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# "I'LL THINK ABOUT IT TOMORROW": PRICE DRIFTS FOLLOWING LARGE PRE-HOLIDAY STOCK PRICE MOVES

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Abstract. The study explores the holiday effect on large daily stock price changes and on subsequent stock returns. The motivation for the study is based on the Mood Maintenance Hypothesis and on the literature documenting lower stock trading activity before holidays. I hypothesize that if a company-specific shock takes place before a holiday, then investors striving to maintain their positive pre-holiday mood, may be less willing to make influential trading decisions, and therefore, may react relatively more weakly to the shock. This kind of behavior may create an underreaction to the shock and result in subsequent price drift. I analyze all major daily stock price moves, defined according to a number of alternative proxies, for all the constituents of S&P 500 Index over the period from 1993 to 2017. I document that both positive and negative stock price moves occurring immediately before public holidays are followed by significant price drifts on the next two (post-holiday) trading days and over five- and twenty-day intervals following the initial price move. The magnitude of these post-event drifts increases over longer time windows. On the other hand, I find that large stock price changes taking place on regular days are followed by either non-significant or marginally significant price reversals. The effect is more pronounced for small and more volatile stocks.

## 1. Introduction

Price shocks are an integral part of the stock market. The flow of news is continuous and practically infinite, and from time to time some of them may be very influential for a given stock, a group of stocks or the stock market in general, and lead to large stock price changes, representing both a serious risk and a great opportunity for stock market investors.

A vast strand of financial literature deals with large one-day stock price changes and their consequences. The major research question of these studies is: What are the patterns of stock returns following large price changes and can we predict these returns in order to build a profitable investment strategy? The answers to this question vary as a function of the samples analyzed by the authors and the research approaches applied by them. A number of studies (e.g., Zarowin, 1989; Bremer and Sweeney, 1991; Cooper, 1999; Sturm, 2003) document price reversals following initial price moves, and therefore, suggest that the latter contain some element of overreaction. Another cohort of studies either does not detect any significant price patterns following major price changes (e.g., Ratner and Leal, 1998; Lasfer et al., 2003; Mazouz et al., 2009), or finds some evidence of reversals, but concludes that they are relatively small and cannot be practically used for generating profitable investment opportunities (e.g., Atkins and Dyl, 1990; Park, 1995; Fehle and Zdorovtsov, 2003). The third influential group of studies (e.g., Pritamani and Singal, 2001; Chan, 2003; Tetlock, 2010; Savor, 2012) suggests that large stock price moves should be analyzed in a wider company-specific context, and concentrates on

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the role of public information in determining subsequent price patterns. The general conclusion arising from this literature is that large price moves accompanied by public information releases result in price drifts, indicating that investors tend to underreact to news about fundamentals, while those that are not accompanied by any public news are followed by reversals, suggesting that investors tend to overreact to other shocks that move stock prices, such as shifts in investor sentiment or liquidity shocks.

But what about the timing of large stock price moves? Could there be systematic differences in stock returns following large price moves taking place in different periods, and if the answer is positive, could these differences be used for obtaining investment profits? The major goal of the study is to shed light on this question by differentiating the price moves taking place before public holidays from other price moves. This is a novel approach, since, to my best knowledge, previous studies had not analyzed effects of the timing of large stock price moves on subsequent returns.

The holiday effect is one of the most widely analyzed calendar anomalies in stock markets. Its best known aspect refers to the observed fact that stock returns typically exhibit consistent patterns around holidays, with systematically higher returns on days prior to major holidays. The holiday effect is well-documented both in the US (e.g., Lakonishok and Smidt, 1988; Kim and Park, 1994; Brockman and Michayluk, 1998) and worldwide (e.g., Agrawal and Tandon, 1994; Marrett and Worthington, 2009; Bley and Saad, 2010; Dodd and Gakhovich, 2011) stock markets. The dominating explanation for the existence of the holiday effect lies in investor psychology (e.g., Brockman and Michayluk, 1998; Vergin and McGinnis, 1999), suggesting that investors tend to buy stocks before holidays because of ‘high spirits’ and ‘holiday euphoria’ (e.g., Frieder and Subrahmanyam, 2004; Bergsma and Jiang, 2015), which cause them to expect positive returns in the sequel.

Another aspect of the holiday effect refers to the fact that stock trading volumes before public holidays tend to be lower than on "regular" days, and the bid-ask spreads before holidays tend to be higher than usual, indicating that on these days, stocks tend to be less liquid (e.g., Meneu and Pardo, 2004; Cao et al., 2009; Dodd and Gakhovich, 2011; Hood and Lesseig, 2017). Potential explanation for lower trading activity before holidays also emanates from investors’ psychology and is based on the Mood Maintenance Hypothesis (Isen, 1984, 2000), which is a well-documented psychological pattern suggesting that people are highly motivated to maintain their positive mood states, and therefore, being in positive mood, tend to think less critically and to process information in a less detailed way, in order not to undermine their pleasant mood states (e.g., Mackie and Worth, 1989; Kuykendall and Keating, 1990; Erber and Tesser, 1992; Schwarz, 2001). In the context of the holiday effect, this means that before holidays, investors, who strive to maintain their positive mood, may be less willing to make complicated trading decisions, and therefore, trade less.

Following the above-mentioned arguments and findings, I hypothesize that if a company-specific shock, either public or unobserved, occurs on a trading day before a holiday, then, in order not to undermine their positive pre-holiday mood, investors, or at least a part of them, may tend to "postpone influential trading decisions until the holidays are over", and thus, to underreact to the shock, making the respective price move, though still large, yet, relatively smaller than it "should have been". Respectively, I expect the large stock price changes taking place on the trading days immediately preceding public holidays to be followed by post-holiday price drifts.

I analyze daily price data for all the constituents of S&P 500 Index over the period from 1993 to 2017, and define large daily stock price moves according to a number of alternative proxies, based on both raw and market-adjusted stock returns. In support of the study’s hypothesis, I document that both positive and negative stock price moves taking place before holidays are followed by significant price drifts on each of the next two trading days and over five- and twenty-day intervals following the initial price move, the magnitude of the drifts increasing over longer post-event windows. On the other hand, large price moves taking place on "regular" trading days are followed by either non-significant or marginally significant price reversals. The holiday effect on stock returns following large price changes is found to be stronger for low capitalization and high volatility stocks. The results of the study indicate that trading strategy based on buying (selling short) stocks after pre-holiday large price increases (decreases) has a potential of yielding positive excess returns, and therefore, may have useful implications for financial practitioners.

The rest of the paper is structured as follows. Section 2 briefly reviews the literature dealing with large stock price changes and subsequent stock return patterns, as well as the literature on the holiday effect, and defines the study's research hypothesis. Section 3 presents the database and the methodology. Section 4 describes the empirical tests and the results. Section 5 concludes and provides a brief discussion.

## 2. Literature review and hypothesis development

2.1. **Stock returns following large price changes.** Many studies have analyzed stock returns following large price changes. Some of them document stock price reversals following large price moves, and therefore, conclude that the latter contain some element of overreaction to unobserved stimuli. Renshaw (1984) and Bremer and Sweeney (1991) document that following price declines of at least 10% stock price tend to exhibit reversals and significantly outperform the market as a whole. Zarowin (1989) tests the short-run market overreaction following the approach employed by DeBondt and Thaler (1985, 1987) in their studies of stock price overreactions and reversals. He confirms the evidence regarding the existence of stock market overreaction in the short run. Conrad et al. (1994) demonstrate that return reversals for relatively small stocks decrease with trading volume, while Cooper (1999) argues that return reversals for larger stocks increase with trading volume. Sturm (2003) documents that negative price shocks generally trigger positive post-event abnormal returns, but this relationship depends on the characteristics of the shocks, which may serve as a proxy for investor confidence. Additionally, he suggests 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 return reversals increase with stock illiquidity.

On the other hand, Atkins and Dyl (1990), who also look for excess profits during the first few days after extreme price declines, do not find evidence that would contradict the Efficient Market Hypothesis. Employing bid-ask spreads, they demonstrate that the positive abnormal returns resulting from reversals are not sufficient to generate profitable arbitrage. Lehmann (1990) argues that there exist short-term corrections to negative events for weekly returns, but after accounting for transaction costs, these positive returns actually disappear. Cox and Peterson (1994) investigate the role of the bid-ask bounce and market liquidity in explaining price reversals. They 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 document that the degree of the reversals following large price declines decreases for longer post-event windows, changing their sign (that is, becoming negative) over 4-20 days following the initial price decline. Park (1995) uses the mid-point of bid-ask prices and detects 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 cannot serve as a source of abnormal incomes. Similarly, Hamelink (1999) and Fehle and Zdorovtsov (2003) document significant post-extreme return patterns, but taking the bid-ask spread into account, cannot suggest that there is an overreaction to the company-specific shocks. Ratner and Leal (1998) find no evidence of any price reversals for emerging markets of Latin America and Asia. Bremer et al. (1997) detect the reversal pattern for the Japanese stock market, but conclude that investors cannot employ the former to earn arbitrage profits. Their results suggest that the market rapidly absorbs the relevant information, so that stock prices react almost immediately. Lasfer et al. (2003) analyze the daily price behavior of market indices of both developed and emerging markets, and also do not manage to obtain any significant evidence in favor of the price reversal hypothesis. Mazouz et al. (2009) calculate abnormal returns following large price moves according to three alternative stock pricing models, and find no evidence in support of overreaction. They even present some evidence of price drifts following positive price shocks.

More recently, the emphasis of the research has been shifted to the connection between the large stock price changes and the public information. Pritamani and Singal (2001) analyze a sample of NYSE and AMEX stocks that experienced large price changes, and also collect for these stocks daily news stories from the Wall Street Journal and the Dow Jones News Wire. They find that conditional on a public announcement or volume increase associated with a large price change, these stocks' returns exhibit momentum, yet, unconditional post-event abnormal returns are usually insignificant, and in any case, cannot provide any ground for profitable investment strategy. Chan (2003) constructs an index of news headlines for a random sample of stocks that have experienced large price changes, and detects momentum after the price changes accompanied by news, which is consistent with a number of previous studies suggesting that investors tend to underreact to news about fundamentals (e.g., Michaely and Womack, 1999; Ikenberry and Ramnath, 2002; Vega, 2006), and reversals after the price changes unaccompanied by news, especially for loser stocks. These reversals are statistically significant, even after controlling for size and book-to-market value. He also documents that the effects are stronger among smaller and less liquid stocks. He suggests that these findings may be driven by the fact that some investors react slowly to information, while transaction costs prevent arbitrageurs from eliminating the lag. Larson and Madura (2003) argue that large price changes unaccompanied by public (newspaper) announcements support the overreaction hypothesis, while extreme price declines after news being revealed publicly, display price continuation. Tetlock (2010) employs the entire daily Dow Jones news archive from 1979 to 2007 to investigate how presence of public news affects subsequent stock returns, and discovers 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) documents that price shocks accompanied by publicly available information (analyst recommendation revisions) are followed by drifts, while no-information ones lead to reversals. The drifts are present only when the direction of the price move corresponds to the direction of the change in analyst recommendation. He interprets these results by investors' underreaction to news about fundamentals and overreaction to other shocks leading to stock price moves (such as shifts in investor sentiment or liquidity shocks). Savor also suggests that on the one hand, analysts can distinguish between these two potential drivers of stock returns, but on the other hand, the market does not fully take into consideration the information (or lack thereof) provided by analysts.

2.2. **Holiday effect: Psychological background and financial implications.** The holiday, or the pre-holiday effect, refers to the observed fact that stock returns typically exhibit consistent patterns around holidays, with systematically high returns on days prior to major holidays. The effect has been initially examined in the context of the US. In their seminal study, Lakonishok and Smidt (1988), looking at a ninety year dataset, document that the average pre-holiday rate of return equals 0.22 percent, compared with a regular daily rate of return of less than 0.01 percent. This means that pre-holiday returns are about twenty two times larger than returns on normal days, with some 63.9 percent of all returns being positive on the days before holidays. Similarly, Ariel (1990) reports that the average pre-holiday returns in the US, over the period 1963-1982, are 10 times higher than returns over the remaining days of the year. Parametric and non-parametric tests indicate that these differences are statistically significant. Likewise, Pettengill (1989) finds that returns on days immediately preceding holidays are unusually high regardless of firm size, though being more pronounced for small firms. Kim and Park (1994) likewise document the holiday effect using market indicators from all the major US stock exchanges. Brockman (1995), Brockman and Michayluk (1997) and Brockman and Michayluk (1998) demonstrate the resilience of the holiday effect, showing its persistence across market types (auction versus dealer) and size portfolios. Hirshleifer et al. (2016) point out that at the level of individual stocks, there is pre-holiday cross-sectional seasonality, wherein stocks that historically have earned higher pre-holiday returns on average earn higher pre-holiday returns for the same holiday over the next ten years.

The holiday effect has also received an increasing amount of attention outside the US, and has been documented in different countries, precluding the possibility that it reflects the idiosyncratic market characteristics of any one exchange. Cadsby and Ratner (1992) consider Canada, Japan, Hong Kong and Australia from 1962 to 1989 and test for local holidays, US holidays and joint (local-US) holidays using market indices from each country. The results indicate significant holiday effects in all of the sample markets, with the highest returns appearing on days just prior to joint holidays. Barone (1990) finds that the Italian stock market exhibits a strong holiday effect, with an average return of 0.27% versus an average non-holiday return of -0.01%. In a broader study, Agrawal and Tandon (1994) examine the holiday effect in seventeen national markets, and detect significant pre-holiday strength in 65 percent of them. Marrett and Worthington (2009) document the holiday effect for Australian stock market, the magnitude of the former being higher in the retail industry. Dodd and Gakhovich (2011) show that the holiday effect is present in emerging Central and East European markets, being more pronounced in the earlier years of financial market operations.

The magnitude and statistical significance of pre-holiday returns may vary on specific holidays. Returns prior to religious holidays tend to be higher than returns before other holidays. Chan et al. (1996) demonstrate significant holiday effects before cultural holidays in Asia. More specifically, they show that in India there is a holiday effect before Hindu holidays; in Malaysia there are significant returns before Islamic New Year and Vesak; Singapore sees abnormal returns before Chinese New Year; and in Thailand small companies have significant abnormal returns before Chinese New Year. In New Zealand, the most significant returns are registered before the Easter holidays (Cao et al., 2009). Bley and Saad (2010) show significant returns before the Middle Eastern religious holidays in the Middle East.

The previous literature suggests a number of potential explanations for the existence of the holiday effect. The first one is the potential relationship between this effect and other calendar anomalies, such as the day-of-the–week effect, the monthly effect and the turn-of-the-year effect (e.g., Lakonishok and Smidt, 1988; Liano et al., 1992). These studies indicate that the high returns observed on pre-holidays are not a manifestation of other calendar anomalies. Another explanation is based on the existence of a link between the holiday effect and the small firm effect, since the former is more pronounced for small firms (e.g., Pettengill, 1989; Keef and Roush, 2005; Marrett and Worthington, 2009). Yet another explanation of the holiday effect is based on a set of different and systematic trading patterns. Keim (1989) suggests that the pre-holiday return may be, in part, due to movements from the bid to the ask price. Ariel (1990) points out that pre-holiday strength can be attributed to short-sellers who desire to close short but not long positions in advance of holidays or, simply, to some clientele which preferentially buys (or avoids selling) on pre-holidays.

Yet, arguably, the most promising explanation for abnormal positive returns prior to public holidays lies in investor psychology (e.g., Brockman and Michayluk, 1998; Vergin and McGinnis, 1999). This explanation stems from two psychology-based facts: first, that anticipation of holidays is associated with rising investors' mood (e.g., Frieder and Subrahmanyam, 2004; Bergsma and Jiang, 2015), and second, that people in good mood tend to believe in more positive outcomes (e.g., Kavanagh and Bower, 1985; Thaler, 1999). Following this line of reasoning, this group of studies suggests that investors tend to buy stocks before holidays because of 'high spirits' and 'holiday euphoria', which cause them to expect positive returns in the sequel. In line with this explanation, a recent study by Lahav et al. (2016) reveals that pre-holiday euphoria mood makes people more present-oriented, that is, significantly increases their subjective discount rate.

An additional, less known and much less reported aspect of the holiday effect refers to the stock trading volumes before holidays. Meneu and Pardo (2004) show that abnormal trading volumes before public holidays tend to be lower than on "regular" days, and the bid-ask spreads before holidays tend to be higher than usual, indicating that on these days, stocks tend to be less liquid. Similarly, Cao et al. (2009) report that the daily de-trended trading volumes on pre-holiday trading days are generally lower than on other trading days, and subsequently conclude that investors may not be able to capture abnormal returns prior to holidays due to the low trading volume. Dodd and Gakhovich (2011) document similar results for Central and East European markets. Hood and Lesseig (2017) document lower pre-holiday stock trading volumes, and also detect that on the trading days before holidays, there are consistently fewer stocks with extreme abnormal returns.

Potential explanation for lower trading activity before holidays also emanates from investors' psychology and is based on the Mood Maintenance Hypothesis (MMH, Isen, 1984, 2000), which is a documented psychological pattern suggesting that people are highly motivated to maintain positive mood states. Psychological literature reports that people tend to be concerned with the fact that detailed information processing might undermine pleasant mood states, and therefore, in line with the MMH, positive mood may be associated with less critical thinking and reduced information processing (Mackie and Worth, 1989; Kuykendall and Keating, 1990; Erber and Tesser, 1992; Schwarz, 2001). MMH is also shown to exert effects on the stock markets. For example, Kliger and Kudryavtsev (2014) employ daylight duration changes as a proxy for contemporaneous investors' mood, and detect a number of mood-related effects on stock price reactions to analyst recommendation revisions, including the "out of the blue" effect suggesting stronger reactions to downgrades during the periods of day increases and the "sunray on a cloudy day" effect referring to stronger reactions to upgrades during the periods of day decreases.

2.3. **Research hypothesis.** I concentrate on the timing of large stock price moves, suggesting that it may have an effect on their magnitude. Namely, I differentiate the price moves occurring prior to holidays from other ones.

In line with the above-mentioned literature, which documents less intense trading activity before holidays, I hypothesize that if a company-specific shock, either public or unobserved, takes place on a trading day before a holiday, then, in order not to undermine their positive pre-holiday mood, investors, or at least a part of them, may be less willing to process significant company-specific information and make influential trading decisions, and therefore, may react relatively more weakly to the shock. In other words, I expect that investors may tend to "postpone important decisions until the holidays are over", and thus, to underreact to company-specific shocks arriving before holidays, making the respective price moves, though still large, yet, relatively smaller than they "should have been".

Since stock price underreaction to news may be expected to result in subsequent price drifts (after the holidays), this study's main hypothesis may be formulated as:

`Hypothesis:` *Large daily stock price changes taking place on the trading days, which immediately precede public holidays, should be followed by post-holiday price drifts.*

It should be noted that there is a difference between the study's research hypothesis and the MMH-driven "out of the blue" effect documented by Kliger and Kudryavtsev (2014), indicating that stock price reactions to analyst recommendation downgrades tend to be stronger during the periods of day increase. This effect refers to the cases when factual and relatively routine negative company-specific information is published on regular trading days during the (half a year) periods when investors' mood is supposed to be generally positive. This negative information requires immediate negative, but also routine, reaction from the investors, and this reaction appears to be relatively stronger, since the information seems to arrive "out of the blue". On the other hand, when a company-specific shock of whatever nature occurs, it is not necessarily clear to the investors how strong their reaction should be. Therefore, if the shock, either positive or negative, takes place immediately before a holiday, then because of the positive pre-holiday mood, investors may be expected to "take some time" for analyzing the new and influential information and react relatively weaker than they "should have reacted", leaving a space for the post-holiday price drift.

## 3. Data description and methodology

In order to test the research hypothesis, I use the closing daily prices adjusted to dividend payments and stock splits[1] for all the constituents of S&P 500 Index over the period from 1993 to 2017, as recorded at www.finance.yahoo.com by January 2018[2]. I define large daily stock price changes similarly to Kudryavtsev (2018), employing three alternative proxies, and two return thresholds for each of them:

`Proxy A:` Daily raw stock returns[3] 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 (e.g., Shleifer, 2000), since it is sufficiently enough to screen out most price movements that do not reflect either substantial changes in fundamentals or in investor sentiment. The 8-percent threshold allows to substantially expand the working sample[4].

`Proxy B:` Daily raw stock returns with absolute values exceeding three ($|SR0_i| > 3s_i$) and four standard deviations ($|SR0_i| > 4s_i$) of the respective stock's daily returns over 250 trading days (approximately a year) preceding the event: This approach is employed in a number of studies (e.g., Pritamani and Singal, 2001). The idea is that the same percentage change in the stock price may constitute a large price change for a low-volatility stock, but not for a high-volatility stock.

`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)[5] with alpha and beta estimated for the respective stock over 250 trading days preceding event $i$. That is, for each event $i$, for the period of 250 trading days preceding the event, I regress the respective stock's returns on the contemporaneous market (S&P 500 Index) returns in the following way:

$$SR_{it} = \alpha_i + \beta_i MR_{it} + \varepsilon_{it} \tag{3.1}$$

where: $SRit$ is the stock return on day $t$ ($t$ runs from -250 to -1) preceding event $i$; and $MRit$ is the market return on day $t$ preceding event $i$, and then use the regression estimates $\widehat{\alpha_i}$ and $\widehat{\beta}_i$ in order to calculate the event-day abnormal stock return for the event $i$, as follows:

$$AR0_i = SR0_i - [\widehat{\alpha_i} + \widehat{\beta}_i MR0_i] \tag{3.2}$$

where: $AR0_i$ is the abnormal stock return on the day of event $i$; and $MR0_i$ is the market return on the day of event $i$.

Similarly to Proxy A, the 10-percent threshold is the one widely used in the previous literature (e.g., Atkins and Dyl, 1990; Bremer and Sweeney, 1991), while the 8-percent threshold increases the working sample.

[1] This approach to registering stock prices allows calculating actual daily stock returns based on the changes in the fundamental value of a stock and not arising from technical modifications in the stock's characteristics.

[2] In order to minimize the potential effect of the survivorship bias on the results, I have repeated the analysis for: (i) all the constituents of S&P 500 Index over the period from 1993 to 2014 as recorded by January 2015; and (ii) all the constituents of S&P 500 Index over the period from 1993 to 2010 as recorded by January 2011. The results (available upon request from the author) remained similar to those reported in Section 4.

[3] Throughout the paper, I use logarithmic returns.

[4] 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 4.

[5] 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 4.

In addition, for each large price change, I match the respective firm's market capitalization, as recorded on a quarterly basis at http://ycharts.com/, for the closest preceding announcement date.

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

For proxy A: 6,412 (4,024) large price moves, including 2,841 (1,713) increases and 3,571 (2,311) decreases.

For proxy B: 6,857 (4,202) large price moves, including 3,132 (1,720) increases and 3,725 (2,482) decreases.

For proxy C: 5,986 (3,851) large price moves, including 2,768 (1,627) increases and 3,218 (2,224) decreases.

Table 1 contains, separately for large stock price increases and decreases defined according to the three alternative proxies, some basic descriptive statistics of the working sample, including the firms' market capitalization for the end of the quarter preceding each large price move, cumulative stock return for one year preceding each large price move, and the standard deviation of the stock's return over the same period.

US holidays examined include President's Day, Good Friday, Memorial Day, Independence Day, Thanksgiving Day, Christmas and New Year's Day.

## 4. Results description

**4.1. Stock returns following large price moves: Total sample.** First of all, for the total sample of large stock price moves, I analyze post-event returns of the stocks that have experienced the price moves. 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, and employing the same MMAR approach as described in the previous Section, I calculate average ARs, cumulative ARs and their statistical significance. Table 2 reports the results, where Day 1 refers to the first trading day after the initial price move.

The results in the Table are in line with most of the previous literature. If the total sample is considered, then positive price moves are followed by non-significant reversals, while negative price moves are followed by either non-significant or marginally significant reversals. The magnitude of the reversals is slightly greater for the time window 1 to 20. All the event-definition proxies and all the thresholds yield similar post-event results. One more noteworthy result is that the magnitude of the post-event reversals appears not to be connected to the magnitude of the initial price shocks.

**4.2. Holiday effect on stock returns following large price moves.** In order to test if the pre-holiday timing of large stock price moves affects the respective stocks' post-event (and in this case, post-holiday) returns, I divide the total sample of the price moves in two major subsamples: (i) large price moves that took place on a trading day immediately preceding a public holiday; (ii) all the other large price moves, that is, those that took place on "regular" trading days.

Tables 3A, 3B and 3C comprise average ARs following pre-holiday and regular large price moves, 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 availability on stock returns following large price moves. The first thing to note is that with all the proxies, both large price increases and decreases, which take place prior to holidays, are followed by significant post-holiday price drifts. The magnitude of these price drifts increases for longer post-event periods, so that for the post-event window 1 to 20, average ARs following pre-holiday large price increases reach 1.76%, 1.76% and 1.79%, for the lower threshold, according to proxies A, B and C, respectively, while average ARs following pre-holiday large price decreases are even more pronounced and equal -1.87%, -1.85% and -1.90%, according to proxies A, B and C, respectively, all the ARs being highly statistically significant. On the other hand, large price increases and decreases registered on regular days are followed by non-significant or marginally significant stock price reversals over all the event windows. Post-event period AR differences between the pre-holiday and regular price moves are highly significant and also become more pronounced for longer post-event windows. According to the three event definition proxies, for the Days 1 to 20, AR differences between the two groups of events equal 1.96%, 1.97% and 2.01%, following large price increases, and even more impressive -2.32%, -2.33% and -2.37%, following large price decreases[6].

4.3. **Holiday effect on the post-event stock returns within different stock groups.** Having detected the holiday effect on stock returns following large price changes, I proceed to analyzing its magnitude for different categories of stocks. Namely, I classify the stocks by the firm size (market capitalization) and by historical volatility of stock returns. The motivation for this analysis arises from the findings by Baker and Wurgler (2006), who argue that low capitalization and highly volatile are especially likely to be disproportionately sensitive to broad waves of investor sentiment.

First, I analyze the magnitude of the effect by firm size. For each of the three event definition proxies and separately for large price increases and decreases, I split the samples of pre-holiday and regular price moves 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 4A, 4B and 4C depict, for proxies A, B and C, average post-event ARs, following pre-holiday and regular price moves, as well as the respective AR differences and their statistical significance, for high and low market capitalization firms. In line with Baker and Wurgler (2006), the holiday effect on the 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, the magnitude of the price drifts following pre-holiday price moves is larger (e.g., according to the two thresholds of proxy A, for post-event window 1 to 20, average ARs following pre-holiday large price increases equal 1.07% and 1.05% for high capitalization stocks, and 2.41% and 2.42% for low capitalization stocks, while average ARs following pre-holiday large price decreases equal -1.12% and -1.13% for high capitalization stocks, and -2.62% and -2.64% for low capitalization stocks); and (ii) for small stocks, AR differences for the post-event period between the two groups of events 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 pre-holiday and regular price moves are 1.22% and 1.23% for high capitalization stocks, and 2.72% and 2.76% for low capitalization stocks, while following large price decreases, average AR differences between the pre-holiday and regular price moves are -1.43% and -1.45% for high capitalization stocks, and -3.21% and -3.24% for low capitalization stocks)[7].

[6]As a robustness check, I have repeated the analysis employing two additional sample filtering criteria. Namely, I have alternatively excluded from the working sample: (i) overlapping price moves, defined as those that took place for the same stock within a 20-trading days window; and (ii) price moves for the stocks whose prices prior to the moves were lower than ten dollars. The results (available upon request from the author) are qualitatively similar, representing an additional support for the existence of the holiday effect on stock returns following large price moves.

[7]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 holiday effect than low capitalization stocks, and more influenced by the holiday effect than high capitalization stocks. The detailed results are available upon request from the author. Overall, the results demonstrate that the holiday effect on stock ARs following large price moves decreases with market capitalization.

First, I concentrate on the effect of historical stock volatility. For each of the three event definition proxies and separately for large price increases and decreases, I split the samples of pre-holiday and regular price moves into three roughly equal parts by the standard deviation of stock returns over Days -250 to -1 (high, medium and low volatility stocks)[8]. Tables 5A, 5B and 5C present relevant AR statistics for high and low volatility stocks. Once again, consistently with the previous literature, the magnitude of the holiday effect on stock returns following large price moves, as expressed by the magnitude of post-event price drifts and the AR differences between the pre-holiday and regular price moves, is stronger pronounced for more volatile stocks[9].

The overall conclusion of this Subsection is that for low market capitalization and more volatile stocks, price reactions to company-specific shocks are more affected by investors' unwillingness to make influential decisions before holidays, possibly due to the reduced amount of information on these stocks and their higher risk levels. As a result, the post-event price drifts for these stocks are more pronounced[10].

## 5. Concluding remarks

In this paper, I explored an additional aspect of the holiday effect. Namely, I analyzed the effect of investors' positive pre-holiday mood on stock returns following large daily stock price changes. Following the Mood Maintenance Hypothesis, I suggested that if a company-specific shock takes place before a holiday, then investors striving to maintain their positive pre-holiday mood may be less willing to make influential trading decisions, and therefore, may react relatively more weakly (in fact, underreact) to the shock. Therefore, since stock price underreaction to news is recognized to result in subsequent price drifts, I hypothesized that the latter should follow the large daily stock price changes taking place before public holidays.

The results of the empirical analysis supported the study's 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 market-adjusted stock returns, I found that both positive and negative stock price moves occurring immediately before public holidays are followed by significant price drifts on the next two trading days and over five- and twenty-day intervals following the event, the magnitude of the drifts increasing over longer post-event windows, while large stock price changes taking place on other (regular) days are followed by either non-significant or marginally significant price reversals.

Furthermore, I established that the holiday effect on stock returns following large price moves was of higher magnitude for low capitalization firms and stocks with higher volatility of historical returns, implying that 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 fundamental information on these stocks and their higher risk levels. The results proved to be 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.

To summarize, at least in a perfect stock market with no commissions, the strategy based on buying (selling short) stocks after pre-holiday large price increases (decreases) looks promising.

[8]The sample partition approach by both market capitalization and historical stock volatility is similar to the one employed by Kliger and Kudryavtsev (2010).

[9]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 holiday effect than high volatility stocks, and more influenced by the holiday effect than low volatility stocks. The detailed results are available upon request from the author. Overall, the results demonstrate that the holiday effect on stock ARs following large price moves increases with historical stock volatility.

[10]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 holiday effect on stock ARs following large price moves increases with stock beta. The detailed results are available upon request from the author.

This may prove a valuable result 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 expending the analysis to other stock exchanges, performing a separate analysis for different holidays and for the periods of bull and bear market.

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## Appendix (Tables)

Table 1: Descriptive statistics for the firms making up the sample and their stocks

| Proxy/ Threshold | Number of large price moves | Market capitalization \$ millions | | Cumulative return over one year preceding the large price move, % | | St. Dev. of historical stock returns, % | |
|---|---|---|---|---|---|---|---|
| | | Mean | St. Dev. | Mean | St. Dev. | Mean | St. Dev. |
| Proxy A: | | | | | | | |
| $\lvert SR0_i \rvert > 8\%$ | 6,412 | | | | | | |
| Price increases | 2,841 | 4,840 | 12,481 | 5.25 | 14.52 | 1.92 | 0.85 |
| Price decreases | 3,571 | 4,671 | 12,867 | 4.61 | 13.81 | 1.94 | 0.86 |
| $\lvert SR0_i \rvert > 10\%$ | 4,024 | | | | | | |
| Price increases | 1,713 | 4,564 | 12,897 | 5.31 | 14.68 | 1.97 | 0.88 |
| Price decreases | 2,311 | 4,423 | 13,204 | 4.72 | 13.92 | 1.98 | 0.88 |
| Proxy B: | | | | | | | |
| $\lvert SR0_i \rvert > 3\sigma_i$ | 6,857 | | | | | | |
| Price increases | 3,132 | 4,887 | 12,472 | 5.29 | 14.46 | 1.94 | 0.84 |
| Price decreases | 3,725 | 4,695 | 12,835 | 4.68 | 13.74 | 1.95 | 0.85 |
| $\lvert SR0_i \rvert > 4\sigma_i$ | 4,202 | | | | | | |
| Price increases | 1,720 | 4,578 | 12,871 | 5.34 | 14.54 | 1.98 | 0.87 |
| Price decreases | 2,482 | 4,447 | 13,174 | 4.76 | 13.85 | 1.98 | 0.86 |
| Proxy C: | | | | | | | |
| $\lvert AR0_i \rvert > 8\%$ | 5,986 | | | | | | |
| Price increases | 2,768 | 4,824 | 12,512 | 5.22 | 14.57 | 1.90 | 0.86 |
| Price decreases | 3,218 | 4,653 | 12,888 | 4.58 | 13.93 | 1.91 | 0.87 |
| $\lvert AR0_i \rvert > 10\%$ | 3,851 | | | | | | |
| Price increases | 1,627 | 4,545 | 12,924 | 5.28 | 14.75 | 1.95 | 0.89 |
| Price decreases | 2,224 | 4,402 | 13,252 | 4.69 | 13.99 | 1.96 | 0.90 |

Table 2: Abnormal stock returns following large stock price increases and decreases: Total sample

| Panel A: Large stock price increases | | | | | | |
|---|---|---|---|---|---|---|
| Days relative | Average AR/Cumulative ARs following initial price changes, % (2-tailed p-values) | | | | | |
| to event | $\lvert SR0_i \rvert > 8\%$ | $\lvert SR0_i \rvert > 10\%$ | $\lvert SR0_i \rvert > 3\sigma_i$ | $\lvert SR0_i \rvert > 4\sigma_i$ | $\lvert AR0_i \rvert > 8\%$ | $\lvert AR0_i \rvert > 10\%$ |
| | (2,841 events) | (1,713 events) | (3,132 events) | (1,720 events) | (2,768 events) | (1,627 events) |
| 1 | -0.13 | -0.14 | -0.14 | -0.15 | -0.13 | -0.16 |
| | (29.38%) | (33.28%) | (30.64%) | (22.44%) | (25.87%) | (23.11%) |
| 2 | -0.11 | -0.12 | -0.12 | -0.11 | -0.12 | -0.11 |
| | (32.07%) | (37.64%) | (38.55%) | (41.52%) | (36.41%) | (37.61%) |
| 1 to 5 | -0.16 | -0.21 | -0.18 | -0.19 | -0.18 | -0.17 |
| | (30.87%) | (29.61%) | (30.01%) | (27.16%) | (34.29%) | (43.65%) |
| 1 to 20 | -0.18 | -0.22 | -0.19 | -0.21 | -0.20 | -0.22 |
| | (31.92%) | (27.30%) | (28.66%) | (24.34%) | (25.37%) | (27.99%) |
| Panel B: Large stock price decreases | | | | | | |
| Days relative | Average AR/Cumulative ARs following initial price changes, % (2-tailed p-values) | | | | | |
| to event | $\lvert SR0_i \rvert > 8\%$ | $\lvert SR0_i \rvert > 10\%$ | $\lvert SR0_i \rvert > 3\sigma_i$ | $\lvert SR0_i \rvert > 4\sigma_i$ | $\lvert AR0_i \rvert > 8\%$ | $\lvert AR0_i \rvert > 10\%$ |
| | (3,571 events) | (2,311 events) | (3,725 events) | (2,482 events) | (3,218 events) | (2,224 events) |
| 1 | 0.18 | 0.17 | 0.19 | 0.18 | 0.17 | 0.18 |
| | (22.03%) | (21.46%) | (19.21%) | (20.19%) | (26.84%) | (22.54%) |
| 2 | 0.13 | 0.14 | 0.13 | 0.14 | 0.15 | 0.14 |
| | (30.71%) | (33.42%) | (34.61%) | (34.77%) | (35.54%) | (34.23%) |
| 1 to 5 | 0.36 | 0.37 | 0.41 | 0.38 | 0.41 | 0.42 |
| | (18.36%) | (17.28%) | (15.84%) | (21.43%) | (14.73%) | (12.74%) |
| 1 to 20 | 0.43 | 0.44 | 0.46* | 0.47* | 0.43 | 0.46* |
| | (13.74%) | (11.47%) | (9.74%) | (9.67%) | (12.44%) | (9.87%) |

Asterisks denote the significance level: *p<0.10

Table 3A: Abnormal stock returns following pre-holiday and regular large stock price increases and decreases: Proxy A for defining large price moves

| Panel A: Large stock price increases | | | | | | |
|---|---|---|---|---|---|---|
| | Average AR/Cumulative ARs following initial price changes, % (2-tailed p-values) | | | | | |
| Days relative | $\lvert SR0i\rvert > 8\%$ | | | $\lvert SR0i\rvert > 10\%$ | | |
| to event | Pre-holiday | Regular | Difference | Pre-holiday | Regular | Difference |
| | (131 events) | (2,710 events) | | (103 events) | (1,610 events) | |
| 1 | 0.85** | -0.14 | 0.99*** | 0.86** | -0.15 | 1.01*** |
| | (2.31%) | (35.42%) | (0.15%) | (2.12%) | (23.47%) | (0.13%) |
| 2 | 0.36 | -0.12 | 0.48* | 0.37 | -0.13 | 0.50* |
| | (18.74%) | (38.98%) | (7.12%) | (19.03%) | (38.49%) | (5.87%) |
| 1 to 5 | 1.63*** | -0.18 | 1.81*** | 1.66*** | -0.24 | 1.90*** |
| | (0.45%) | (32.17%) | (0.04%) | (0.67%) | (21.31%) | (0.02%) |
| 1 to 20 | 1.76*** | -0.20 | 1.96*** | 1.75*** | -0.26 | 2.01*** |
| | (0.28%) | (28.45%) | (0.00%) | (0.25%) | (20.47%) | (0.00%) |
| Panel B: Large stock price decreases | | | | | | |
| | Average AR/Cumulative ARs following initial price changes, % (2-tailed p-values) | | | | | |
| Days relative | $\lvert SR0i\rvert > 8\%$ | | | $\lvert SR0i\rvert > 10\%$ | | |
| to event | Pre-holiday | Regular | Difference | Pre-holiday | Regular | Difference |
| | (185 events) | (3,386 events) | | (142 events) | (2,169 events) | |
| 1 | -0.91** | 0.19 | -1.10*** | -0.93** | 0.18 | -1.11*** |
| | (2.01%) | (34.25%) | (0.10%) | (2.31%) | (39.62%) | (0.13%) |
| 2 | -0.38 | 0.15 | -0.53* | -0.37 | 0.15 | -0.52* |
| | (18.61%) | (39.58%) | (6.23%) | (19.20%) | (37.68%) | (5.67%) |
| 1 to 5 | -1.73*** | 0.38 | -2.11*** | -1.74*** | 0.39 | -2.13*** |
| | (0.18%) | (20.48%) | (0.02%) | (0.20%) | (18.62%) | (0.00%) |
| 1 to 20 | -1.87*** | 0.45 | -2.32*** | -1.90*** | 0.46 | -2.36*** |
| | (0.12%) | (12.67%) | (0.00%) | (0.09%) | (10.99%) | (0.00%) |

Asterisks denote the significance levels: *p<0.10; **p<0.05; ***p<0.01

| Table 3B: Abnormal stock returns following pre-holiday and regular large stock price increases and decreases: Proxy B for defining large price moves | | | | | | |
|---|---|---|---|---|---|---|
| Panel A: Large stock price increases | | | | | | |
| | Average AR/Cumulative ARs following initial price changes, % (2-tailed p-values) | | | | | |
| Days relative | $\lvert SR0_i \rvert > 3\sigma_i$ | | | $\lvert SR0_i \rvert > 4\sigma_i$ | | |
| to event | Pre-holiday | Regular | Difference | Pre-holiday | Regular | Difference |
| | (167 events) | (2,965 events) | | (105 events) | (1,615 events) | |
| 1 | 0.85** | -0.12 | 0.97*** | 0.86** | -0.16 | 1.02*** |
| | (2.12%) | (31.20%) | (0.12%) | (2.30%) | (22.55%) | (0.11%) |
| 2 | 0.37 | -0.11 | 0.48* | 0.38 | -0.1é | 0.50* |
| | (16.21%) | (35.74%) | (6.93%) | (15.21%) | (30.87%) | (5.63%) |
| 1 to 5 | 1.62*** | -0.20 | 1.82*** | 1.65*** | -0.21 | 1.86*** |
| | (0.51%) | (37.94%) | (0.05%) | (0.64%) | (29.89%) | (0.09%) |
| 1 to 20 | 1.76*** | -0.21 | 1.97*** | 1.74*** | -0.21 | 1.97*** |
| | (0.24%) | (26.82%) | (0.00%) | (0.23%) | (22.46%) | (0.00%) |
| Panel B: Large stock price decreases | | | | | | |
| | Average AR/Cumulative ARs following initial price changes, % (2-tailed p-values) | | | | | |
| Days relative | $\lvert SR0_i \rvert > 3\sigma_i$ | | | $\lvert SR0_i \rvert > 4\sigma_i$ | | |
| to event | Pre-holiday | Regular | Difference | Pre-holiday | Regular | Difference |
| | (203 events) | (3,522 events) | | (163 events) | (2,319 events) | |
| 1 | -0.88** | 0.20 | -1.08*** | -0.91** | 0.19 | -1.10*** |
| | (2.14%) | (28.96%) | (0.11%) | (2.52%) | (35.19%) | (0.10%) |
| 2 | -0.37 | 0.14 | -0.51* | -0.35 | 0.15 | -0.50* |
| | (14.82%) | (35.42%) | (7.07%) | (19.86%) | (41.08%) | (6.64%) |
| 1 to 5 | -1.71*** | 0.43 | -2.14*** | -1.72*** | 0.40 | -2.12*** |
| | (0.23%) | (15.65%) | (0.00%) | (0.19%) | (17.48%) | (0.00%) |
| 1 to 20 | -1.85*** | 0.48* | -2.33*** | -1.87*** | 0.48* | -2.35*** |
| | (0.09%) | (9.62%) | (0.00%) | (0.08%) | (9.87%) | (0.00%) |
| Asterisks denote the significance levels: *p<0.10; **p<0.05; ***p<0.01 | | | | | | |

Table 3C: Abnormal stock returns following pre-holiday and regular large stock price increases and decreases: Proxy C for defining large price moves

Panel A: Large stock price increases

| | Average AR/Cumulative ARs following initial price changes, % (2-tailed p-values) | | | | | |
|---|---|---|---|---|---|---|
| Days relative | $\lvert AR0i\rvert > 8\%$ | | | $\lvert AR0i\rvert > 10\%$ | | |
| to event | Pre-holiday | Regular | Difference | Pre-holiday | Regular | Difference |
| | (125 events) | (2,643 events) | | (98 events) | (1,529 events) | |
| 1 | 0.86** | -0.14 | 1.00*** | 0.87** | -0.17 | 1.04*** |
| | (2.19%) | (37.02%) | (0.13%) | (2.43%) | (28.47%) | (0.09%) |
| 2 | 0.37 | -0.13 | 0.50* | 0.38 | -0.12 | 0.50* |
| | (17.36%) | (39.55%) | (5.77%) | (16.15%) | (40.11%) | (6.08%) |
| 1 to 5 | 1.65*** | -0.19 | 1.84*** | 1.67*** | -0.19 | 1.86*** |
| | (0.40%) | (27.68%) | (0.01%) | (0.71%) | (26.14%) | (0.07%) |
| 1 to 20 | 1.79*** | -0.22 | 2.01*** | 1.78*** | -0.24 | 2.02*** |
| | (0.23%) | (24.47%) | (0.00%) | (0.23%) | (19.67%) | (0.00%) |

Panel B: Large stock price decreases

| | Average AR/Cumulative ARs following initial price changes, % (2-tailed p-values) | | | | | |
|---|---|---|---|---|---|---|
| Days relative | $\lvert AR0i\rvert > 8\%$ | | | $\lvert AR0i\rvert > 10\%$ | | |
| to event | Pre-holiday | Regular | Difference | Pre-holiday | Regular | Difference |
| | (163 events) | (3,055 events) | | (131 events) | (2,093 events) | |
| 1 | -0.92** | 0.18 | -1.10*** | -0.94** | 0.19 | -1.13*** |
| | (1.98%) | (28.43%) | (0.12%) | (2.38%) | (27.40%) | (0.12%) |
| 2 | -0.39 | 0.16 | 0.55* | -0.38* | 0.15 | -0.53* |
| | (13.48%) | (35.19%) | (5.10%) | (9.36%) | (38.37%) | (5.86%) |
| 1 to 5 | -1.75*** | 0.42 | -2.17*** | -1.76*** | 0.43 | -2.19*** |
| | (0.16%) | (15.48%) | (0.00%) | (0.23%) | (15.04%) | (0.00%) |
| 1 to 20 | -1.90*** | 0.47* | -2.37*** | -1.93*** | 0.48* | -2.41*** |
| | (0.07%) | (9.83%) | (0.00%) | (0.08%) | (9.71%) | (0.00%) |

Asterisks denote the significance levels: *p<0.10; **p<0.05; ***p<0.01

Table 4A: Abnormal stock returns following pre-holiday and regular large stock price increases and decreases, for high and low market capitalization firms: Proxy A for defining large price moves

Panel A: Large stock price increases

| | Average AR/Cumulative ARs following initial price changes, % | | | | | |
|---|---|---|---|---|---|---|
| Days relative | $\lvert SR0i\rvert > 8\%$ | | | $\lvert SR0i\rvert > 10\%$ | | |
| to event | Pre-holiday | Regular | Difference | Pre-holiday | Regular | Difference |
| | (44/44 events) | (903/904 events) | | (34/35 events) | (536/536 events) | |
| 1 | 0.45/1.09*** | -0.10/-0.19 | 0.55*/1.28*** | 0.46/1.11*** | -0.07/-0.24 | 0.53*/1.35*** |
| 2 | 0.21/0.47 | -0.09/-0.13 | 0.30/0.60* | 0.22/0.48 | -0.10/-0.16 | 0.32/0.64* |
| 1 to 5 | 0.90**/2.15*** | -0.12/-0.23 | 1.02**/2.38*** | 0.94**/2.17*** | -0.20/-0.29 | 1.14***/2.46*** |
| 1 to 20 | 1.07**/2.41*** | -0.15/-0.31 | 1.22***/2.72*** | 1.05**/2.42*** | -0.18/-0.34 | 1.23***/2.76*** |

Panel B: Large stock price decreases

| | Average AR/Cumulative ARs following initial price changes, % | | | | | |
|---|---|---|---|---|---|---|
| Days relative | $\lvert SR0i\rvert > 8\%$ | | | $\lvert SR0i\rvert > 10\%$ | | |
| to event | Pre-holiday | Regular | Difference | Pre-holiday | Regular | Difference |
| | (62/62 events) | (1,128/1,128 events) | | (47/48 events) | (723/723 events) | |
| 1 | -0.51*/-1.22*** | 0.14/0.24 | -0.65*/-1.46*** | -0.53*/-1.23*** | 0.10/0.25 | -0.63*/-1.48*** |
| 2 | -0.19/-0.57* | 0.11/0.22 | -0.30/-0.79* | -0.18/-0.56* | 0.10/0.21 | -0.28/-0.77* |
| 1 to 5 | -1.01**/-2.31*** | 0.29/0.48 | -1.30***/-2.79*** | -1.01**/-2.32*** | 0.27/0.49 | -1.28***/-2.81*** |
| 1 to 20 | -1.12**/-2.62*** | 0.31/0.59* | -1.43***/-3.21*** | -1.13**/-2.64*** | 0.32/0.60* | -1.45***/-3.24*** |

Asterisks denote the significance levels: *p<0.10; **p<0.05; ***p<0.01

| Table 4B: Abnormal stock returns following pre-holiday and regular large stock price increases and decreases, for high and low market capitalization firms: Proxy B for defining large price moves | | | | | | |
|---|---|---|---|---|---|---|
| Panel A: Large stock price increases | | | | | | |
| | Average AR/Cumulative ARs following initial price changes, % | | | | | |
| Days relative | $\lvert SR0_i\rvert > 3\sigma_i$ | | | $\lvert SR0_i\rvert > 4\sigma_i$ | | |
| to event | Pre-holiday | Regular | Difference | Pre-holiday | Regular | Difference |
| | (56/56 events) | (988/989 events) | | (35/35 events) | (538/539 events) | |
| 1 | 0.44/1.07*** | -0.08/-0.18 | 0.52*/1.25*** | 0.45/1.09*** | -0.07/-0.23 | 0.52*/1.32*** |
| 2 | 0.20/0.46 | -0.07/-0.12 | 0.27/0.58* | 0.21/0.47 | -0.08/-0.12 | 0.29/0.59* |
| 1 to 5 | 0.88**/2.11*** | -0.13/-0.24 | 1.01**/2.35*** | 0.91**/2.13*** | -0.17/-0.28 | 1.08**/2.41*** |
| 1 to 20 | 1.04**/2.37*** | -0.14/-0.30 | 1.18***/2.67*** | 1.02**/2.39*** | -0.17/-0.32 | 1.19***/2.71*** |
| Panel B: Large stock price decreases | | | | | | |
| | Average AR/Cumulative ARs following initial price changes, % | | | | | |
| Days relative | $\lvert SR0_i\rvert > 3\sigma_i$ | | | $\lvert SR0_i\rvert > 4\sigma_i$ | | |
| to event | Pre-holiday | Regular | Difference | Pre-holiday | Regular | Difference |
| | (67/67 events) | (1,174/1,174 events) | | (54/55 events) | (773/773 events) | |
| 1 | -0.50/-1.20*** | 0.13/0.25 | -0.63*/-1.45*** | -0.52*/-1.21*** | 0.11/0.25 | -0.63*/-1.46*** |
| 2 | -0.18/-0.56* | 0.09/0.21 | -0.27/-0.77* | -0.17/-0.57* | 0.10/0.22 | -0.27/-0.79* |
| 1 to 5 | -0.99**/-2.28*** | 0.30/0.49 | -1.29***/-2.77*** | -1.00**/-2.30*** | 0.28/0.48 | -1.28***/-2.78*** |
| 1 to 20 | -1.08**/-2.58*** | 0.32/0.60* | -1.40***/-3.18*** | -1.10**/-2.61*** | 0.33/*0.61 | -1.43***/-3.22*** |
| Asterisks denote the significance levels: *p<0.10; **p<0.05; ***p<0.01 | | | | | | |

| Table 4C: Abnormal stock returns following pre-holiday and regular large stock price increases and decreases, for high and low market capitalization firms: Proxy C for defining large price moves | | | | | | |
|---|---|---|---|---|---|---|
| Panel A: Large stock price increases | | | | | | |
| | Average AR/Cumulative ARs following initial price changes, % | | | | | |
| Days relative | $\lvert AR0i\rvert > 8\%$ | | | $\lvert AR0i\rvert > 10\%$ | | |
| to event | Pre-holiday | Regular | Difference | Pre-holiday | Regular | Difference |
| | (42/42 events) | (881/881 events) | | (33/33 events) | (510/510 events) | |
| 1 | 0.46/1.11*** | -0.08/-0.19 | 0.54*/1.30*** | 0.47/1.12*** | -0.08/-0.24 | 0.55*/1.36*** |
| 2 | 0.22/0.48 | -0.09/-0.16 | 0.31/0.64* | 0.23/0.49 | -0.09/-0.16 | 0.32/0.65* |
| 1 to 5 | 0.92**/2.20*** | -0.13/-0.26 | 1.05**/2.46*** | 0.95**/2.21*** | -0.14/-0.26 | 1.09***/2.47*** |
| 1 to 20 | 1.10**/2.46*** | -0.15/-0.34 | 1.25***/2.80*** | 1.09**/2.47*** | -0.17/-0.32 | 1.26***/2.79*** |
| Panel B: Large stock price decreases | | | | | | |
| | Average AR/Cumulative ARs following initial price changes, % | | | | | |
| Days relative | $\lvert AR0i\rvert > 8\%$ | | | $\lvert AR0i\rvert > 10\%$ | | |
| to event | Pre-holiday | Regular | Difference | Pre-holiday | Regular | Difference |
| | (54/55 events) | (1,018/1,019 events) | | (44/44 events) | (698/698 events) | |
| 1 | -0.52*/-1.23*** | 0.13/0.25 | -0.65*/-1.48*** | -0.53*/-1.24*** | 0.11/0.26 | -0.64*/-1.48*** |
| 2 | -0.19/-0.58* | 0.10/0.22 | -0.29/-0.80* | -0.18/-0.57* | 0.09/0.21 | -0.27/-0.78* |
| 1 to 5 | -1.03**/-2.34*** | 0.26/0.49 | -1.29***/-2.83*** | -1.04**/-2.35*** | 0.29/0.52 | -1.33***/-2.86*** |
| 1 to 20 | -1.15**/-2.66*** | 0.33/0.59* | -1.48***/-3.25*** | -1.16**/-2.68*** | 0.33/0.61* | -1.49***/-3.29*** |
| Asterisks denote the significance levels: *p<0.10; **p<0.05; ***p<0.01 | | | | | | |

Table 5A: Abnormal stock returns following pre-holiday and regular large stock price increases and decreases, for high and low volatility stocks: Proxy A for defining large price moves

Panel A: Large stock price increases

| | Average AR/Cumulative ARs following initial price changes, % | | | | | |
|---|---|---|---|---|---|---|
| Days relative | $\|SR0i\| > 8\%$ | | | $\|SR0i\| > 10\%$ | | |
| to event | Pre-holiday | Regular | Difference | Pre-holiday | Regular | Difference |
| | (44/44 events) | (903/904 events) | | (34/35 events) | (536/536 events) | |
| 1 | 0.87**/0.54* | -0.18/-0.12 | 1.05**/0.66* | 0.88**/0.55* | -0.19/-0.12 | 1.07**/0.67* |
| 2 | 0.40/0.26 | -0.14/-0.10 | 0.54*/0.36 | 0.40/0.28 | -0.15/-0.10 | 0.55*/0.38 |
| 1 to 5 | 1.79**/1.31** | -0.21/-0.14 | 2.00***/1.45*** | 1.81**/1.32** | -0.29/-0.19 | 2.10***/1.51*** |
| 1 to 20 | 2.05***/1.42** | -0.26/-0.14 | 2.31***/1.56*** | 2.04***/1.40** | -0.33/-0.20 | 2.37***/1.60*** |

Panel B: Large stock price decreases

| | Average AR/Cumulative ARs following initial price changes, % | | | | | |
|---|---|---|---|---|---|---|
| Days relative | $\|SR0i\| > 8\%$ | | | $\|SR0i\| > 10\%$ | | |
| to event | Pre-holiday | Regular | Difference | Pre-holiday | Regular | Difference |
| | (62/62 events) | (1,128/1,128 events) | | (47/48 events) | (723/723 events) | |
| 1 | -1.04**/-0.62* | 0.23/0.15 | -1.27**/-0.77* | -1.06**/-0.63* | 0.22/0.14 | -1.28**/-0.77* |
| 2 | -0.49/-0.27 | 0.21/0.12 | -0.70*/-0.39 | -0.48/-0.27 | 0.20/0.11 | -0.68*/-0.38 |
| 1 to 5 | -2.02***/-1.35** | 0.45/0.31 | -2.47***/-1.66*** | -2.04***/-1.36** | 0.45/0.32 | -2.49***/-1.68*** |
| 1 to 20 | -2.31***/-1.50*** | 0.56*/0.38 | -2.87***/-1.88*** | -2.36***/-1.48** | 0.57*/0.37 | -2.93***/-1.85*** |

Asterisks denote the significance levels: *p<0.10; **p<0.05; ***p<0.01

Table 5B: Abnormal stock returns following pre-holiday and regular large stock price increases and decreases, for high and low volatility stocks: Proxy B for defining large price moves

Panel A: Large stock price increases

| | Average AR/Cumulative ARs following initial price changes, % | | | | | |
|---|---|---|---|---|---|---|
| Days relative | $\|SR0_i\| > 3\sigma_i$ | | | $\|SR0_i\| > 4\sigma_i$ | | |
| to event | Pre-holiday | Regular | Difference | Pre-holiday | Regular | Difference |
| | (44/44 events) | (903/904 events) | | (34/35 events) | (536/536 events) | |
| 1 | 0.85**/0.52* | -0.15/-0.10 | 1.00**/0.62* | 0.87**/0.54* | -0.20/-0.13 | 1.07**/0.67* |
| 2 | 0.39/0.24 | -0.13/-0.08 | 0.52*/0.32 | 0.38/0.26 | -0.16/-0.09 | 0.54*/0.35 |
| 1 to 5 | 1.77**/1.29** | -0.23/-0.15 | 2.00***/1.44*** | 1.79**/1.30** | -0.28/-0.17 | 2.07***/1.47*** |
| 1 to 20 | 2.02***/1.40** | -0.27/-0.15 | 2.29***/1.55*** | 2.03***/1.37** | -0.31/-0.18 | 2.34***/1.55*** |

Panel B: Large stock price decreases

| | Average AR/Cumulative ARs following initial price changes, % | | | | | |
|---|---|---|---|---|---|---|
| Days relative | $\|SR0_i\| > 3\sigma_i$ | | | $\|SR0_i\| > 4\sigma_i$ | | |
| to event | Pre-holiday | Regular | Difference | Pre-holiday | Regular | Difference |
| | (62/62 events) | (1,128/1,128 events) | | (47/48 events) | (723/723 events) | |
| 1 | -1.03**/-0.61* | 0.24/0.15 | -1.27**/-0.76* | -1.05**/-0.62* | 0.23/0.15 | -1.28**/-0.77* |
| 2 | -0.47/-0.26 | 0.20/0.10 | -0.67*/-0.36 | -0.48/-0.25 | 0.21/0.11 | -0.69*/-0.36 |
| 1 to 5 | -2.00***/-1.34** | 0.47/0.38 | -2.47***/-1.72*** | -2.01***/-1.35** | 0.46/0.33 | -2.47***/-1.68*** |
| 1 to 20 | -2.28***/-1.47*** | 0.55*/0.39 | -2.83***/-1.86*** | -2.31***/-1.46** | 0.57*/0.39 | -2.88***/-1.85*** |

Asterisks denote the significance levels: *p<0.10; **p<0.05; ***p<0.01

| Table 5C: Abnormal stock returns following pre-holiday and regular large stock price increases and decreases, for high and low volatility stocks: Proxy C for defining large price moves | | | | | | |
|---|---|---|---|---|---|---|
| Panel A: Large stock price increases | | | | | | |
| | Average AR/Cumulative ARs following initial price changes, % | | | | | |
| Days relative | $\lvert AR0i \rvert > 8\%$ | | | $\lvert AR0i \rvert > 10\%$ | | |
| to event | Pre-holiday | Regular | Difference | Pre-holiday | Regular | Difference |
| | (44/44 events) | (903/904 events) | | (34/35 events) | (536/536 events) | |
| 1 | 0.88**/0.54* | -0.18/-0.11 | 1.06**/0.65* | 0.89**/0.55* | -0.20/-0.13 | 1.09**/0.68* |
| 2 | 0.41/0.27 | -0.15/-0.10 | 0.55*/0.37 | 0.40/0.29 | -0.16/-0.10 | 0.56*/0.39 |
| 1 to 5 | 1.82***/1.33** | -0.23/-0.14 | 2.05***/1.47*** | 1.84***/1.34** | -0.26/-0.16 | 2.10***/1.50*** |
| 1 to 20 | 2.08***/1.44** | -0.27/-0.15 | 2.35***/1.59*** | 2.09***/1.43** | -0.31/-0.19 | 2.40***/1.62*** |
| Panel B: Large stock price decreases | | | | | | |
| | Average AR/Cumulative ARs following initial price changes, % | | | | | |
| Days relative | $\lvert AR0i \rvert > 8\%$ | | | $\lvert AR0i \rvert > 10\%$ | | |
| to event | Pre-holiday | Regular | Difference | Pre-holiday | Regular | Difference |
| | (62/62 events) | (1,128/1,128 events) | | (47/48 events) | (723/723 events) | |
| 1 | -1.05**/-0.63* | 0.23/0.14 | -1.28**/-0.77* | -1.07**/-0.64* | 0.23/0.14 | -1.30**/-0.78* |
| 2 | -0.50/-0.27 | 0.20/0.12 | -0.70*/-0.39 | -0.49/-0.28 | 0.20/0.10 | -0.69*/-0.38 |
| 1 to 5 | -2.05***/-1.37** | 0.47/0.33 | -2.52***/-1.70*** | -2.06***/-1.38** | 0.48/0.35 | -2.54***/-1.73*** |
| 1 to 20 | -2.35***/-1.52*** | 0.57*/0.38 | -2.92***/-1.90*** | -2.40***/-1.51** | 0.58*/0.37 | -2.98***/-1.88*** |
| Asterisks denote the significance levels: *p<0.10; **p<0.05; ***p<0.01 | | | | | | |