average AR following initial price changes, % (2-tailed p-values)					
	$\|AR0i\|>8\%$			$\|AR0i\|>10\%$		
	$\Delta VIX>0$ (1,498 events)	$\Delta VIX<0$ (1,574 events)	Difference	$\Delta VIX>0$ (962 events)	$\Delta VIX<0$ (1,027 events)	Difference
1	**0.60	-0.26	***0.86	**0.61	-0.27	***0.88
	(1.32%)	(18.03%)	(0.06%)	(1.37%)	(17.59%)	(0.06%)
2	*0.21	-0.09	*0.30	*0.25	-0.08	**0.33
	(9.19%)	(34.56%)	(5.14%)	(7.67%)	(45.61%)	(4.81%)
1 to 5	***0.92	-0.22	***1.14	***0.94	-0.24	***1.18
	(0.03%)	(26.50%)	(0.00%)	(0.04%)	(26.82%)	(0.00%)
1 to 20	***1.15	-0.44	***1.59	***1.16	-0.46	***1.62
	(0.00%)	(15.23%)	(0.00%)	(0.00%)	(12.37%)	(0.00%)

Asterisks denote 2-tailed p-values: *$p<0.10$; **$p<0.05$; ***$p<0.01$.

5.3 Effect of Mood on the Post-Event Stock Returns within Different Stock Groups

In this Subsection, I analyze the magnitude of the post-event stock price reversals and of AR differences between the two mood-related conditions, by firm size (market capitalization) and by historical volatility of stock returns. The motivation for this analysis is based on the findings by Baker and Wurgler (2006), who argue that stocks of low capitalization stocks, growth stocks, and highly volatile stocks are especially likely to be disproportionately sensitive to broad waves of investor sentiment.

First, I concentrate on the effect of firm size. For each of the three event definition proxies and separately for large price increases and decreases, I split the samples of events into three roughly equal parts by the firms' market capitalization (high, medium and low) reported for the end of the quarter preceding each large price move. Tables 3A, 3B and 3C exhibit, for proxies A, B and C, average post-event ARs, by the sign of ΔVIX, as well as the respective AR differences and their statistical significance, for high and low market capitalization firms. Consistently with Baker and Wurgler (2006), the Day-0 mood effect on post-event stock ARs following both large price increases and large price decreases is stronger for low capitalization stocks. This result is twofold: (i) for small stocks, in cases when the direction of the initial price move corresponds to the contemporaneous investors' mood proxied by ΔVIX, the magnitude of post-event price reversals is larger (e.g., according to the two thresholds of proxy A, for post-event window 1 to 20, average ARs following large price increases taking place on the days when ΔVIX<0 equal -0.54% and -0.53% for high capitalization stocks, and -0.91% and -0.92% for low capitalization stocks, while average ARs following large price decreases taking place on the days when ΔVIX>0 equal 0.85% and 0.83% for high capitalization stocks, and 1.36% and 1.38% for low capitalization stocks); and (ii) for small stocks, AR differences for the post-event period between the two mood conditions are greater (e.g., according to the two thresholds of proxy A, for post-event window 1 to 20, following large price increases, average AR differences between the ΔVIX>0 and ΔVIX<0 conditions are 0.72% and 0.70% for high capitalization stocks, and 1.30% and 1.33% for low capitalization stocks, while following large price decreases, average AR differences between the ΔVIX>0 and ΔVIX<0 conditions are 1.16% and 1.13% for high capitalization stocks, and 1.89% and 1.95% for low capitalization stocks) (Note 4).

Table 3A. Abnormal Stock Returns Following Large Stock Price Increases and Decreases, by the Sign of ΔVIX, for High and Low Market Capitalization Firms: Proxy A for Defining Large Price Moves

Panel A: Large stock price increases						
	Average AR following initial price changes for high/low market capitalization firms, %					
Days relative to event	|*SR0i*|>8%			|*SR0i*|>10%		
	ΔVIX>0 (459/459 events)	ΔVIX<0 (482/482 events)	Difference	ΔVIX>0 (257/258 events)	ΔVIX<0 (272/273 events)	Difference
1	0.02/0.25	*-0.21/**-0.52	*0.23/**0.77	0.01/0.26	*-0.20/**-0.53	*0.21/**0.79
2	-0.03/0.06	-0.10/*-0.27	0.07/*0.33	-0.03/0.07	-0.09/*-0.27	0.06/*0.34
1 to 5	0.15/0.31	*-0.50/**-0.83	**0.65/***1.14	0.14/0.32	*-0.48/**-0.85	**0.62/***1.17
1 to 20	0.18/0.39	**-0.54/***-0.91	**0.72/***1.30	0.17/0.41	**-0.53/***-0.92	**0.70/***1.33

Panel B: Large stock price decreases						
	Average AR following initial price changes for high/low market capitalization firms, %					
Days relative to event	|*SR0i*|>8%			|*SR0i*|>10%		
	ΔVIX>0 (531/531 events)	ΔVIX<0 (568/568 events)	Difference	ΔVIX>0 (376/376 events)	ΔVIX<0 (398/398 events)	Difference
1	*0.40/**0.71	-0.16/-0.30	**0.56/***1.01	*0.38/**0.72	-0.15/-0.31	**0.53/***1.03
2	0.16/*0.28	-0.03/-0.10	0.19/*0.38	0.15/*0.30	-0.01/-0.11	0.16/*0.41
1 to 5	**0.67/***1.09	-0.14/-0.26	**0.81/***1.35	**0.64/***1.09	-0.14/-0.28	**0.78/***1.37
1 to 20	***0.85/***1.36	-0.31/*-0.54	***1.16/***1.89	***0.83/***1.38	-0.30/*-0.57	***1.13/***1.95

Asterisks denote 2-tailed p-values: *p<0.10; **p<0.05; ***p<0.01.

Table 3B. Abnormal Stock Returns Following Large Stock Price Increases and Decreases, by the Sign of ∆VIX, for High and Low Market Capitalization Firms: Proxy B for Defining Large Price Moves

Panel A: Large stock price increases						
	Average AR following initial price changes for high/low market capitalization firms, %					
Days relative to event	|*SR0i*|>3*σi*			|*SR0i*|>4*σi*		
	∆VIX>0 (479/479 events)	∆VIX<0 (518/518 events)	Difference	∆VIX>0 (263/264 events)	∆VIX<0 (278/279 events)	Difference
1	0.04/0.23	*-0.22/**-0.50	*0.26/**0.73	0.02/0.24	*-0.21/**-0.51	*0.23/**0.75
2	-0.02/0.07	-0.11/*-0.25	0.09/*0.32	-0.02/0.06	-0.10/*-0.26	0.08/*0.32
1 to 5	0.16/0.30	*-0.51/**-0.80	**0.67/***1.10	0.15/0.29	*-0.49/**-0.82	**0.64/***1.11
1 to 20	0.20/0.38	**-0.55/***-0.87	**0.75/***1.25	0.19/0.39	**-0.54/***-0.88	**0.73/***1.27

Panel B: Large stock price decreases						
	Average AR following initial price changes for high/low market capitalization firms, %					
Days relative to event	|*SR0i*|>3*σi*			|*SR0i*|>4*σi*		
	∆VIX>0 (574/574 events)	∆VIX<0 (616/616 events)	Difference	∆VIX>0 (374/374 events)	∆VIX<0 (395/395 events)	Difference
1	*0.41/**0.68	-0.17/-0.28	**0.58/***0.96	*0.39/**0.69	-0.16/-0.29	**0.55/***0.98
2	0.17/*0.26	-0.03/-0.08	0.20/*0.34	0.16/*0.28	-0.02/-0.09	0.18/*0.37
1 to 5	**0.68/***1.05	-0.15/-0.24	**0.83/***1.29	**0.65/***1.06	-0.16/-0.26	**0.81/***1.32
1 to 20	***0.86/***1.31	-0.32/-0.50	***1.18/***1.81	***0.84/***1.34	-0.31/*-0.53	***1.15/***1.87

Asterisks denote 2-tailed p-values: *p<0.10; **p<0.05; ***p<0.01.

Table 3C. Abnormal Stock Returns Following Large Stock Price Increases and Decreases, by the Sign of ∆VIX, for High and Low Market Capitalization Firms: Proxy C for Defining Large Price Moves

Panel A: Large stock price increases						
	Average AR following initial price changes for high/low market capitalization firms, %					
Days relative to event	|*AR0i*|>8%			|*AR0i*|>10%		
	∆VIX>0 (392/392 events)	∆VIX<0 (418/418 events)	Difference	∆VIX>0 (201/202 events)	∆VIX<0 (215/215 events)	Difference
1	0.04/0.26	*-0.23/**-0.52	*0.27/**0.78	0.04/0.27	*-0.22/**-0.53	*0.26/**0.80
2	-0.01/0.10	-0.12/*-0.26	0.11/*0.36	-0.01/0.09	-0.11/*-0.28	0.10/*0.37
1 to 5	0.17/0.33	*-0.52/**-0.83	**0.69/***1.16	0.16/0.32	*-0.50/**-0.86	**0.66/***1.18
1 to 20	0.19/0.42	**-0.56/***-0.92	**0.75/***1.34	0.20/0.43	**-0.55/***-0.94	**0.75/***1.37
Panel B: Large stock price decreases						
	Average AR following initial price changes for high/low market capitalization firms, %					
Days relative to event	|*AR0i*|>8%			|*AR0i*|>10%		
	∆VIX>0 (499/499 events)	∆VIX<0 (524/525 events)	Difference	∆VIX>0 (320/321 events)	∆VIX<0 (342/342 events)	Difference
1	*0.43/**0.73	-0.19/-0.31	**0.62/***1.04	*0.44/**0.74	-0.18/-0.32	**0.62/***1.06
2	0.18/*0.29	-0.04/-0.11	0.22/*0.40	0.17/*0.31	-0.04/-0.12	0.21/*0.43
1 to 5	**0.69/***1.09	-0.17/-0.26	**0.86/***1.35	**0.68/***1.11	-0.18/-0.29	**0.86/***1.40
1 to 20	***0.89/***1.38	-0.33/*-0.52	***1.22/***1.90	***0.87/***1.41	-0.32/*-0.55	***1.19/***1.96

Asterisks denote 2-tailed p-values: *p<0.10; **p<0.05; ***p<0.01.

Furthermore, I analyze the effect of historical stock volatility on the magnitude of the availability effect on post-event stock returns. For each of the three event definition proxies and separately for large price increases and decreases, I split the samples of events into three roughly equal parts by the standard deviation of stock returns over Days -250 to -1 (high, medium and low volatility stocks). Tables 4A, 4B and 4C present relevant AR statistics for high and low volatility stocks. Once again, in line with the previous literature, the magnitude of the mood effect on stock returns following large price moves, as expressed by the magnitude of post-event price reversals and the AR differences between the two mood-related conditions, is stronger pronounced for more volatile stocks (Note 5). Thus, one may suggest that large price moves of low market capitalization and more volatile stocks are more affected by investors' mood, possibly due to the reduced amount of information on these stocks and their higher risk levels. As a result, the post-event price reversals for these stocks are more pronounced (Note 6).

Table 4A. Abnormal Stock Returns Following Large Stock Price Increases and Decreases, by the Sign of ΔVIX, for High and Low Volatility Stocks: Proxy A for Defining Large Price Moves

Panel A: Large stock price increases						
	Average AR following initial price changes for high/low volatility stocks, %					
Days relative to event	|*SR0i*|>8%			|*SR0i*|>10%		
	ΔVIX>0 (459/459 events)	ΔVIX<0 (482/482 events)	Difference	ΔVIX>0 (257/258 events)	ΔVIX<0 (272/273 events)	Difference
1	0.19/0.07	**-0.47/*-0.24	**0.66/*0.31	0.20/0.06	**-0.48/*-0.25	**0.68/*0.31
2	0.04/0.00	*-0.24/-0.12	*0.28/0.12	0.05/-0.01	*-0.25/-0.13	*0.30/0.12
1 to 5	0.25/0.19	**-0.76/*-0.55	***1.01/**0.74	0.27/0.18	**-0.77/*-0.54	***1.04/**0.72
1 to 20	0.35/0.23	***-0.85/**-0.59	***1.20/**0.82	0.36/0.22	***-0.87/**-0.59	***1.23/**0.81
Panel B: Large stock price decreases						
	Average AR following initial price changes for high/low volatility stocks, %					
Days relative to event	|*SR0i*|>8%			|*SR0i*|>10%		
	ΔVIX>0 (531/531 events)	ΔVIX<0 (568/568 events)	Difference	ΔVIX>0 (376/376 events)	ΔVIX<0 (398/398 events)	Difference
1	**0.63/*0.42	-0.26/-0.20	***0.89/**0.62	**0.64/*0.43	-0.27/-0.21	***0.91/**0.64
2	*0.25/0.18	-0.08/-0.05	*0.33/0.23	*0.26/0.17	-0.10/-0.04	*0.36/0.21
1 to 5	***1.02/**0.69	-0.23/-0.17	***1.25/**0.86	***1.04/**0.68	-0.26/-0.18	***1.30/**0.86
1 to 20	***1.28/***0.92	*-0.47/-0.35	***1.75/***1.27	***1.31/***0.93	*-0.48/-0.36	***1.79/***1.29

Asterisks denote 2-tailed p-values: *p<0.10; **p<0.05; ***p<0.01.

Table 4B. Abnormal Stock Returns Following Large Stock Price Increases and Decreases, by the Sign of ∆VIX, for High and Low Volatility Stocks: Proxy B for Defining Large Price Moves

Panel A: Large stock price increases

Days relative to event	Average AR following initial price changes for high/low volatility stocks, %					
	|*SR0i*|>3*σi*			|*SR0i*|>4*σi*		
	∆VIX>0 (479/479 events)	∆VIX<0 (518/518 events)	Difference	∆VIX>0 (263/264 events)	∆VIX<0 (278/279 events)	Difference
1	0.17/0.08	**-0.44/*-0.22	**0.61/*0.30	0.18/0.06	**-0.45/*-0.24	**0.63/*0.30
2	0.03/0.01	*-0.23/-0.11	*0.26/0.12	0.04/0.00	*-0.24/-0.12	*0.28/0.12
1 to 5	0.24/0.18	**-0.73/*-0.53	***0.95/**0.71	0.24/0.16	**-0.75/*-0.52	***0.99/**0.68
1 to 20	0.31/0.22	***-0.80/**-0.56	***1.11/**0.78	0.32/0.20	***-0.83/**-0.56	***1.15/**0.76

Panel B: Large stock price decreases

Days relative to event	Average AR following initial price changes for high/low volatility stocks, %					
	|*SR0i*|>3*σi*			|*SR0i*|>4*σi*		
	∆VIX>0 (574/574 events)	∆VIX<0 (616/616 events)	Difference	∆VIX>0 (374/374 events)	∆VIX<0 (395/395 events)	Difference
1	**0.60/*0.40	-0.25/-0.18	***0.85/**0.58	**0.62/*0.41	-0.25/-0.20	***0.87/**0.61
2	*0.23/0.17	-0.07/-0.03	*0.30/0.20	*0.24/0.16	-0.10/-0.03	*0.34/0.19
1 to 5	***0.98/**0.65	-0.20/-0.15	***1.18/**0.81	***1.00/**0.65	-0.23/-0.16	***1.23/**0.81
1 to 20	***1.20/***0.87	*-0.44/-0.33	***1.64/***1.20	***1.24/***0.89	*-0.45/-0.34	***1.69/***1.23

Asterisks denote 2-tailed p-values: *p<0.10; **p<0.05; ***p<0.01.

Table 4C. Abnormal Stock Returns Following Large Stock Price Increases and Decreases, by the Sign of ΔVIX, for High and Low Volatility Stocks: Proxy C for Defining Large Price Moves

Panel A: Large stock price increases						
	Average AR following initial price changes for high/low volatility stocks, %					
Days	|*AR0i*|>8%			|*AR0i*|>10%		
relative	ΔVIX>0	ΔVIX<0	Difference	ΔVIX>0	ΔVIX<0	Difference
to event	(392/392 events)	(418/418 events)		(201/202 events)	(215/215 events)	
1	0.21/0.07	**-0.48/*-0.25	**0.69/*0.32	0.22/0.07	**-0.49/*-0.26	**0.71/*0.33
2	0.05/0.02	*-0.25/-0.12	*0.30/0.14	0.06/0.01	*-0.26/-0.13	*0.32/0.14
1 to 5	0.27/0.20	**-0.79/*-0.56	***1.06/**0.76	0.29/0.19	**-0.81/*-0.56	***1.10/**0.75
1 to 20	0.37/0.25	***-0.88/**-0.60	***1.25/**0.85	0.39/0.24	***-0.92/**-0.61	***1.31/**0.85

Panel B: Large stock price decreases						
	Average AR following initial price changes for high/low volatility stocks, %					
Days	|*AR0i*|>8%			|*AR0i*|>10%		
relative	ΔVIX>0	ΔVIX<0	Difference	ΔVIX>0	ΔVIX<0	Difference
to event	(499/499 events)	(524/525 events)		(320/321 events)	(342/342 events)	
1	**0.65/*0.43	-0.27/-0.20	***0.92/**0.63	**0.66/*0.44	-0.28/-0.21	***0.94/**0.65
2	*0.26/0.18	-0.09/-0.06	*0.35/0.24	*0.27/0.17	-0.11/-0.05	*0.38/0.22
1 to 5	***1.06/**0.71	-0.24/-0.18	***1.30/**0.89	***1.07/**0.72	-0.27/-0.19	***1.34/**0.91
1 to 20	***1.32/***0.94	*-0.49/-0.36	***1.81/***1.30	***1.34/***0.95	*-0.50/-0.37	***1.84/***1.32

Asterisks denote 2-tailed p-values: *p<0.10; **p<0.05; ***p<0.01.

5.4 Multifactor Analysis

Having detected the effect of mood on stock returns following large price changes, I henceforth check its persistence controlling for additional firm-specific and event-specific factors. To do so, I run the following regressions, separately for large price increases and decreases, for the windows 1, 1 to 5 and 1 to 20 following the events, and according to all the proxies and thresholds:

$$AR_{it} = \gamma_0 + \gamma_1 VIX\_dum_i + \gamma_2 MCap_i + \gamma_3 beta_i + \gamma_4 SR\_volat_i + \gamma_5 |SR0|_i + \gamma_6 ABVOL0_i + \varepsilon_{it} \quad (1)$$

where: *ARit* is the abnormal stock return following event *i* for post-event window t (Days 1, 1 to 5, or 1 to 20); *VIX_dumi* is the dummy variable, taking the value 1 if the value of VIX corresponding to Day 0 for event *i* rises, and 0 otherwise; *MCapi* is the natural logarithm of the firm's market capitalization corresponding to event *i*, normalized in the cross-section; *betai* is the estimated CAPM beta for event *i*, calculated over the Days -250 to -1 and normalized in the cross-section; *SR_volati* is the standard deviation of stock returns over the Days -250 to -1 corresponding to event *i*, normalized in the cross-section; |*SR0*|*i* is the absolute Day-0 stock return representing event *i*; and *ABVOL0i* is the abnormal Day-0 stock trading volume corresponding to event *i*, calculated as the difference between the stock's actual Day-0 trading volume and its average trading volume over Days -250 to -1, normalized by the standard deviation of its trading volume over the same estimation window.

Tables 5, 6 and 7 report the regression coefficients for post-event windows 1, 1 to 5 and 1 to 20, respectively, providing the following results:

- Regression coefficients on *VIX_dum* are positive and highly significant for all the post-event windows, which means that negative (positive) post-event price reversals following large price increases (decreases) are stronger if the latter take place on the days when the value of VIX falls (rises), suggesting that the large stock price moves may contain a mood-driven element of overreaction. Importantly, the effect persists and remains significant after controlling for additional factors affecting post-event ARs.
- According to the signs of the coefficients on *MCap*, for low capitalization firms, post-event ARs following large price increases (decreases) are significantly lower (higher). That is, stock price reversals following large price moves are significantly stronger for small stocks.
- Regression coefficients on *beta* following large price increases (decreases) are negative (positive), yet, marginally significant. Thus, one may suggest that stock price reversals following large price moves tend to be stronger for high-beta stocks, yet, controlling for other company-specific and event-specific factors, the significance of the effect is questionable.
- Regression coefficients on *SR_volat* following large price increases (decreases) are significantly negative (positive), indicating that stock price reversals following large price moves are significantly stronger for more volatile stocks.
- The coefficients on |*SR0*| and *ABVOL0* are non-significant, demonstrating that the magnitude of post-event stock price reversals does not depend on the magnitude of the initial shocks, as expressed by both stock price change itself and the trading volume at the day of the shock.

Table 5. Multifactor Regression Analysis of ARs Following Large Stock Price Increases and Decreases: Dependent Variable—Stock AR for Day 1 Following the Event

Panel A: Large stock price increases

Explanatory variable	Coefficient estimates, % (2-tailed p-values)					
	|*SR0i*|>8% (2,825 events)	|*SR0i*|>10% (1,591 events)	|*SR0i*|>3*σi* (2,992 events)	|*SR0i*|>4*σi* (1,627 events)	|*AR0i*|>8% (2,431 events)	|*AR0i*|>10% (1,251 events)
Intercept	**0.08	**0.07	**0.09	**0.10	**0.07	**0.06
	(3.21%)	(4.01%)	(3.01%)	(2.87%)	(3.56%)	(4.25%)
VIX_dum	***0.47	***0.49	***0.45	***0.46	***0.48	***0.50
	(0.41%)	(0.32%)	(0.47%)	(0.42%)	(0.35%)	(0.29%)
MCap	**0.21	**0.20	**0.22	**0.19	**0.18	**0.19
	(3.84%)	(3.98%)	(3.41%)	(4.30%)	(4.02%)	(3.77%)
beta	*-0.10	*-0.12	*-0.11	*-0.10	*-0.09	*-0.11
	(8.59%)	(8.12%)	(8.23%)	(9.01%)	(9.65%)	(8.21%)
SR_Volat	*-0.20	*-0.22	*-0.19	*-0.21	*-0.19	*-0.20
	(6.12%)	(6.01%)	(6.43%)	(6.87%)	(6.43%)	(6.41%)
|SR0|	-0.03	-0.04	-0.05	-0.04	-0.04	-0.03
	(48.27%)	(44.71%)	(36.52%)	(45.62%)	(45.31%)	(51.03%)
ABVOL0	0.02	0.01	0.01	0.02	0.04	0.02
	(54.12%)	(65.25%)	(51.20%)	(48.75%)	(40.05%)	(54.62%)

Panel B: Large stock price decreases

Explanatory variable	Coefficient estimates, % (2-tailed p-values)					
	|*SR0i*|>8% (3,298 events)	|*SR0i*|>10% (2,323 events)	|*SR0i*|>3*σi* (3,572 events)	|*SR0i*|>4*σi* (2,307 events)	|*AR0i*|>8% (3,072 events)	|*AR0i*|>10% (1,989 events)
Intercept	***-0.45	***-0.47	***-0.44	***-0.45	***-0.47	***-0.49
	(0.11%)	(0.09%)	(0.18%)	(0.16%)	(0.09%)	(0.04%)
VIX_dum	***0.62	***0.64	***0.60	***0.61	***0.64	***0.67
	(0.12%)	(0.08%)	(0.19%)	(0.17%)	(0.07%)	(0.05%)

MCap	**-0.24	**-0.25	**-0.22	**-0.23	**-0.26	**-0.28
	(3.74%)	(4.01%)	(4.08%)	(4.00%)	(3.41%)	(3.02%)
beta	*0.07	*0.08	*0.08	*0.07	*0.08	*0.07
	(9.67%)	(9.14%)	(9.20%)	(9.86%)	(9.24%)	(9.68%)
SR_Volat	**0.16	**0.15	**0.17	**0.18	**0.15	**0.16
	(4.32%)	(4.92%)	(4.11%)	(4.23%)	(4.78%)	(4.31%)
|SR0|	0.02	0.01	0.00	0.01	0.03	0.02
	(74.23%)	(72.03%)	(98.37%)	(86.71%)	(67.25%)	(51.32%)
ABVOL0	-0.03	-0.04	-0.02	-0.05	-0.01	-0.02
	(41.34%)	(38.60%)	(52.37%)	(34.52%)	(86.37%)	(49.98%)

Asterisks denote 2-tailed p-values: *p<0.10; **p<0.05; ***p<0.01.

Table 6. Multifactor Regression Analysis of ARs Following Large Stock Price Increases and Decreases: Dependent Variable—Stock AR for Days 1 to 5 Following the Event

Panel A: Large stock price increases						
Explanatory variable	Coefficient estimates, % (2-tailed p-values)					
	|*SR0i*|>8% (2,825 events)	|*SR0i*|>10% (1,591 events)	|*SR0i*|>3*σi* (2,992 events)	|*SR0i*|>4*σi* (1,627 events)	|*AR0i*|>8% (2,431 events)	|*AR0i*|>10% (1,251 events)
Intercept	**0.11	**0.10	**0.12	**0.11	**0.10	**0.09
	(1.87%)	(2.03%)	(1.45%)	(1.72%)	(1.98%)	(2.35%)
VIX_dum	***0.78	***0.79	***0.76	***0.77	***0.79	***0.81
	(0.00%)	(0.00%)	(0.00%)	(0.00%)	(0.00%)	(0.00%)
MCap	**0.20	**0.21	**0.22	**0.21	**0.19	**0.21
	(3.21%)	(3.13%)	(3.02%)	(3.53%)	(3.82%)	(3.17%)
beta	*-0.13	*-0.14	*-0.12	*-0.13	*-0.14	*-0.15
	(7.32%)	(7.20%)	(7.77%)	(7.52%)	(6.92%)	(6.34%)
SR_Volat	**-0.24	**-0.23	**-0.25	**-0.24	**-0.23	**-0.24
	(3.84%)	(4.08%)	(3.12%)	(3.30%)	(3.52%)	(3.41%)

|SR0|	-0.04	-0.03	-0.05	-0.04	-0.05	-0.04
	(32.21%)	(41.53%)	(27.51%)	(33.73%)	(25.42%)	(35.63%)
ABVOL0	0.03	0.02	0.04	0.03	0.04	0.03
	(35.62%)	(48.67%)	(27.60%)	(34.37%)	(29.38%)	(36.28%)

Panel B: Large stock price decreases

Explanatory variable	Coefficient estimates, % (2-tailed p-values)					
	|*SR0i*|>8% (3,298 events)	|*SR0i*|>10% (2,323 events)	|*SR0i*|>3*σi* (3,572 events)	|*SR0i*|>4*σi* (2,307 events)	|*AR0i*|>8% (3,072 events)	|*AR0i*|>10% (1,989 events)
Intercept	***-0.41	***-0.42	***-0.39	***-0.41	***-0.43	***-0.44
	(0.03%)	(0.04%)	(0.06%)	(0.04%)	(0.02%)	(0.01%)
VIX_dum	***0.91	***0.92	***0.89	***0.90	***0.92	***0.94
	(0.00%)	(0.00%)	(0.00%)	(0.00%)	(0.00%)	(0.00%)
MCap	**-0.34	**-0.35	**-0.33	**-0.34	**-0.32	**-0.33
	(2.38%)	(2.25%)	(2.68%)	(2.52%)	(2.98%)	(2.68%)
beta	*0.11	*0.12	*0.13	*0.12	*0.12	*0.10
	(9.36%)	(9.07%)	(8.64%)	(7.96%)	(9.48%)	(9.89%)
SR_Volat	*0.17	*0.16	*0.18	*0.17	*0.18	*0.17
	(7.34%)	(7.88%)	(6.93%)	(7.66%)	(7.07%)	(7.63%)
|SR0|	0.04	0.05	0.03	0.04	0.05	0.06
	(45.68%)	(39.87%)	(50.31%)	(44.69%)	(38.29%)	(29.83%)
ABVOL0	-0.05	-0.06	-0.04	-0.05	-0.03	-0.04
	(37.39%)	(31.24%)	(53.29%)	(46.21%)	(58.39%)	(47.60%)

Asterisks denote 2-tailed p-values: *p<0.10; **p<0.05; ***p<0.01.

Table 7. Multifactor Regression Analysis of ARs Following Large Stock Price Increases and Decreases: Dependent Variable—Stock AR for Days 1 to 20 Following the Event

Panel A: Large stock price increases						
Explanatory variable	Coefficient estimates, % (2-tailed p-values)					
	|*SR0i*|>8% (2,825 events)	|*SR0i*|>10% (1,591 events)	|*SR0i*|>3*σi* (2,992 events)	|*SR0i*|>4*σi* (1,627 events)	|*AR0i*|>8% (2,431 events)	|*AR0i*|>10% (1,251 events)
Intercept	***0.19	***0.18	***0.21	***0.20	***0.18	***0.17
	(0.78%)	(0.86%)	(0.60%)	(0.71%)	(0.86%)	(0.92%)
VIX_dum	***0.92	***0.93	***0.90	***0.91	***0.93	***0.95
	(0.00%)	(0.00%)	(0.00%)	(0.00%)	(0.00%)	(0.00%)
MCap	***0.27	***0.28	***0.26	***0.28	***0.26	***0.27
	(0.85%)	(0.80%)	(0.94%)	(0.86%)	(0.89%)	(0.75%)
beta	*-0.17	*-0.18	*-0.16	*-0.19	*-0.19	*-0.22
	(8.69%)	(8.22%)	(8.86%)	(8.01%)	(8.11%)	(7.64%)
SR_Volat	**-0.28	**-0.29	**-0.27	**-0.29	**-0.27	**-0.28
	(2.37%)	(2.41%)	(2.69%)	(2.23%)	(2.24%)	(2.07%)
|SR0|	-0.07	-0.08	-0.06	-0.04	-0.06	-0.07
	(25.55%)	(23.09%)	(30.64%)	(39.91%)	(28.64%)	(25.39%)
ABVOL0	0.05	0.06	0.04	0.05	0.06	0.05
	(34.65%)	(33.81%)	(38.09%)	(37.30%)	(30.34%)	(35.21%)
Panel B: Large stock price decreases						
Explanatory variable	Coefficient estimates, % (2-tailed p-values)					
	|*SR0i*|>8% (3,298 events)	|*SR0i*|>10% (2,323 events)	|*SR0i*|>3*σi* (3,572 events)	|*SR0i*|>4*σi* (2,307 events)	|*AR0i*|>8% (3,072 events)	|*AR0i*|>10% (1,989 events)
Intercept	***-0.52	***-0.54	***-0.50	***-0.51	***-0.55	***-0.56
	(0.00%)	(0.00%)	(0.00%)	(0.00%)	(0.00%)	(0.00%)
VIX_dum	***1.21	***1.23	***1.19	***1.20	***1.23	***1.26
	(0.00%)	(0.00%)	(0.00%)	(0.00%)	(0.00%)	(0.00%)

MCap	***-0.45	***-0.46	***-0.44	***-0.45	***-0.47	***-0.48
	(0.10%)	(0.11%)	(0.12%)	(0.11%)	(0.06%)	(0.05%)
beta	*0.20	*0.21	*0.22	*0.21	*0.21	*0.20
	(6.03%)	(6.10%)	(5.67%)	(6.31%)	(5.87%)	(6.44%)
SR_Volat	**0.23	**0.24	**0.22	**0.24	**0.22	**0.23
	(3.76%)	(3.65%)	(3.99%)	(3.28%)	(3.92%)	(3.87%)
|SR0|	0.04	0.05	0.03	0.04	0.05	0.04
	(39.67%)	(37.25%)	(46.37%)	(42.82%)	(33.09%)	(39.77%)
ABVOL0	-0.06	-0.05	-0.07	-0.08	-0.05	-0.06
	(28.67%)	(32.08%)	(25.91%)	(26.91%)	(34.84%)	(31.11%)

Asterisks denote 2-tailed p-values: *p<0.10; **p<0.05; ***p<0.01.

5.5 Robustness Tests

I apply two additional sample filtering criteria:

First, I adjust my working sample so that it would not contain overlapping price moves. That is, if there were two large price changes within a 20-trading days window, I exclude both of them form my sample. Tables 8A, 8B and 8C exhibit average ARs and AR differences between the two VIX conditions, for the filtered sample of large price moves, according to event definition proxies A, B and C, respectively. The Tables show that after excluding the overlapping price moves from the sample, both price reversals following large price moves taking place on the days when the value of VIX changes in the direction which is opposite to that of the move, and AR differences between the two mood-related conditions remain significant for both large price increases and decreases and for all the post-event windows, representing an additional support for the existence of the effect of mood on post-event stock returns.

Table 8A. Abnormal Stock Returns Following Large Stock Price Increases and Decreases, by the Sign of ∆VIX: Proxy A for Defining Large Price Moves, Overlapping Price Moves Excluded

Panel A: Large stock price increases

Days relative to event	Average AR following initial price changes, % (2-tailed p-values)					
	|*SR0i*|>8%			|*SR0i*|>10%		
	∆*VIX*>0 (1,215 events)	∆*VIX*<0 (1,324 events)	Difference	∆*VIX*>0 (652 events)	∆*VIX*<0 (721 events)	Difference
1	0.16	**-0.39	***0.55	0.17	**-0.41	***0.58
	(26.23%)	(1.95%)	(0.15%)	(29.67%)	(1.67%)	(0.10%)
2	0.01	*-0.19	*0.20	0.03	*-0.17	*0.20
	(88.65%)	(8.46%)	(5.98%)	(52.36%)	(9.81%)	(6.74%)
1 to 5	0.25	***-0.68	***0.93	0.27	***-0.70	***0.97
	(23.04%)	(0.68%)	(0.08%)	(22.13%)	(0.56%)	(0.04%)
1 to 20	0.29	***-0.74	***1.03	0.30	***-0.75	***1.05
	(23.50%)	(0.19%)	(0.01%)	(19.11%)	(0.18%)	(0.00%)

Panel B: Large stock price decreases

Days relative to event	Average AR following initial price changes, % (2-tailed p-values)					
	|*SR0i*|>8%			|*SR0i*|>10%		
	∆*VIX*>0 (1,423 events)	∆*VIX*<0 (1,531 events)	Difference	∆*VIX*>0 (968 events)	∆*VIX*<0 (1,044 events)	Difference
1	**0.59	-0.25	***0.84	**0.60	-0.25	***0.85
	(1.47%)	(18.84%)	(0.11%)	(1.41%)	(19.86%)	(0.12%)
2	*0.21	-0.08	*0.29	*0.24	-0.08	*0.32
	(9.21%)	(38.42%)	(5.78%)	(8.35%)	(40.21%)	(5.23%)
1 to 5	***0.91	-0.21	***1.12	***0.93	-0.22	***1.15
	(0.04%)	(28.62%)	(0.03%)	(0.03%)	(30.69%)	(0.01%)
1 to 20	***1.13	-0.43	***1.56	***1.15	-0.44	***1.59
	(0.02%)	(17.98%)	(0.00%)	(0.00%)	(16.38%)	(0.00%)

Asterisks denote 2-tailed p-values: *p<0.10; **p<0.05; ***p<0.01.

Table 8B. Abnormal Stock Returns Following Large Stock Price Increases and Decreases, by the Sign of ∆VIX: Proxy B for Defining Large Price Moves, Overlapping Price Moves Excluded

Panel A: Large stock price increases

Days relative to event	Average AR following initial price changes, % (2-tailed p-values)					
	$\|SR0i\|>3\sigma i$			$\|SR0i\|>4\sigma i$		
	$\Delta VIX>0$ (1,325 events)	$\Delta VIX<0$ (1,416 events)	Difference	$\Delta VIX>0$ (703 events)	$\Delta VIX<0$ (764 events)	Difference
1	0.15	**-0.39	***0.54	0.16	**-0.41	***0.57
	(28.86%)	(1.86%)	(0.17%)	(30.92%)	(1.57%)	(0.11%)
2	0.03	*-0.18	*0.21	0.02	*-0.17	*0.19
	(49.67%)	(9.02%)	(6.00%)	(65.87%)	(9.56%)	(6.94%)
1 to 5	0.25	***-0.66	***0.91	0.26	***-0.69	***0.95
	(22.39%)	(0.87%)	(0.14%)	(24.31%)	(0.52%)	(0.04%)
1 to 20	0.29	***-0.71	***1.00	0.29	***-0.73	***1.02
	(19.64%)	(0.25%)	(0.01%)	(20.05%)	(0.20%)	(0.00%)

Panel B: Large stock price decreases

Days relative to event	Average AR following initial price changes, % (2-tailed p-values)					
	$\|SR0i\|>3\sigma i$			$\|SR0i\|>4\sigma i$		
	$\Delta VIX>0$ (1,584 events)	$\Delta VIX<0$ (1,652 events)	Difference	$\Delta VIX>0$ (1,015 events)	$\Delta VIX<0$ (1,076 events)	Difference
1	**0.60	-0.25	***0.85	**0.61	-0.26	***0.87
	(1.31%)	(19.57%)	(0.07%)	(1.35%)	(19.21%)	(0.06%)
2	*0.21	-0.09	*0.30	*0.25	-0.08	*0.33
	(9.25%)	(37.36%)	(5.13%)	(7.88%)	(45.43%)	(5.01%)
1 to 5	***0.93	-0.23	***1.16	***0.94	-0.24	***1.18
	(0.01%)	(26.72%)	(0.00%)	(0.01%)	(27.62%)	(0.00%)
1 to 20	***1.16	-0.45	***1.61	***1.18	-0.46	***1.64
	(0.00%)	(15.37%)	(0.00%)	(0.00%)	(14.55%)	(0.00%)

Asterisks denote 2-tailed p-values: *p<0.10; **p<0.05; ***p<0.01.

Table 8C. Abnormal Stock Returns Following Large Stock Price Increases and Decreases, by the Sign of ΔVIX: Proxy C for Defining Large Price Moves, Overlapping Price Moves Excluded

Panel A: Large stock price increases

Days relative to event	Average AR following initial price changes, % (2-tailed p-values)					
	|*AR0i*|>8%			|*AR0i*|>10%		
	Δ*VIX*>0 (1,085 events)	Δ*VIX*<0 (1,134 events)	Difference	Δ*VIX*>0 (578 events)	Δ*VIX*<0 (606 events)	Difference
1	0.17	**-0.42	***0.59	0.19	**-0.44	***0.63
	(25.64%)	(1.08%)	(0.09%)	(26.54%)	(1.07%)	(0.05%)
2	0.05	*-0.18	*0.23	0.04	*-0.19	*0.23
	(40.50%)	(9.37%)	(5.14%)	(49.66%)	(9.03%)	(5.42%)
1 to 5	0.28	***-0.68	***0.96	0.29	***-0.70	***0.99
	(20.71%)	(0.74%)	(0.04%)	(18.62%)	(0.48%)	(0.01%)
1 to 20	0.32	***-0.73	***1.05	0.33	***-0.75	***1.08
	(16.97%)	(0.21%)	(0.00%)	(19.52%)	(0.14%)	(0.00%)

Panel B: Large stock price decreases

Days relative to event	Average AR following initial price changes, % (2-tailed p-values)					
	|*AR0i*|>8%			|*AR0i*|>10%		
	Δ*VIX*>0 (1,386 events)	Δ*VIX*<0 (1,427 events)	Difference	Δ*VIX*>0 (902 events)	Δ*VIX*<0 (988 events)	Difference
1	**0.61	-0.27	***0.88	**0.62	-0.27	***0.89
	(1.21%)	(16.57%)	(0.04%)	(1.31%)	(17.88%)	(0.04%)
2	*0.21	-0.09	*0.30	*0.26	-0.10	**0.36
	(9.33%)	(35.76%)	(5.24%)	(7.51%)	(38.64%)	(3.58%)
1 to 5	***0.93	-0.24	***1.17	***0.96	-0.26	***1.22
	(0.02%)	(21.37%)	(0.00%)	(0.02%)	(24.61%)	(0.00%)
1 to 20	***1.17	-0.46	***1.63	***1.18	-0.48	***1.66
	(0.00%)	(14.31%)	(0.00%)	(0.00%)	(11.12%)	(0.00%)

Asterisks denote 2-tailed p-values: *p<0.10; **p<0.05; ***p<0.01.

Finally, following the methodology employed in several previous studies dealing with large stock price moves (e.g., Cox & Peterson, 1994; Park, 1995), I exclude from my working sample the stocks whose prices prior to large price changes were lower than ten dollars, and present the respective average post-event ARs and AR differences, according to the three event definition proxies in Tables 9A, 9B and 9C. The results are qualitatively similar to those obtained for the total sample, demonstrating that the documented effect of mood on post-event stock returns is not driven by any exceptional "cheap" stocks' price behavior.

Table 9A. Abnormal Stock Returns Following Large Stock Price Increases and Decreases, by the Sign of ΔVIX: Proxy A for Defining Large Price Moves, Stocks Below $10 Excluded

Panel A: Large stock price increases						
Days relative to event	Average AR following initial price changes, % (2-tailed p-values)					
	|*SR0i*|>8%			|*SR0i*|>10%		
	Δ*VIX*>0 (1,147 events)	Δ*VIX*<0 (1,261 events)	Difference	Δ*VIX*>0 (605 events)	Δ*VIX*<0 (684 events)	Difference
1	0.12	**-0.35	***0.47	0.13	**-0.37	***0.50
	(34.56%)	(3.12%)	(0.76%)	(33.69%)	(2.36%)	(0.35%)
2	0.01	*-0.17	*0.18	0.02	*-0.17	*0.19
	(90.21%)	(9.13%)	(7.23%)	(58.63%)	(9.67%)	(6.97%)
1 to 5	0.20	***-0.64	***0.84	0.22	***-0.66	***0.88
	(29.63%)	(0.89%)	(0.22%)	(28.41%)	(0.85%)	(0.15%)
1 to 20	0.22	***-0.69	***0.91	0.25	***-0.71	***0.96
	(27.85%)	(0.25%)	(0.07%)	(26.07%)	(0.35%)	(0.02%)

Panel B: Large stock price decreases						
Days relative to event	Average AR following initial price changes, % (2-tailed p-values)					
	|*SR0i*|>8%			|*SR0i*|>10%		
	Δ*VIX*>0 (1,376 events)	Δ*VIX*<0 (1,462 events)	Difference	Δ*VIX*>0 (886 events)	Δ*VIX*<0 (962 events)	Difference
1	**0.55	-0.22	***0.77	**0.57	-0.22	***0.79
	(1.96%)	(24.07%)	(0.19%)	(1.86%)	(25.94%)	(0.20%)
2	*0.19	-0.07	*0.26	*0.21	-0.08	*0.29
	(9.82%)	(40.15%)	(6.58%)	(9.25%)	(42.38%)	(6.87%)

1 to 5	***0.85	-0.17	***1.02	***0.88	-0.19	***1.07
	(0.10%)	(31.74%)	(0.07%)	(0.05%)	(36.52%)	(0.03%)
1 to 20	***1.06	-0.38	***1.44	***1.09	-0.40	***1.49
	(0.05%)	(22.55%)	(0.00%)	(0.01%)	(21.37%)	(0.00%)

Asterisks denote 2-tailed p-values: *p<0.10; **p<0.05; ***p<0.01.

Table 9B. Abnormal Stock Returns Following Large Stock Price Increases and Decreases, by the Sign of ∆VIX: Proxy B for Defining Large Price Moves, Stocks Below $10 Excluded

Panel A: Large stock price increases						
	Average AR following initial price changes, % (2-tailed p-values)					
Days relative to event	$\|SR0i\|>3\sigma i$			$\|SR0i\|>4\sigma i$		
	$\Delta VIX>0$ (1,238 events)	$\Delta VIX<0$ (1,327 events)	Difference	$\Delta VIX>0$ (645 events)	$\Delta VIX<0$ (700 events)	Difference
1	0.11	**-0.33	***0.44	0.12	**-0.34	***0.46
	(37.45%)	(2.87%)	(0.75%)	(38.14%)	(2.52%)	(0.54%)
2	0.02	*-0.15	*0.17	0.02	*-0.16	*0.18
	(54.69%)	(9.68%)	(7.95%)	(66.37%)	(9.74%)	(7.36%)
1 to 5	0.19	***-0.63	***0.82	0.21	***-0.64	***0.85
	(29.68%)	(0.92%)	(0.21%)	(30.28%)	(0.83%)	(0.17%)
1 to 20	0.23	***-0.68	***0.91	0.24	***-0.70	***0.94
	(27.28%)	(0.32%)	(0.03%)	(25.63%)	(0.27%)	(0.01%)

Panel B: Large stock price decreases						
	Average AR following initial price changes, % (2-tailed p-values)					
Days relative to event	$\|SR0i\|>3\sigma i$			$\|SR0i\|>4\sigma i$		
	$\Delta VIX>0$ (1,458 events)	$\Delta VIX<0$ (1,561 events)	Difference	$\Delta VIX>0$ (946 events)	$\Delta VIX<0$ (989 events)	Difference
1	**0.54	-0.21	***0.75	**0.56	-0.22	***0.78
	(1.87%)	(23.67%)	(0.14%)	(1.48%)	(22.13%)	(0.10%)
2	*0.18	-0.07	*0.25	*0.19	-0.08	*0.27
	(9.68%)	(43.15%)	(7.56%)	(9.14%)	(47.39%)	(7.23%)

1 to 5	***0.83	-0.16	***0.99	***0.85	-0.18	***1.03
	(0.06%)	(30.74%)	(0.02%)	(0.04%)	(31.45%)	(0.00%)
1 to 20	***1.04	-0.37	***1.41	***1.07	-0.40	***1.47
	(0.00%)	(19.53%)	(0.00%)	(0.00%)	(18.70%)	(0.00%)

Asterisks denote 2-tailed p-values: *p<0.10; **p<0.05; ***p<0.01.

Table 9C. Abnormal Stock Returns Following Large Stock Price Increases and Decreases, by the Sign of ∆VIX: Proxy C for Defining Large Price Moves, Stocks Below $10 Excluded

Panel A: Large stock price increases						
	Average AR following initial price changes, % (2-tailed p-values)					
Days relative to event	|*AR0i*|>8%			|*AR0i*|>10%		
	∆*VIX*>0 (1,006 events)	∆*VIX*<0 (1,064 events)	Difference	∆*VIX*>0 (512 events)	∆*VIX*<0 (574 events)	Difference
1	0.13	**-0.36	***0.49	0.14	**-0.38	***0.52
	(31.62%)	(1.85%)	(0.21%)	(29.81%)	(1.68%)	(0.15%)
2	0.03	*-0.16	*0.19	0.04	*-0.17	*0.21
	(47.80%)	(9.56%)	(6.34%)	(50.02%)	(9.24%)	(5.99%)
1 to 5	0.22	***-0.66	***0.88	0.23	***-0.67	***0.90
	(24.18%)	(0.90%)	(0.09%)	(23.63%)	(0.76%)	(0.06%)
1 to 20	0.26	***-0.71	***0.97	0.28	***-0.73	***1.01
	(21.25%)	(0.28%)	(0.01%)	(20.72%)	(0.18%)	(0.00%)

Panel B: Large stock price decreases						
	Average AR following initial price changes, % (2-tailed p-values)					
Days relative to event	|*AR0i*|>8%			|*AR0i*|>10%		
	∆*VIX*>0 (1,293 events)	∆*VIX*<0 (1,351 events)	Difference	∆*VIX*>0 (867 events)	∆*VIX*<0 (907 events)	Difference
1	**0.57	-0.23	***0.80	**0.58	-0.24	***0.82
	(1.69%)	(19.68%)	(0.06%)	(1.53%)	(19.06%)	(0.07%)
2	*0.19	-0.08	*0.27	*0.20	-0.09	*0.29
	(9.74%)	(39.04%)	(5.87%)	(8.66%)	(40.86%)	(5.32%)

1 to 5	***0.87	-0.19	***1.06	***0.89	-0.21	***1.10
	(0.05%)	(24.19%)	(0.00%)	(0.03%)	(25.77%)	(0.00%)
1 to 20	***1.08	-0.40	***1.48	***1.11	-0.42	***1.53
	(0.00%)	(16.85%)	(0.00%)	(0.00%)	(15.44%)	(0.00%)

Asterisks denote 2-tailed p-values: *p<0.10; **p<0.05; ***p<0.01.

6. Concluding Remarks

In this paper, I analyzed the effect of investors' future volatility expectations, expressed by VIX index, on large daily stock price changes. Assuming that the direction of changes in the value of VIX is negatively correlated with investors' mood, I suggested that if the former is opposite to the direction of a contemporaneously occurring company-specific shock, then investors may consider the shock to have a greater subjective probability of leading to stock returns of the respective sign, which increases the magnitude of the shock, creating an overreaction. Therefore, since stock price overreaction to news is recognized to result in subsequent price reversals, I hypothesized that stock price reversals following large daily price changes may be more pronounced if the direction of the initial price change is opposite to the sign of change in the value of VIX on the day when the price change takes place.

The results of the empirical analysis supported my research hypothesis. Analyzing a large sample of major daily stock price moves and defining the latter according to a number of alternative proxies, based on both raw and abnormal stock returns, and on both absolute and relative (scaled by the respective stock's volatility) return thresholds, I documented that both positive and negative stock price moves accompanied by the opposite-sign contemporaneous daily changes in VIX are followed by significant reversals on the next two trading days and over five- and twenty-day intervals following the event, the magnitude of the reversals increasing over longer post-event windows, while large stock price changes taking place on the days when the value of VIX changes in the same direction are followed by non-significant price drifts.

Furthermore, I established that the effect of volatility expectations, or presumably the effect of mood, on post-event stock returns was of higher magnitude for low capitalization firms and stocks with higher volatility of historical returns, suggesting that large price moves of low market capitalization and more volatile stocks are more affected (or even, driven) by investors' mood, possibly due to the reduced amount of information on these stocks and their higher risk levels. Moreover, this effect remained significant after accounting for additional company-specific (size, beta, historical volatility) and event-specific (stock's return and trading volume on the event day) factors. The results were robust to different return thresholds, both higher and lower, to different methods of adjusting returns, such as market-adjusted returns, market-model excess returns, and Fama-French three-factor model excess returns, and to different sample filtering criteria.

This study's findings may be valuable for both financial theoreticians in their eternal discussion about stock market efficiency, and practitioners in search of potentially profitable investment strategies. Potential directions for further research may include expanding the analysis to other stock exchanges, classifying the sample of large stock price changes by short- and medium-term pre-event return statistics, and analyzing longer post-event windows.

References

Atkins, A. B., & Dyl, E. A. (1990). Price Reversals, Bid-Ask Spreads and Market Efficiency. *Journal of Financial and Quantitative Analysis*, *25*(4), 535-547. https://doi.org/10.2307/2331015

Atkinson, R. L., Atkinson, R. C., Smith, E. E., Bern, D. J., & Nolen-Hoeksema, S. (2000). *Hilgard's Introduction to Psychology* (13th ed.). Harcourt College Publishers.

Avramov, D. T., Chordia, & Goyal, A. (2006). Liquidity and Autocorrelations in Individual Stock Returns. *Journal of Finance*, *61*(5), 2365-2394. https://doi.org/10.1111/j.1540-6261.2006.01060.x

Baker, M., & Wurgler, J. (2006). Investor Sentiment and the Cross-Section of Stock Returns. *Journal of Finance*, *61*(4), 1645-1680. https://doi.org/10.1111/j.1540-6261.2006.00885.x

Bremer, M. T., Hiraki, & Sweeney, R. J. (1997). Predictable Patterns after Large Stock Price Changes on the Tokyo Stock Exchange. *Journal of Financial and Quantitative Analysis*, *32*(3), 345-365. https://doi.org/10.2307/2331204

Bremer, M., & Sweeney, R. J. (1991). The Reversal of Large Stock-Price Decreases. *Journal of Finance*, *46*(2), 747-754. https://doi.org/10.1111/j.1540-6261.1991.tb02684.x

Brown, K. C., Harlow, W. V., & Tinic, S. M. (1988). Risk Aversion, Uncertain Information, and Market Efficiency. *Journal of Financial Economics*, *22*(2), 355-385. https://doi.org/10.1016/0304-405X(88)90075-X

Cao, M., & Wei, J. (2005). Stock Market Returns: A Note on Temperature Anomaly. *Journal of Banking and Finance*, *29*(6), 1559-1573. https://doi.org/10.1016/j.jbankfin.2004.06.028

Chan, W. S. (2003). Stock Price Reaction to News and No-News: Drift and Reversal after Headlines. *Journal of Financial Economics*, *70*(2), 223-260. https://doi.org/10.1016/S0304-405X(03)00146-6

Conrad, J. S., Hameed, A., & Niden, C. (1994). Volume and Autocovariances in Short-Horizon Individual Security Returns. *Journal of Finance*, *49*(4), 1305-1329. https://doi.org/10.1111/j.1540-6261.1994.tb02455.x

Constans, J. I., & Mathews, A. M. (1993). Mood and Subjective Risk of Future Events. *Cognition and Emotion*, *7*(6), 545-560. https://doi.org/10.1080/02699939308409205

Cooper, M. (1999). Filter Rules Based on Price and Volume in Individual Security Overreaction. *Review of Financial Studies*, *12*(4), 901-935. https://doi.org/10.1093/rfs/12.4.901

Cox, D. R., & Peterson, C. R. (1994). Stock Returns following Large One-Day Declines: Evidence on Short-Term Reversals and Longer-Term Performance. *Journal of Finance*, *49*(1), 255-267. https://doi.org/10.1111/j.1540-6261.1994.tb04428.x

Daniel, K., Hirshleifer, D., & Subrahmanyam, A. (1998). Investor Psychology and Security Market Under- and Overreactions. *Journal of Finance*, *53*(6), 1839-1885. https://doi.org/10.1111/0022-1082.00077

DeBondt, W. F. M., & Thaler, R. (1985). Does the Stock Market Overreact? *Journal of Finance*, *40*(3), 793-805. https://doi.org/10.1111/j.1540-6261.1985.tb05004.x

DeBondt, W. F. M., & Thaler, R. (1987). Further Evidence on Investor Overreaction and Stock Market Seasonality. *Journal of Finance*, *42*(3), 557-580. https://doi.org/10.1111/j.1540-6261.1987.tb04569.x

Dichev, I. D., & Janes, T. D. (2003). Lunar Cycle Effects in Stock Returns. *Journal of Private Equity*, *6*(4), 8-29. https://doi.org/10.3905/jpe.2003.320053

Fehle, F., & Zdorovtsov, V. (2003). *Large Price Declines, News, Liquidity and Trading Strategies: An Intraday Analysis* (Working Paper). University of South Carolina.

Forgas, J. P. (1992). Affect in Social Judgment and Decisions: A Multi-Process Model. *Advances in Experimental Psychology*, *25*, 227-275. https://doi.org/10.1016/S0065-2601(08)60285-3

Hamelink, F. (1999). *Systematic Patterns Before and After Large Price Changes: Evidence from High Frequency Data from the Paris Bourse* (Working Paper). Groupe HEC Paris.

Hirshleifer, D., & Shumway, T. (2003). Good Day Sunshine: Stock Returns and the Weather. *Journal of Finance*, *58*(3), 1009-1032. https://doi.org/10.1111/1540-6261.00556

Hong, H., & Stein, J. C. (1999). A Unified Theory of Underreaction, Momentum Trading, and Overreaction in Asset Markets. *Journal of Finance*, *54*(6), 2143-2184. https://doi.org/10.1111/0022-1082.00184

Howe, J. S. (1986). Evidence on Stock Market Overreaction. *Financial Analysts Journal*, *42*(3), 74-77. https://doi.org/10.2469/faj.v42.n4.74

Ikenberry, D. L., & Ramnath, S. (2002). Underreaction to Self-Selected News Events: The case of Stock Splits. *Review of Financial Studies*, *15*(2), 489-526. https://doi.org/10.1093/rfs/15.2.489

Isen, A. M. (2000). Positive Affect and Decision Making. In M. Lewis, & J. M. Havieland (Eds.), *Handbook of Emotions* (Vol. 2, pp. 417-435). London: Guilford.

Isen, A. M., Shalker, T. E., Clark, M., & Karp, L. (1978). Affect, Accessibility of Material in Memory, and Behavior: A cognitive Loop? *Journal of Personality and Social Psychology*, *36*(1), 1-12. https://doi.org/10.1037/0022-3514.36.1.1

Jegadeesh, N., & Titman, S. (1993). Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency. *Journal of Finance*, *48*(1), 65-91. https://doi.org/10.1111/j.1540-6261.1993.tb04702.x

Johnson, E. J., & Tversky, A. (1983). Affect, Generalization, and the Perception of Risk. *Journal of Personality and Social Psychology*, *45*(1), 20-31. https://doi.org/10.1037/0022-3514.45.1.20

Kahneman, D., & Riis, J. (2006). Living and Thinking About it: Two Perspectives on Life. In F. Huppert, B. Keverne, & N. Baylis (Eds.), *The Science of Well-Being*. Oxford University Press.

Kamstra, M. J., Kramer, L. A., & Levi, M. D. (2000). Losing Sleep at the Market: The Daylight-Savings Anomaly. *American Economic Review*, *90*(4), 1005-1011. https://doi.org/10.1257/aer.90.4.1005

Kamstra, M. J., Kramer, L. A., & Levi, M. D. (2003). Winter Blues: A Sad Stock Market Cycle. *American Economic Review*, *93*(1), 324-343. https://doi.org/10.1257/000282803321455322

Kliger, D., & Kudryavtsev, A. (2013). Volatility Expectations and the Reaction to Analyst Recommendations. *Journal of Economic Psychology*, *37*(1), 1-6. https://doi.org/10.1016/j.joep.2013.04.003

Kliger, D., & Levy, O. (2003a). Mood-induced Variation in Risk Preferences. *Journal of Economic Behavior and Organization*, *52*(4), 573-584. https://doi.org/10.1016/S0167-2681(03)00069-6

Kliger, D., & Levy, O. (2003b). Mood and Judgment of Subjective Probabilities: Evidence from the U.S. Index Option Market. *European Finance Review*, *7*(2), 235-248. https://doi.org/10.1023/A:1024555107167

Kliger, D., & Levy, O. (2008). Mood Impacts on Probability Weighting Functions: "Large-Gamble" Evidence. *Journal of Socio-Economics*, *37*(4), 1397-1411. https://doi.org/10.1016/j.socec.2007.08.010

Kliger, D., Gurevich, G., & Haim, A. (2012). When Chronobiology Met Economics—Seasonal Affective Disorder and the Demand for Initial Public Offerings. *Journal of Neuroscience, Psychology and Economics*, *5*(3), 131-151. https://doi.org/10.1037/a0029473

Krivelyova, A., & Robotti, C. (2003). *Playing the Field: Geomagnetic Storms and International Stock Returns, Federal Reserve Bank of Atlanta* (Working Paper 2003-5b).

Larson, S. J., & Madura, J. (2003). What Drives Stock Price Behavior Following Extreme One-Day Returns. *Journal of Financial Research*, *26*(1), 113-127. https://doi.org/10.1111/1475-6803.00048

Lasfer, M. A., Melnik, A., & Thomas, D. (2003). Stock Price Reaction in Stressful Circumstances: An International Comparison. *Journal of Banking and Finance*, *27*(10), 1959-1977. https://doi.org/10.1016/S0378-4266(02)00313-8

Lehmann, B. N. (1990). Fads, Martingales and Market Efficiency. *Quarterly Journal of Economics*, *105*(1), 1-28. https://doi.org/10.2307/2937816

Lo, A. W., & MacKinlay, A. C. (1990). An Econometric Analysis of Nonsynchronous Trading. *Journal of Econometrics*, *45*(2), 181-212. https://doi.org/10.1016/0304-4076(90)90098-E

Loewenstein, G. F., Hsee, C. K., Weber, E. U., & Welch, N. (2001). Risk as Feelings. *Psychological Bulletin*, *127*(2), 267-286. https://doi.org/10.1037/0033-2909.127.2.267

Mazouz, K., Nathan, L. J., & Joulmer, J. (2009). Stock Price Reaction Following Large One-Day Price Changes: UK Evidence. *Journal of Banking and Finance*, *33*(8), 1481-1493. https://doi.org/10.1016/j.jbankfin.2009.02.010

Mehra, R., & Sah, R. (2002). Mood Fluctuations, Projection Bias, and Volatility of Equity Prices. *Journal of Economic Dynamics and Control*, *26*(5), 869-887. https://doi.org/10.1016/S0165-1889(01)00035-5

Michaely, R., & Womack, K. L. (1999). Conflict of Interest and the Credibility of Underwriter Analyst Recommendations. *Review of Financial Studies*, *12*(4), 653-686. https://doi.org/10.1093/rfs/12.4.653

Park, J. (1995). A Market Microstructure Explaining for Predictable Variations in Stock Returns following Large Price Changes. *Journal of Financial and Quantitative Analysis*, *30*(2), 241-256.

Pritamani, M., & Singal, V. (2001). Return Predictability Following Large Price Changes and Information Releases. *Journal of Banking and Finance*, *25*(4), 631-656.

Ratner, M., & Leal, R. (1998). *Evidence of Short-Term Price Reversals Following Large One Day Movements in the Emerging Markets of Latin America and Asia, Working paper*. Rider University, New Jersey, US.

Renshaw, E. F. (1984). Stock Market Panics: A Test of the Efficient Market Hypothesis. *Financial Analysts Journal*, *40*(3), 48-51.

Saunders, E. M. (1993). Stock Prices and Wall Street Weather. *American Economic Review*, *83*(5), 1137-1145.

Savor, P. (2012). Stock Returns after Major Price Shocks: The Impact of Information. *Journal of Financial Economics*, *106*(3), 635-659.

Schwarz, N. (1990). Feelings as Information. Informational and Motivational Functions of Affective States. In R. Sorrentino, & E. T. Higgins (Eds.), *Handbook of Motivation and Cognition*. Guilford Press, New York.

Schwarz, N., & Clore, G. L. (1983). Mood, Missatribution, and Judgments of Well-Being: Informative and Directive Functions of Affective States. *Journal of Personality and Social Psychology*, *45*(3), 513-523.

Schwarz, N. (2002). Feelings as Information: Moods Influence Judgments and Processing Strategies, In T. Gilovich, D. Griffin, & D. Kahneman (Eds.), *Heuristics and Biases: The Psychology of Intuitive Judgment* (pp. 534-547). New York: Cambridge University Press.

Sturm, R. R. (2003). Investor Confidence and Returns Following Large One-Day Price Changes. *The Journal of Behavioral Finance*, *4*(4), 201-216.

Tetlock, P. C. (2010). Does Public Financial News Resolve Asymmetric Information? *Review of Financial Studies*, *23*(9), 3520-3557.

Vega, C. (2006). Stock Price Reaction to Public and Private Information. *Journal of Financial Economics*, *82*(1), 103-133.

Whaley, R. E. (1993). Derivatives on Market Volatility: Hedging Tools Long Overdue. *Journal of Derivatives*, *1*(1), 71-84.

Whaley, R. E. (2000). The Investor Fear Gauge. *Journal of Portfolio Management*, *26*(3), 12-17.

Whaley, R. E. (2008). *Understanding VIX, Working Paper*. Vanderbilt University.

Wright, W. F., & Bower, G. H. (1992). Mood Effects on Subjective Probability Assessment. *Organizational Behavior and Human Decision Processes*, *52*(2), 276-291.

Yuan, K., Zheng, L., & Zhu, Q. (2006). Are Investors Moonstruck? Lunar Phases and Stock Returns. *Journal of Empirical Finance*, *13*(1), 1-23.

Zarowin, P. (1989). Short-Run Market Overreaction: Size and Seasonality Effects. *Journal of Portfolio Management*, *15*(3), 26-29.

Notes

Note 1. For all the three proxies for defining the large stock price moves, I employ a number of additional thresholds. The results for all of these thresholds (available upon request from the author) are qualitatively similar to those reported in Section 5.

Note 2. Alternatively, I calculate ARs using Market Adjusted Returns (MAR)—return differences from the market index, and the Fama-French three-factor plus momentum model. The results (available upon request from the author) remain qualitatively similar to those reported in Section 5.

Note 3. The Market-Model beta is estimated for each stock over 250 trading days preceding the large price change.

Note 4. The results for medium capitalization stocks for both large price increases and decreases, for all the post-event windows and according to all the proxies and thresholds, indicate that these stocks are less influenced by the effect of mood than low capitalization stocks, and more influenced by the effect of mood than high capitalization stocks. The detailed results are available upon request from the author. Overall, the results demonstrate that the Day-0 effect of mood on stock ARs following large price moves decreases with market capitalization.

Note 5. The results for medium volatility stocks for both large price increases and decreases, for all the post-event windows and according to all the proxies and thresholds, indicate that these stocks are less influenced by the effect of mood than high volatility stocks, and more influenced by the effect of mood than low volatility stocks. The detailed results are available upon request from the author. Overall, the results demonstrate that the Day-0 effect of mood on stock ARs following large price moves increases with historical stock volatility.

Note 6. I have also performed the analysis of post-event ARs for three subsamples partitioned by the CAPM stock beta calculated over Days -250 to -1. In line with Baker and Wurgler (2006), I have documented that the Day-0 effect of mood on stock ARs following large price moves increases with stock beta. The detailed results are available upon request from the author.