Day of the Week and the Cross-Section of Returns

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Abstract

This paper documents a new empirical fact. Long-short anomaly returns are strongly related to the day of the week. Anomalies for which the speculative leg is the short (long) leg experience the highest (lowest) strategy returns on Monday. The exact opposite pattern is observed on Fridays. The effects are large; Monday (Friday) alone accounts for over 100% of monthly returns for all anomalies examined for which the short (long) leg is the speculative leg. Consistent with a mispricing explanation, the pattern is fully driven by the speculative leg of the strategy. The observed patterns are consistent with the abundance of evidence in the psychology literature documenting that mood increases from Thursday to Friday and decreases on Monday.

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1 Introduction

This paper uncovers a striking pattern in the cross-section of returns. Focusing on value-weighted portfolios using NYSE breakpoints, I find that the speculative leg of many popular anomaly strategies experiences low returns on Mondays relative to the non-speculative leg.[1] The exact opposite pattern is observed on Fridays. The magnitude of the effect is large. 100% (or more) of the monthly long minus short strategy return (whether measured relative to excess returns, CAPM, or four-factor alpha) for many cross-sectional anomalies is earned on only one day of the week, Monday or Friday.

The analysis is motivated by a number of potential hypotheses. One possibility is that institutional trading behavior varies by day of the week causing predictable cross-sectional variation across day of the week. Other potential explanations are related to the timing and content of news releases. For instance, it is possible that there exists cross-sectional variation in the timing of good vs bad news announcements. Another potential explanation related to news is that good or bad macroeconomic news is systematically released on only specific days of the week generating cross-sectional return effects, for instance, due to liquidity shocks that affect some stocks more than others.

A final hypothesis is predicated on investor psychology. A prominent finding in the psychology literature is that mood increases from Thursday to Friday and decreases on Monday.[2] In general, people tend to evaluate future prospects more optimistically when they are in a good mood than when they are in a bad mood (Wright and Bower, 1992). One of the most robust findings with respect to mood is that people in good moods tend to evaluate stimuli more positively, whether these stimuli are consumer goods, life satisfaction, or past life experiences (see Bagozzi, Gopinath, and Nyer, 1999). Put simply, people tend to use their mood as the basis for forming evaluations of objects. In equity markets, the presence of optimism or pessimism that is unrelated to fundamentals, usually called sentiment, delivers clear, testable cross-sectional return predictions. Specifically, a change in sentiment will have a contemporaneous effect on returns, with the strongest effect occurring for the prices of stocks with subjective valuations and hard-to-arbitrage stocks (Baker and Wurgler, 2006). This hypothesis therefore predicts that

[1] Throughout the paper I use the term speculative to refer to stocks with the most highly subjective valuations and/or the greatest impediments to arbitrage.
[2] The psychological literature on day-of-the-week variation in mood is discussed in detail in the next section.

relative to non-speculative stocks, speculative stocks will experience low returns on Mondays and high returns on Fridays.

Because the sentiment hypothesis delivers the clearest predictions as to which anomalies should exhibit return variation across day of the week, the initial analysis focuses on anomalies that theory predicts should be related to sentiment. Specifically, this study focuses on anomalies for which one leg is clearly speculative and one leg is clearly non-speculative. In Section 5, I test other prominent anomalies for which sentiment does not make clear predictions (e.g., momentum).[3]

Monday accounts for at least 100% of long minus short strategy returns for each of the anomalies studied for which the short leg is the speculative leg. Friday accounts for at least 100% of strategy returns for each of the anomalies for which the speculative leg is the long leg. In other words, the subset of stocks predicted to be most strongly affected by investor sentiment (small, young, high volatility, distressed, unprofitable, non-dividend paying, low-priced, lottery-like) perform relatively poorly on Mondays, and relatively well on Fridays. In fact, for all anomalies studied, the long minus short strategy returns exhibit opposite signs on Monday and Friday. Figure 1 graphically displays this result. A similar pattern does not exist for anomalies that do not have a clear speculative and non-speculative leg (e.g., momentum). Consistent with a mispricing explanation, all of the variation is driven by the speculative leg, not the non-speculative leg. The results remain robustly present for all anomalies in every subsample period examined.

I do not find evidence that the results are attributable to firm-specific news or macroeconomic news. The observed cross-sectional return patterns are robust to the exclusion of firm-specific news announcements. The results are also robust to the exclusion of macroeconomic announcement dates. The majority of firm-specific news is released outside of trading hours (Kelly and Tetlock, 2013). If firm-specific news is responsible for the observed variation in the cross-section of returns across day of the week, then at least some of this variation should occur during the overnight trading period. Consistent with a sentiment explanation, and inconsistent with a news explanation, the effect is entirely attributable to cross-

[3] Momentum does not have an ex-ante clear speculative and non-speculative leg. Consistent with this, Keloharju, Linnainmaa, and Nyberg (2015) find that momentum strategy returns are not significantly related to sentiment.

sectional differences in intraday returns, not overnight returns. Inconsistent with an institutional trading explanation, the cross-sectional variation is strongest for firms with low institutional ownership. The evidence is consistent with an explanation in which speculative stocks experience increases in stock price concurrent with increases in sentiment (Fridays) and decreases in stock price concurrent with decreases in sentiment (Mondays).

Further sentiment predictions are borne out in the data. Using data from Golder and Macy (2011) I document that mood monotonically increases from Monday through Friday. Consistent with this, I find that day-of-week variation in returns to long minus short strategies mirror this day-of-week pattern in mood. Long minus short portfolio returns monotonically increase (decrease) from Monday through Friday for strategies for which the speculative leg is the short (long) leg. For instance, a long minus short portfolio exploiting idiosyncratic volatility (for which the short leg is the speculative leg) earns average returns of 22.6 basis points per *day* on Monday, 11.4 basis points per day on Tuesday, -5.9 basis points per day on Wednesday, -7.9 basis points per day on Thursday and -15.1 basis points per day on Friday. On the other hand, the long minus short size portfolio (for which the long leg is the speculative leg) earns daily excess returns of -8.3, -6.8, 0.4, 10.5, and 20.7 basis points on Monday, Tuesday, Wednesday, Thursday, and Friday, respectively.

I find supportive evidence when examining VIX and Treasury returns. VIX, widely known as the "investor fear gauge," is an alternative measure of sentiment (Baker and Wurgler, 2007). Consistent with decreasing sentiment on Monday I document a strong and robust 2.16% average *daily* increase in VIX on Mondays. On Fridays, VIX experiences an average daily decrease of nearly 70 basis points. While decreasing sentiment is associated with increases in VIX, it is also associated with a "flight to safety," and therefore theory predicts that a decrease in sentiment will be associated with increasing returns for Treasuries. Consistent with this, I document that average returns on one-year Treasuries are nearly four times higher on Mondays than on Fridays. The results are again consistent with the psychological evidence of decreasing mood on Monday and increasing mood on Friday.

The results are related to the small, but growing literature that identifies exogenous changes in mood and shows a causal effect of these changes in mood on stock returns. For example, a number of studies find evidence that stock returns are related to sunshine (see, e.g.,

Saunders, 1993; Hirshleifer and Shumway, 2003; Goetzmann, Kim, Kumar, and Wang, 2015). Returns are also related to sleep disruptions caused by daylight saving time changes (Kamstra, Kramer, and Levi, 2000), and to the length of the daylight period of the day (Kamstra, Kramer, and Levi, 2003). Edmans, García, and Norli (2007) show that international sporting event outcomes have an effect on returns. Kaplanski and Levi (2010) show that aviation disasters, found in psychological studies to provoke bad mood, affect stock returns.

Importantly, mood is a powerful determinant of individual actions, and changes in mood have been found to induce less than fully rational financial market behavior not just from individual investors, but also from institutional investors (Goetzmann, Kim, Kumar, Wang, 2015). As a testament to the importance of the day of the week in particular, studies find that Mondays are associated with adverse health outcomes, such as a spike in suicides, heart attacks, and myorcardial infarctions. Section 2 thoroughly discusses the psychological findings related to day of the week.

The study is also related to a long literature documenting that returns on the US stock market are particularly low on Mondays (early studies include, Cross, 1973; French, 1980; Gibbons and Hess, 1981). While many explanations have been put forth for the weekend effect, none has proved satisfactory in explaining the results.[4]

Interestingly, Robins and Smith (2015) document that the weekend effect no longer exists after 1975.[5] The post-1975 period encompasses the majority of the sample period in this analysis. In contrast, I find that the cross-sectional effect holds in all subperiods. That the weekend effect is absent even though the cross-sectional results are strong is not surprising, as

[4] Explanations include delays between trading and settlement (Lakonishok and Levi, 1982), specialist trading behavior (Keim and Stambaugh, 1984), measurement error (Keim and Stambaugh, 1984), and Friday closing and Monday reopening of short positions (Chen and Singal, 2003). Dyl and Martin (1985) provide evidence suggesting that delays between trading and settlement are insufficient to explain the weekend effect. Keim and Stambaugh (1984) provide evidence refuting the specialist trading behavior and measurement error explanations. Using detailed short-sale transaction data, Blau, Van Ness, and Van Ness (2009) find no evidence to support increased short selling on Monday, and further find a positive correlation between daily shorting activity and returns. Further ruling out a short-selling based explanation, Gao, Hao, Kalcheva, and Ma (2015) use data from the Hong Kong Stock Exchange and find the existence of the weekend effect even prior to the allowance of short selling on that exchange. Many of these arguments are also refuted by fact that the weekend effect exists in other countries (Jaffe and Westerfield, 1985).

[5] Kamara (1996) argues that the weekend effect disappeared after 1982.

changes in mood deliver clear cross-sectional predictions, but not clear aggregate predictions. As Baker and Wurgler (2007) point out, with respect to sentiment, theory does not deliver clear aggregate predictability predictions. For instance, while a decrease in sentiment will lead to a decline in prices for speculative stocks, it may also lead to a flight to quality causing the prices of safe stocks to increase. As a result, sentiment predictions are clearest in the cross-section.

The findings are aligned with the abundance of evidence in the psychology literature showing that mood is low on Monday relative to Friday and that mood is high on Friday relative to Thursday. The results point to the validity of day of the week as a measure of high-frequency sentiment. This measure is particularly attractive given that it is arguably exogenous of fundamentals, and disentangling sentiment from economic fundamentals has proven to be a difficult task (see e.g., Sibley, Wang, Xing, and Zhang, 2015). Furthermore, day-of-the-week mood variation possesses a number of other characteristics that make it particularly suited for use in finance applications. First, findings in the psychology literature regarding mood on Monday and Friday are rather unambiguous. Second, in contrast to variables that might only affect a subset of the population, the day of the week is common to all investors.

The paper proceeds as follows. In section 2 I discuss psychological evidence regarding day of the week effects in mood. Section 3 discusses the data and anomalies studied. Section 4 presents the main results regarding Monday and Friday returns, and tests potential explanations related to news and institutional trading behavior. Section 5 posits and tests additional implications that follow from psychological evidence regarding day of the week effects in mood. Section 6 concludes.

2 Mood and Day of the Week

Analysis of systematic within-week variation in mood has remained an active research area in psychology since the first large-scale study was carried out by Rossi and Rossi (1977). While there is debate regarding the exact pattern of weekly mood variation, one relatively indisputable finding has emerged in the literature: Friday and the weekend have higher mood than Monday through Thursday. In other words, mood increases from Thursday to Friday, and mood decreases on Monday. There are mixed results regarding the extent to which mood varies between Monday and Thursday.

Unlike the day, the month, or the year, the week is a unit of time that is dissociated from astronomical events. Furthermore, it is not associated with environmental factors in the same way as the month of the year is. For instance, weekends aren't associated with more sunshine than weekdays. Rather, mood fluctuations across days of the week result from lifestyle and sociocultural factors. The week is the source of much temporal organization and strongly influences the organization and structure of our activities. Consistent with this, day-of-the-week variation in mood is more strongly exhibited among people who are not retired (Stone, Schneider, and Harter, 2012), is stronger among full-time workers than part-time workers (Helliwell and Wang, 2015), and is stronger among employed than unemployed (Young and Lim, 2014).

The early literature examining day of the week effects in mood typically relied on small samples consisting of self-reported surveys of students. Rossi and Rossi (1977) examine daily mood in 82 college students and find that mood is higher on Friday, Saturday, and Sunday than on other days. McFarlane, Martin, and Williams (1988) reach similar conclusions in a study of 62 college students. Using a sample of 478 college students, Watson (2000) also provides evidence of increased mood on Friday relative to Monday through Thursday. Relying on a separate sample of 136 students, Watson (2000) again finds that Friday exhibits higher mood relative to Monday through Thursday. Other studies documenting higher mood on Friday relative to Monday through Thursday include, Larsen and Kasimatis, 1990; Egloff, Tausch, Kohlmann, and Krohne, 1995; Reid, Towell, and Golding, 2000; Reis, Shledon, Gable, Roscoe, and Ryan, 2000; Young and Lim, 2014.

More recently, the psychology literature has measured mood along two independent dimensions, negative affect and positive affect. Negative affect reflects the extent to which negative mood is experienced. Positive affect captures the extent to which positive mood is experienced. Negative affect encompasses feelings such as afraid, scared, nervous, jittery, irritable, hostile, guilty, ashamed, upset, and distressed. In contrast, positive affect encompasses feelings such as excited, enthusiastic, inspired, active, alert, attentive, determined, interested, proud, and strong.

Importantly, these two dimensions vary more or less independently of one another. Low positive affect indicates the absence of positive emotion, not the presence of negative emotion.

Similarly, low negative affect indicates the absence of negative emotion, but not the presence of positive emotion. That is, knowing the current level of negative affect says little about the current level of positive affect, and vice versa. The general finding in the literature is that positive and negative affect do, in fact, vary more or less independently of one another.

A couple of recent studies substantially increase our understanding by utilizing large, non-homogenous samples of individuals. Stone, Schneider, Harter (2012) rely on a telephone questionnaire carried out by Gallup Organization of US for a representative sample of 340,000 adults of at least 18 years of age. They provide strong evidence that mood on Friday is better than mood on Monday-Thursday. Specifically, they document that positive affect is higher on Friday than on Monday-Thursday, and that negative affect is lower on Friday than on Monday-Thursday. Using Gallup Survey data, Helliwell and Wang (2014) also document the existence of higher positive affect and lower negative affect on Friday relative to Monday-Thursday. These studies are informative, but still suffer from weaknesses, as they fail to control for the time of the day at which mood is measured, and fail to account for individual heterogeneity because they do not resample the same individuals.

Finally, in a recent study Golder and Macy (2011) assess variation in mood by using a sample of 2.4 million individuals making over 500 million tweets from February 2008 through January 2010. Their analysis again confirms that mood is higher on Friday than it is on Monday through Thursday. Their analysis has many advantages over previous studies. First, there is evidence that people remember mood differently than they actually experience it, causing sample participants to suffer from a recall bias when reporting what their mood was yesterday. Twitter data reflects an individual's mood in real time, and in doing so does not suffer from recall bias. Second, mood has been found to exhibit predictable within-day (diurnal) variation, but past studies fail to control for the time of the day at which mood is measured. Importantly, Twitter data contains information on the exact time of day and therefore allows for identification of diurnal patterns in mood. Third, by undertaking their sentiment analysis via the use of Twitter data, the authors are able to exploit a far larger sample of individuals than has been previously studied. Finally, because they have multiple observations per individual, the analysis can fully control for individual heterogeneity by exploiting only within-individual variation in mood across day of the week. Using their data, I have confirmed that the pattern of higher mood

(higher positive affect and lower negative affect) on Friday relative to Monday-Thursday holds for the specific closing time of the US stock market.

As a testament to the strength of the day-of-the-week effect, the decrease in mood observed on Monday is large enough to adversely affect health outcomes. For instance, there is evidence that myocardial infarctions peak on Mondays (Willich, Lowel, Hormann, Arntz, Keil, 1994; Spielberg, Falkenhahn, Willich, Wegscheider, and Voller, 1996; Witte, Grobbee, Bots, Hoes, 2005; Bodis, Boncz, and Kriszbacher, 2009; Collart, Coppieters, Godin, and Leveque, 2014). Furthermore, there is substantial evidence that suicides peak on Mondays (Blachly and Fairley, 1969; Lester, 1979; Bollen, 1983; MacMahon, 1983; Massing and Angermeyer, 1985; Maldonado and Kraus, 1991; McCleary, Chew, Hellsten, and Flynn-Bransford, 1991; Jessen and Jessen, 1999).

Because Mondays and Fridays are the days of the week for which the psychology literature makes the clearest predictions, the main analysis focuses on only these two days. Specifically, the overwhelming evidence in the literature that mood increases from Thursday to Friday, and decreases on Monday, predicts high returns for speculative stocks relative to non-speculative stocks on Fridays, and the opposite pattern on Monday. In Section 5, I utilize the Golder and Macy (2011) data to test further predictions of sentiment related to Tuesday through Thursday variation in mood.

3 Anomalies

The analysis focuses on those stocks that theory predicts should be most affected by sentiment. Baker and Wurgler (2006, 2007) predict that the stocks most affected by sentiment will be those with valuations that are the most subjective and those that are the most difficult to arbitrage. In practice, stocks with the most highly subjective valuations and stocks that are difficult to arbitrage are likely to be the same stocks.

Baker and Wurgler (2006) argue that the relevant dimensions that characterize the degree of speculativeness of a stock are size, age, profitability, dividend-payer status, and distance to distress. Stocks that are small, young, unprofitable, volatile, non-dividend paying, or potentially close to distress, are likely to have valuations that are relatively more subjective and therefore

subject to speculation. Conversely, safe, bond-like stocks are less likely to have valuations that are highly sensitive to sentiment.

If one instead thinks of sentiment as optimism or pessimism that is general to all stocks, then it will be the stocks that are most difficult to arbitrage that are most affected by sentiment (Baker and Wurgler, 2006, 2007). It turns out that stocks that are most difficult or risky to arbitrage share the same qualities as the stocks that have the most subjective valuations; that is, stocks with the greatest impediments to arbitrage are likely to be stocks that are small, young, unprofitable, volatile, non-dividend paying, or potentially close to distress. To this list, I add two additional characteristics that also proxy for speculativeness. First, investors are likely to exhibit a greater potential to speculate in stocks with lottery-like properties (Kumar, 2009). Second, illiquid stocks face greater limits to arbitrage, and therefore should have valuations that are more sensitive to sentiment.

Based on these characteristics, I draw my sample of anomalies from those known anomalies that have one speculative leg and one safe, bond-like leg. The final list consists of 14 anomaly variables in the previously discussed categories.

Anomaly 1: Idiosyncratic volatility (Ivol). High idiosyncratic volatility stocks will be most affected by sentiment.

Ang, Hodrick, Xing, and Zhang (2006) find that stocks with high idiosyncratic volatility underperform stocks with low idiosyncratic volatility. The speculative leg is therefore the short leg of the anomaly. Anomaly returns should be high on Monday and low on Friday.

Anomalies 2 and 3: Lottery (Max and Price). Stocks with lottery-like characteristics will be most affected by sentiment.

I focus on two variables to capture the lottery-like properties of a stock. Bali, Cakici, and Whitelaw (2010) find that a negative relationship exists between the maximum daily return over the past month and future stock returns. *Max* measures the highest return in the past calendar month. Low *Max* stocks outperform high *Max* stocks. The speculative leg is therefore the short leg of the anomaly.

Birru and Wang (2015a) find that investors overestimate the lottery-like properties of low-priced stocks. Birru and Wang (2015b) present evidence that low-priced stocks are overpriced relative to high-priced stocks. The speculative leg is therefore the short leg of the strategy. For both *Max* and *Price*, anomaly returns should be high on Monday and low on Friday.

Anomaly 4: Age. Young stocks will be most affected by sentiment.

Evidence exists suggesting that older firms have higher returns than younger firms. For example, IPOs tend to underperform in the long run (Ritter, 1991). I assign old stocks to the long leg of the strategy. The speculative leg is therefore the short leg of the anomaly. Anomaly returns should be high on Monday and low on Friday.

Anomalies 5 and 6: Distress (O-score and FP). Distressed stocks will be most affected by sentiment.

Campbell, Hilscher, and Szilagyi (2008) find that firms with low failure probability (FP) outperform high failure probability stocks. The speculative leg is therefore the short leg of the anomaly.

Dichev (1998) finds that firms in greater distress as measured by the Ohlson (1980) *O*-score outperform stocks that are not distressed. The speculative leg is therefore the short leg of the anomaly. For both *O-score* and *FP*, anomaly returns should be high on Monday and low on Friday.

Anomalies 7, 8, 9, and 10: Profitability (OP, ROA, E, and CF/P). Unprofitable stocks will be most affected by sentiment.

A number of studies find that profitable stocks outperform less profitable stocks. Ball, Gerakos, Linnainmaa, and Nikolaev (2015) find that stocks with high operating profitability (OP) outperform stocks with low operating profitability. The speculative leg is therefore the short leg of the anomaly.

Balakrishnan, Bartov, and Faurel (2010) find that stocks with high ROA outperform stocks with low ROA. The speculative leg is therefore the short leg of the anomaly.

Following Baker and Wurgler (2006) I also examine a profitability dummy variable (E) that takes a value of one for profitable firms and zero for unprofitable firms. I assign profitable firms to the long leg of the strategy and unprofitable firms to the short leg of the strategy. The speculative leg is therefore the short leg of the anomaly.

Cash flow (CF) has also been found to predict returns (e.g., Lakonishok, Shleifer, and Vishny, 1994). I examine a cash flow dummy variable that takes a value of one for positive cash flow firms and zero for negative cash flow firms. I assign positive cash flow firms to the long leg of the strategy and negative cash flow firms to the short leg of the strategy. The speculative leg is therefore the short leg of the anomaly. For all profitability anomalies, anomaly returns should be high on Monday and low on Friday.

Anomalies11 and 12: Payouts (D and NXF). Low payout stocks will be most affected by sentiment.

Dividend yield has been found to predict returns (e.g., Litzenberger and Ramaswamy, 1979). Following Baker and Wurgler (2006) I examine a dividend-payer dummy variable that takes a value of one for dividend-paying firms and zero for non-dividend paying firms. I assign dividend-paying firms to the long leg of the strategy and non-dividend paying firms to the short leg of the strategy. The speculative leg is therefore the short leg of the anomaly.

Bradshaw, Richardson, and Sloan (2006) find that low net external financing stocks (NXF) outperform high net external financing stocks. The speculative leg is therefore the short leg of the anomaly. For both *D* and *NXF,* anomaly returns should be high on Monday and low on Friday.

Anomaly 13: Size. Small stocks will be most affected by sentiment.

Banz (1981) finds that small stocks outperform large stocks. The speculative leg is therefore the long leg of the anomaly. Anomaly returns should be low on Monday and high on Friday.

Anomaly 14: Illiquidity. Illiquid stocks will be most affected by sentiment.

Amihud (2002) finds that more illiquid stocks outperform less illiquid stocks. The speculative leg is therefore the long leg of the anomaly. Anomaly returns should be low on Monday and high on Friday.

Appendix A provides definitions of all anomaly variables examined. For all anomalies, except size and illiquidity, the short leg is the speculative leg. The speculative leg should perform well when sentiment is increasing and should perform poorly when sentiment is decreasing. Decreasing sentiment on Monday and increasing sentiment on Friday therefore provide clear cross-sectional anomaly predictions. Relative to the non-speculative leg, the speculative leg should perform poorly on Mondays and perform well on Fridays. The 12 anomalies for which the short leg is the speculative leg should experience high long minus short strategy returns on Monday and low long minus short strategy returns on Friday. Size and illiquidity, for which the speculative leg is the long leg, should experience low strategy returns on Monday and high strategy returns on Friday.

4 Empirical Results

4.1 Data

Stock return data is from CRSP. The sample includes all NYSE/AMEX/NASDAQ common stocks (share code 10 or 11). Accounting information is obtained from Compustat. The sample period is from July of 1963 through December of 2013.

4.2 Anomaly Returns: Monday and Friday

As mentioned, the robust psychological finding that mood is elevated on Friday relative to Monday through Thursday predicts that returns to speculative stocks will be relatively high on Fridays concurrent with an elevation of mood from the Thursday level, and that returns for speculative stocks will be relatively low on Mondays concurrent with the decrease in mood on Monday. A straightforward prediction emerges. Anomalies for which the speculative leg is the short leg will have high strategy returns on Mondays. Conversely, anomalies for which the speculative leg is the long leg will have high strategy returns on Fridays. Table 1 breaks anomalies into these two groups. Panel A compares Monday returns with the cumulative returns occurring on all other days (Tuesday through Friday) for anomalies for which the short leg is the

speculative leg. While Panel B compares Friday returns with the cumulative returns for all other days (Monday through Thursday) for the subset of anomalies for which the long leg is the speculative leg.

The results are quite clear. Focusing on four-factor alphas, Panel A shows that Monday accounts for over 100% of the long minus short portfolio returns for all of the 12 anomalies for which the short leg is the speculative leg. This is evident based on the observation that the Tuesday through Friday long minus short strategy returns for these anomalies are all negative. On the other hand, for the two anomalies for which the speculative leg is the long leg, size and illiquidity, over 100% of the strategy returns are earned on Fridays. Again this is evident based on the observation that long minus short strategy returns for size and illiquidity are negative from Monday through Thursday.

Table 2 undertakes a more direct test of the main sentiment hypothesis by directly comparing Monday long minus short returns to Friday long minus short returns. The results are striking. Again focusing on four-factor alphas, for all anomalies the long minus short returns on Monday have the opposite sign as the long minus short returns on Friday. Figure 1 displays this result graphically.

The third set of results in Table 2 examines the magnitude of the difference in long-short returns on Monday and on Friday. The results display the large economic magnitude of the effect. For instance, examining *Ivol*, long-short portfolio four-factor alphas are 163 basis points higher on Monday than on Friday over the course of the month. Conversely, examining S*ize*, long-short portfolio four-factor alphas are 122 basis points higher on Friday than on Monday over the course of the month.[6]

4.3 Asymmetry in Long and Short Legs

Tables 3 and 4 separately examine the returns to the long and short legs of the anomalies. A sentiment-based mispricing story predicts an asymmetry when comparing the difference in returns between Monday and Friday for the long leg and for the short leg. Specifically, sentiment predicts that the exhibited pattern in Monday and Friday returns should be attributable to the speculative leg, not the non-speculative leg. Table 3 and Table 4 show that this is indeed the

[6] Throughout the paper the SMB factor is excluded when analyzing the size anomaly.

case. Table 3 displays the short leg only. This is the speculative leg for all anomalies except for size and illiquidity.

Indeed, it is the case that the short leg is the leg that drives all of the variation for the anomalies for which the short leg is the speculative leg. In fact, the variation from the short leg alone is generally larger than that of the long minus short portfolio. For instance, the short leg of the idiosyncratic volatility strategy earns 190 basis points higher returns on Friday than on Monday during the month. In other words, a strategy that invests in the highest decile of idiosyncratic volatility stocks for only two days of each week (going long this decile on Friday and short on Monday) earns an average monthly four-factor alpha of 190 basis points.

In contrast, Table 4 shows that the long leg difference between Friday and Monday is smaller in magnitude than the short leg difference for all anomalies, except size and illiquidity. Size and illiquidity experience differences in long leg returns between Friday and Monday that are larger than the short leg, consistent with the long legs for these two strategies being the speculative leg. Again, the difference in return from the speculative leg is larger than that of the long minus short portfolio. For example, the long leg of the size anomaly (small stocks) earns a monthly four-factor alpha that is 157 basis points higher on Friday than on Monday. The difference in long and short legs returns is consistent with the hypothesis that the day-of-the-week effect in the cross-section of returns is driven by contemporaneous variation in sentiment that primarily affects speculative stocks.

4.4 Daily Risk Premiums

The current risk-adjusted results use the Fama-French monthly factors to risk-adjust the monthly returns calculated for subsets of days. One concern is that risk premiums might vary by day. While it is not clear why risk premiums might be expected to exhibit variation that is dependent on day of the week, in Table 5 I decompose monthly factors into their Monday and Friday monthly components and examine whether alphas survive this alternative risk correction.

Table 5 clearly shows that this alternative risk correction does not alter the inferences. Again, all alphas for strategies for which the speculative leg is the short leg are positive on Monday and negative on Friday. Conversely, all alphas for the anomalies for which the speculative leg is the long leg are negative on Monday and positive on Friday.

4.5 Subsample Analysis

Recent studies find that the weekend effect does not exist in more recent time periods (Kamara, 1997; Schwert, 2003; Robins and Smith, 2015). Robins and Smith (2015) find that the weekend effect does not exist after 1975. In Table 5 I separately analyze multiple subsamples. The vast majority of the sample years in the study are from the post-1975 period, as the earliest year used is 1963, suggesting that the cross-sectional patterns observed thus far are present even in periods in which the broader market level weekend effect is no longer present.

Table 6 separately examines 1963 through December of 1974, 1975 through December of 1994, and 1994 through the end of 2013. The results clearly show that the cross-sectional effects hold up in each time period. There are 14 anomalies with strategies examined for Monday and Friday for each of 3 subsample time periods. Of the 84 (14x2x3) long-short strategy time-period combinations, 83 go in the same direction as the full sample results. Only the illiquidity strategy returns on Monday in the 1963-1974 subsample period go in a direction that is not consistent with the full sample results. The results are remarkably robust across different time periods, including those time periods in which the weekend effect is not observed.

4.6 News

Macroeconomic News Announcements

While it is unlikely that good or bad economic news is systematically released on only specific days of the week, it is possible that macroeconomic news announcements generate cross-sectional return effects, for instance, due to liquidity shocks that affect some stocks more than others. I gather announcement dates of pre-scheduled monthly macroeconomic news announcements from the Bureau of Labor Statistics and the Federal Reserve. Following Savor and Wilson (2013), I focus on days when the Consumer Price Index, Producer Price Index, and employment figures are released, and days when the Federal Open Market Committee decisions are announced.

Savor and Wilson note that only 2% of the pre-scheduled announcements in their sample occur on a Monday. I find a similarly small percentage for the sample period studied in this paper. Conversely, over 40% of announcements occur on a Friday. Table 7 examines strategy

returns by day of week when macroeconomic announcement dates are excluded from the sample. The results show that the previously documented Monday and Friday patterns in the cross-section of returns are robust to the exclusion of these macro announcement dates. The results are again consistent with contemporaneous changes in investor sentiment driving the observed cross-sectional results.[7]

Firm-Specific News

A concern is that the results are driven by non-random timing of news announcements. For news announcements to explain relatively low (high) returns to speculative stocks on Mondays (Fridays), would require that speculative and non-speculative firms have systematic differences in their timing of good vs bad news announcements. I examine this possibility by focusing on earnings announcements as well as dividend and stock split announcement and ex-dates.

I obtain earnings announcement dates from Compustat. Previous work has found that earnings announcement dates are sometimes off by a day or more (e.g., DellaVigna and Pollet, 2009). To be conservative, I exclude not only the date reported by Compustat, but also the two days prior and two days after the announcement date. Because there are five trading days in a week, excluding dates from t-2 to t+2 also has the benefit of removing a roughly equal number of observations from each day of the week. Announcement dates and ex-dates for dividends and stock splits are obtained from CRSP. I also exclude the period from t-2, t+2 for dividend and stock split dates. The use of earnings announcement dates restricts the sample time period to begin in July of 1972. So as to not include observations of firms with missing earnings announcement information, I only include observations for which there is an announcement date within a two month window of the month in question.

Table 8 presents results when excluding the period from (t-2, t+2) around news dates related to earnings, dividends, and stock splits. As the table shows, the magnitude of the effect is on average unchanged. The evidence again supports the hypothesis that it is the

[7] In unreported results, I find that the results are robust to also excluding Mondays that follow a Friday news announcement.

contemporaneous change in sentiment that is driving the observed differences in strategy returns between Monday and Friday.

Overnight vs Intraday

As a further test of the firm-specific news hypothesis, I decompose returns into their intraday and overnight component. Most firm-specific news is released outside of trading hours (Kelley and Tetlock, 2013). If firm-specific news announcements explain the observed variation in anomaly returns across day of the week, then at least part of this variation should occur during the overnight trading period. On the other hand, finding that the observed pattern is exclusively driven by intraday returns would not be consistent with a news explanation.

Furthermore, the psychology literature finds that mood is on average high during the weekend. Therefore, finding that the observed Monday pattern in the cross-section of returns occurs over the weekend period from Friday close to Monday open would be potentially inconsistent with a mood explanation. The news hypothesis and the mood hypothesis therefore make opposite predictions. If news explains day-of-the-week variation in the cross-section of returns, then day-of-the-week variation should show up in overnight returns. If mood explains day-of-the-week variation in the cross-section of returns, then day-of-the-week variation should primarily show up in intraday returns.

Intraday returns are calculated using the open and close prices provided by CRSP. Overnight returns are calculated as the difference between the standard CRSP-reported close-to-close return and the intraday return. Following the literature, I assume dividend adjustments occur overnight. Due to availability of CRSP reported opening prices, the sample period starts in July of 1992.

Table 9 clearly shows that all of the variation in Monday and Friday anomaly returns occurs intraday. In contrast, while the speculative leg does tend to outperform overnight, there is no day-of-the-week variation in anomaly returns for the overnight period, as the difference in anomaly returns between Friday and Monday is small and typically in the opposite direction as the pattern observed for the close to close returns. None of the anomalies have an overnight return on Friday that is statistically significantly different from Monday at even the 5% level. On the other hand, the intraday analysis shows that during the day, the difference in strategy returns

between Friday and Monday is statistically significant at the 1% level for all anomalies in the directions predicted by the mood hypothesis. Indeed, all of the day-of-the-week variation in the cross-section of returns occurs intraday. The intraday and overnight returns are consistent with day-of-the-week variation in the cross-section of returns reflecting changes in contemporaneous sentiment and are inconsistent with a news explanation.

4.7 Institutional Trading

Can the results be driven by the trading behavior of institutions? For a number of reasons this seems to be an unlikely explanation. Most importantly, the variation in returns between Monday and Friday is primarily driven by speculative stocks, and while individual investors have a preference for speculative stocks, institutions tend not to be large owners of speculative stocks. For instance, retail traders have a preference for small stocks, low-priced stocks, and stocks with lottery-like characteristics, whereas institutions have an aversion to these types of stocks (Kumar and Lee, 2006; Kumar, 2009). Gompers and Metrick (2001) and Bennett, Sias, and Starks (2003) find that institutions have preferences for large and liquid stocks.

Furthermore, the ownership of institutions has exhibited substantial time variation over the sample period analyzed. For instance, Bennett, Sias, and Starks (2003) claim that institutional ownership accounted for 7% of total US equity ownership in 1950, and 28% in 1970. Gompers and Metrick (2001) find that aggregate ownership of institutions was below 30% in 1980, but by the end of 1995 was above 50%. If institutional trading is responsible for the observed patterns, then one should expect to find clear time-variation in the cross-sectional pattern of returns. The subsample evidence does not support this hypothesis. Instead, the results are strong in all subsample periods, and exhibit no clear patterns in time variation.

Table 10 explicitly tests this hypothesis by separately analyzing low and high institutional ownership stocks. Each quarter, stocks are classified as low or high institutional ownership relative to the median institutional ownership in that quarter. Institutional ownership is defined as the aggregate number of shares owned by institutions relative to the total number of shares outstanding. The results offer no evidence that the effects are driven by the behavior of institutions. The large difference in Monday and Friday strategy returns is robustly present for both low and high institutional ownership stocks. For nearly all anomalies, the magnitude of the

difference between Monday and Friday is larger for the low institutional ownership stocks than high institutional ownership stocks.

The results in Table 10 are not consistent with institutional trading driving the observed day of the week behavior. Table 11 provides further evidence that the documented pattern is unlikely to be driven by end-of-the-week rebalancing by institutions or other traders. Prior to September of 1952 the market was open for trading on Saturdays.[8] This suggests that any end-of-week rebalancing would be less likely to occur on Fridays during this time period. Table 11 displays alphas for strategies for which data can be obtained for the time period between January 1927 and September 1952. All Friday minus Monday results again go in the expected direction, with the magnitudes often larger than those exhibited in the later time period. The results are not consistent with the documented effects being driven by institutional behavior.

5 Testing Further Sentiment Predictions

5.1 VIX

I next examine whether the day of the week is correlated with movements in the Chicago Board Options Exchange daily market volatility index (VIX). Baker and Wurgler (2007) consider the VIX index to be a measure of investor sentiment, with increases in VIX reflecting decreases in sentiment. VIX is often referred to as the "investor fear gauge," and is frequently used as a high-frequency measure of investor sentiment (e.g., Cherkes, Sagi, and Stanton, 2009; Kaplanski and Levy, 2010; Da, Engelberg, and Gao, 2015).

The VIX results are quite stark, and support the hypothesis that sentiment decreases on Monday and increases on Friday. VIX on average increases (decreases) by 2.162% (0.672%) on Monday (Friday) (unreported). Table 12 examines average daily VIX movements on Mondays and on Fridays while also controlling for one-day lagged VIX, one-day lagged VIX squared, and for days on which there are macroeconomic announcements (CPI, PPI, employment, and FOMC announcement days). Regressions include observations from Monday and Friday and the coefficient estimate is displayed in Column 1. After controlling for macroeconomic announcements and lagged movements in VIX, the change in VIX is 2.44% higher on Monday

[8] The market was closed for trading on Saturdays during July and August of 1945 and also closed for trading on Saturdays from June through September for 1946 through 1952.

than on Friday. The large increase in VIX is also quite robust. In unreported results, I find that the Monday increase in VIX holds for every calendar month and for every calendar year, with the exception of 2010. The Friday decrease is exhibited in every calendar month except April, and in all but 6 calendar years. The results again support the hypothesis that the observed cross-sectional return effects reflect decreasing sentiment on Monday and increasing sentiment on Friday.

5.2 Treasury Bond Returns

Baker and Wurgler (2012) argue that times of high sentiment are likely to be associated with relatively low demand for safe assets, while decreases in sentiment are associated with "flights to quality," in which investors shift money towards safe assets such as Treasury bonds. Similarly, Da, Engelberg, and Gao (2015) argue that treasury bond returns can capture a "flight to safety," and that the returns of treasuries should be negatively related to contemporaneous changes in sentiment. Consistent with this intuition, Baker and Wurgler (2012) find that intermediate-term and long-term Treasury bonds have negative sentiment betas. That is, Treasury bond returns are low contemporaneous with increases in sentiment and high contemporaneous with decreases in sentiment.

Decreasing sentiment on Monday predicts a flight to safety on Monday and therefore an increase in Treasury bond returns on Monday. Conversely, increasing sentiment on Friday predicts the opposite – low returns for Treasury bonds on Friday. I obtain data on Treasury returns from the CRSP Daily Treasury Fixed Term Indexes File. The returns reflect the performance of a hypothetical Treasury bond with fixed maturity.

Columns 2-5 of Table 12 examine average daily Monday and Friday returns on one-month to five-year Treasury bonds. Following the VIX analysis, and the analysis of Savor and Wilson (2013), daily Treasury returns are regressed on one-day lagged Treasury returns, one-day lagged returns squared, and an indicator for macroeconomic announcements (CPI, PPI, employment, and FOMC announcement days). Regressions are run using data between June of 1961 (the first date available) through December of 2013, using only Monday and Friday observations. The Monday dummy measures the difference in Treasury returns between Monday and Friday. The results are again quite clear. Consistent with decreasing sentiment inducing a

"flight to safety," returns for Treasuries are substantially higher on Mondays than on Fridays. The results are again consistent with the notion that cross-sectional return effects documented on Monday and Friday are driven by shifts in investor sentiment.

5.3 Tuesday to Thursday

Another question which has received much attention in the psychology literature is whether there exists a "blue Monday" phenomenon. That is, whether mood levels on Monday are significantly lower than on Tuesday through Thursday, and whether mood levels potentially increase from Monday through Thursday. The evidence regarding the existence of increasing mood from Monday to Thursday is mixed. Using samples of fewer than 100 college students, Rossi and Rossi (1977) and McFarlane, Martin, and Williams (1988) find little evidence that mood on Monday is any worse than on Tuesday through Thursday. On the other hand, using a sample of 478 college students, Watson (2000) finds a pattern of slightly increasing mood from Monday through Thursday. Relying on a different sample of 136 students, Watson (2000) documents a more strongly increasing mood from Monday through Thursday. A recent study by Stone, Schneider, and Harter (2012) finds minimal support for the "blue Monday" hypothesis, while studies by Larsen and Kasimatis (1990) and Young and Lim (2014) both find some evidence of increasing mood from Monday to Thursday. Again, these studies are confounded by an inability to control for diurnal patterns in mood, and an inability to control for individual heterogeneity, and conclusions are often drawn from small sample sizes.

As mentioned previously, the use of Twitter message data allows for a substantial improvement in the measurement of mood relative to previous studies, as it is able to capture mood in real time from a large, heterogeneous sample, while also being able to control for individual fixed effects. In this section, I exploit the Twitter data of Golder and Macy (2011) to examine the extent to which variation in mood exists across all weekdays (including Tuesday, Wednesday, and Thursday) and examine whether day-of-week sentiment predictions regarding the cross-section of returns are borne out in the data for these days. Golder and Macy (2011) use textual analysis of Twitter data to identify average mood across each hour of the day for each day of the week. Importantly, the average Twitter user does appear to be representative of the

typical stock market participant.[9] Positive affect (PA) and negative affect (NA) are measured using Linguistic Inquiry and Word Count. See Golder and Macy (2011) for a detailed description of the textual analysis process.

I focus on the average mood (captured by both negative and positive affect) during the 3pm hour (measured from 3pm to 4pm) for Twitter users residing in the US, since this most closely captures mood at the daily close of the market.[10] The top panel of Figure 2 plots the average positive and negative affect at the time of the market close for each day of the week. Consistent with past findings, the level of positive (negative) affect is the lowest (highest) on Monday and highest (lowest) on Friday.

The bottom panel of Figure 2 plots the change in affect. Again, consistent with past findings Monday exhibits the largest decrease (increase) in positive (negative) affect, while Friday exhibits the largest increase (decrease) in positive (negative) affect. Interestingly, there does exist a monotonic increase in mood from Monday through Friday. Monday exhibits the greatest decrease in mood, followed by Tuesday which exhibits nearly no change in mood from Monday. Wednesday, Thursday, and Friday all exhibit day-over-day increases in mood, with the smallest day-over-day increase occurring on Wednesday. Thursday has the next largest day-over-day increase in mood, and Friday has the largest day-over-day increase in mood.[11] This clear

[9] The following statistics were compiled in a recent survey by Edison Research, (Webster (20XX)). 87% of Americans in 2010 were familiar with Twitter, as compared to 88% of population who were aware of Facebook. As of 2010, 17 million Americans (7% of population) used Twitter. The young are not overrepresented on Twitter, rather the 18+ and 25+ population is actually overrepresented on Twitter; 82% of Twitter users are 18+, as compared to 74.3% of the US population (2010 Census). And 71% are 25+, as compared to 67% of the US population. Twitter users are also substantially more likely to have an advanced degree. 63% of Twitter users over the age of 18 have a 4-yr degree or better, as compared to 40% of the US population. Only 12% of Twitter users over the age of 18 have a high school degree or less, as compared to 33% of the US population. Twitter users are also more likely to have higher household income. Of those reporting household income, Twitter users are more likely than the average American to live in higher income households (whether household income is defined as above $50,000, $75,000, or $100,000).

[10] Time is measured according to the time zone of the Twitter user. For instance, to capture the average mood of a Twitter user in the Central Time Zone during the 3pm hour in the Eastern Time Zone, I should examine their mood at 2pm. The Eastern Time Zone is the most populous in the United States (47% of the population), therefore I use the 3pm hour, because it corresponds to the time of market close in the Eastern Time Zone. The results are unchanged if I instead calculate the average of the 12pm, 1pm, 2pm, and 3pm hours (corresponding to time of market close in Pacific, Mountain, Central, and Eastern time zones, respectively), or if I weight each hour by the percent of the US population in the time zone.

[11] To provide some external validation of this pattern, I examine a daily index of happiness measured from Twitter. This data originates from Dodds et al. (2011). In unreported analysis, using the data of Dodds et al. (2011), I document that daily changes in happiness exhibit the same increasing pattern from Monday to Friday, with the increase in happiness growing from Monday through Friday.

pattern in change in mood across day of week leads to a clear prediction for the cross-section of returns: Anomaly returns should monotonically decrease from Monday to Friday for anomalies for which the short leg is speculative, and should monotonically increase from Monday to Friday for anomalies for which the long leg is speculative.

Table 13 presents the average daily excess returns to anomalies by day of the week, and shows that this is precisely the pattern exhibited for the vast majority of anomalies examined. Figure 3 graphically displays this striking pattern. Consistent with the within-week pattern in mood, anomaly returns are decreasing from Monday to Friday for anomalies for which the short leg is the speculative leg, and increasing from Monday to Friday for anomalies for which the long leg is the speculative leg. In the interest of space, CAPM, three-factor, and four-factor alphas are not shown, but all exhibit the same pattern.

5.4 Other Anomalies

In this section I examine day-of-week variation in anomaly returns for other well-known anomalies that do not have a clear speculative or non-speculative leg. If day-of-week variation in sentiment drives the patterns exhibited in speculative anomalies, then the same patterns are unlikely to be exhibited in anomalies for which there is no clear speculative leg. I focus on three well-known anomalies: momentum, asset growth, and book-to-market.

Interestingly, none of these anomalies has been found to exhibit a significant relationship with sentiment. Using the sentiment measure of Baker and Wurgler (2006), Keloharju, Linnainmaa, and Nyberg (2015) find that returns to the momentum and asset growth anomalies are not related to sentiment, as they do not exhibit significantly different strategy returns after high vs low sentiment. Similarly, Baker and Wurgler (2006) find that book-to-market strategy returns do not significantly differ after high vs low sentiment. Baker and Wurgler (2006) argue that this is consistent with growth and distress firms inhabiting the extreme book-to-market portfolios with more stable firms inhabiting the middle deciles.

Figure 4 examines daily excess returns for portfolios sorted by momentum, book-to-market, and asset growth. Consistent with sentiment predictions, these anomalies do not exhibit clear day-of-week variation in returns. Book-to-market and asset growth strategies exhibit slightly U-shaped patterns with the highest returns occurring on Monday and Friday, while

momentum experiences high returns over the first three days of the week with returns tapering off on Thursday and Friday.

6 Conclusion

This study documents strong, predictable variation in the cross-section of returns across day of the week. Relative to non-speculative stocks, speculative stocks earn low returns on Mondays and high returns on Fridays. The results are robust to different subsample periods, and are not explained by macroeconomic news releases, firm-specific news releases, or institutional trading.

Psychological research documents predictable variation in mood across day of the week, with decreases in mood occurring on Mondays and increases in mood occurring on Fridays. The cross-sectional return patterns are consistent with an explanation in which decreasing mood on Monday leads to relatively low returns for speculative stocks, and increasing mood on Fridays leads to relatively high returns for speculative stocks.

Appendix A:

Anomaly Definitions:

Age: Following Baker and Wurgler (2006), age is measured as the number of months since the firm's first appearance on CRSP. Portfolios are rebalanced at the end of June of each year *t*.

Cash Flow (CF): Cash flow is a dummy variable that takes a value of one for firms with positive cash flow and zero for firms with non-positive cash flow. Positive cash flow firms are those for which income before extraordinary items (Compustat item IB) plus equity's share of depreciation (item DP) plus deferred taxes (if available, item TXDI) takes a value greater than 0. Equity's share is defined as market equity (price times shares outstanding from CRSP) divided by total assets (item AT). Portfolios are rebalanced at the end of June of each year *t*, based on data for the fiscal year ending in calendar year *t*-1.

Dividends (D): Dividends is a dummy variable that takes a value of one for dividend-paying firms. Dividend-paying firms are those for which the dividend yield is greater than 0. Dividend yield is calculated as the difference between cum- and ex-dividend returns, times the beginning of month market equity (price times shares outstanding), all divided by the market equity at the end of June of *t*-1. Portfolios are rebalanced at the end of June of each year *t*.

Earnings (E): Earnings is a dummy variable that takes a value of one for profitable firms and zero for unprofitable firms. Profitable firms are those with income before extraordinary items (item IB) greater than 0. Unprofitable firms are those with income before extraordinary items taking a value less than or equal to 0. Portfolios are rebalanced at the end of June of each year *t*, based on data for the fiscal year ending in calendar year *t*-1.

Failure Probability (FP): Failure probability is calculated using the definition in Hou, Xue, and Zhang (2014). With the exception that I follow Campbell, Hilscher, and Szilagyi in that I replace lagged excess returns and profitability with their cross-sectional means when observations are missing. Portfolios are rebalanced each month. Due to limited data coverage, FP starts in January 1976.

Idiosyncratic Volatility (Ivol): Following Ang, Hodrick, Xing, and Zhang (2006), idiosyncratic volatility is measured as the standard deviation of the residuals from a regression of a stock's

excess return on the Fama-French (1993) three factor model. Idiosyncratic volatility is measured using daily returns from month *t*-1. A minimum of 15 daily return observations is required to calculate idiosyncratic volatility. Portfolios are rebalanced each month.

Illiquidity (Illiq): Following Amihud (2002) and Hou, Xue, and Zhang (2014), illiquidity is calculated as the ratio of absolute daily stock return to daily dollar trading volume, averaged over month *t*-1to *t*-6. Dollar trading volume is share price times volume. Trading volume of NASDAQ stocks is adjusted following Gao and Ritter (2010). A minimum of 50 observations is required for calculation of illiquidity. Portfolios are rebalanced each month.

Max: Following Bali, Cakici, and Whitelaw (2011), maximum daily return is calculated as the maximum daily return in month *t*-1. A minimum of 15 daily return observations is required to calculate Max. Portfolios are rebalanced each month.

Net External Financing (NXF): Following Bradshaw, Richardson, and Sloan (2006) and Hou, Xue, and Zhang (2014), net external financing is the sum of net equity financing and net debt financing scaled by the average of total assets for fiscal years ending in *t*-2 and *t*-1. Net equity financing is proceeds from the sale of common and preferred stock (Compustat item SSTK) minus cash payments for the repurchases of common and preferred stock (item PRSTKC) minus cash payments for dividends (item DV). Net debt financing is cash proceeds from the issuance of long-term debt (item DLTIS) minus cash payments for long-term debt reduction (item DLTR) plus the net change in current debt (item DLCCH, if available). Firms with zero NXF are excluded. Portfolios are rebalanced at the end of June of each year *t*, based on data for the fiscal year ending in calendar year *t*-1. Due to limited data coverage, NXF starts in July 1972.

O-score: *O*-score is calculated following the methodology of Hou, Xue, and Zhang (2014). Portfolios are rebalanced at the end of June of each year *t*, based on *O*-score calculated for the fiscal year ending in calendar year *t*-1.

Operating Profitability (OP): Following Ball, Gerakos, Linnainmaa, and Nikolaev (2015), operating profitability is defined as total revenue (item REVT) minus cost of goods sold (item COGS) minus selling, general, and administrative expenses (item XSGA) plus research and development expense (item XRD) divided by total assets (item AT). Portfolios are rebalanced at the end of June of each year *t*, based on data for the fiscal year ending in calendar year *t*-1.

Price: Price is calculated as the nominal price as of the last trading day of June. Portfolios are rebalanced at the end of June of each year *t*.

ROA: Following Hou, Xue, and Zhang (2014), ROA is measured as income before extraordinary items (Compustat quarterly item IBS) divided by one-quarter-lagged total assets (item ATQ). Portfolios are rebalanced each month. To exclude stale earnings information, the fiscal quarter that corresponds to the most recently announced earnings must be within 6 months of the portfolio formation month. Portfolios are rebalanced each month. Due to limited data coverage, ROA starts in July 1972.

Size: Size is measured as market equity from June of month *t*, and is calculated as price times shares outstanding. Portfolios are rebalanced at the end of June of each year *t*.

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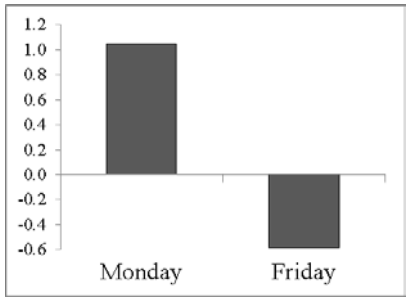
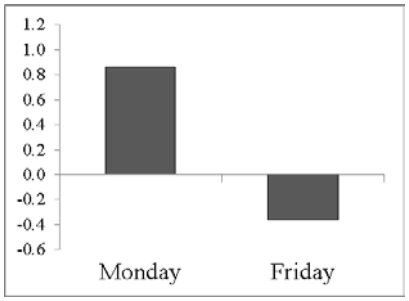
Figure 1: Monthly Long-Short Strategy Four-Factor Alpha (%) for Monday and Friday

This figure reports monthly Carhart alphas for a long minus short strategy that invests in the anomaly on only the specified days. Portfolios are value weighted and formed using NYSE breakpoints. Anomaly definitions are in Appendix A.

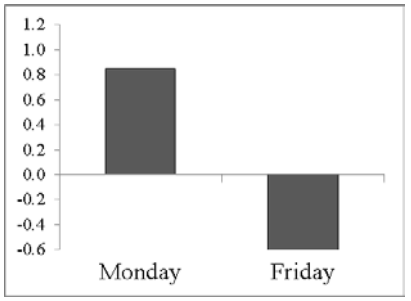
Panel A: Ivol



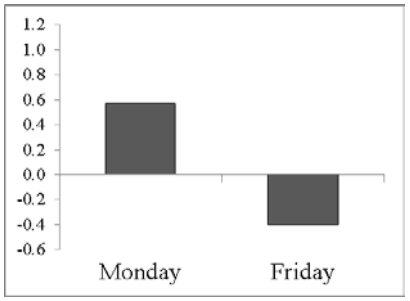
Panel B: Max



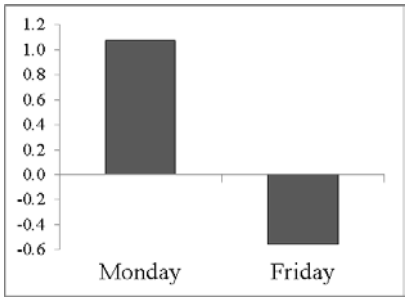
Panel C: Price



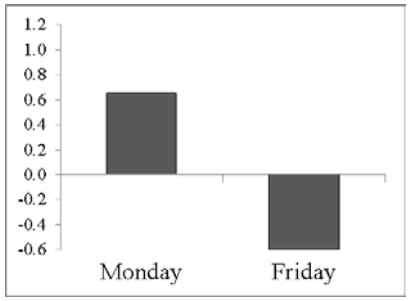
Panel D: Age



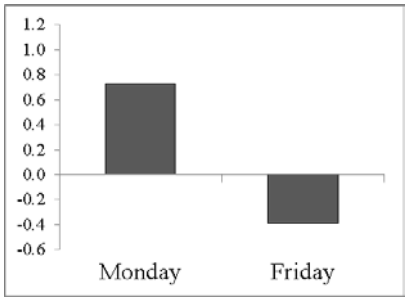
Panel E: FP



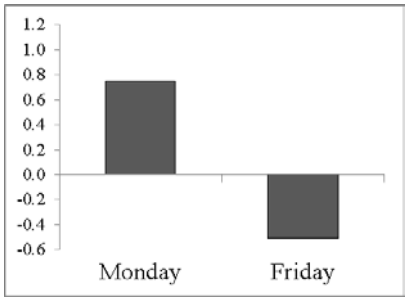
Panel F: *O*-score



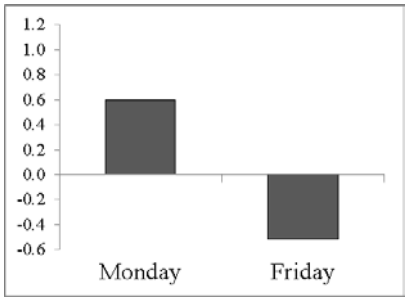
Panel G: ROA



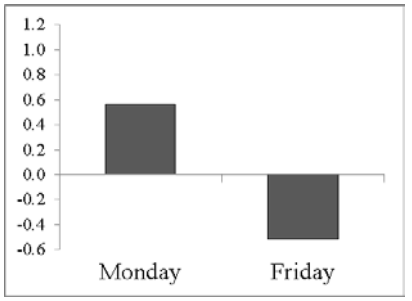
Panel H: OP



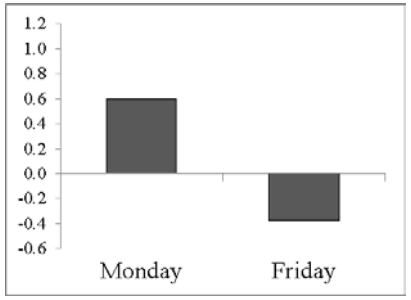
Panel I: E



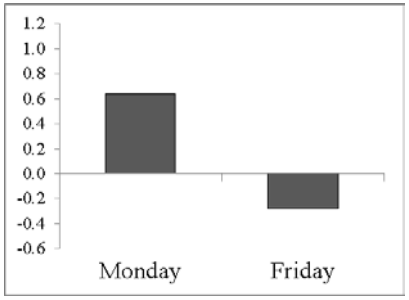
Panel J: CF



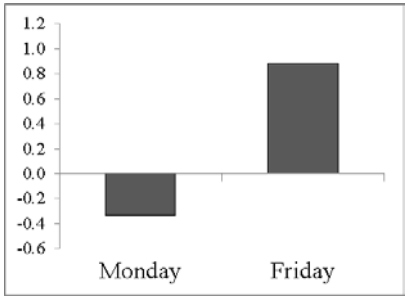
Panel K: D



Panel L: NXF



Panel M: Size



Panel N: Illiq

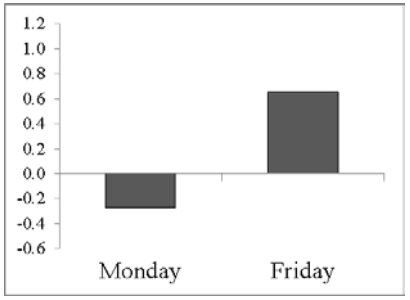
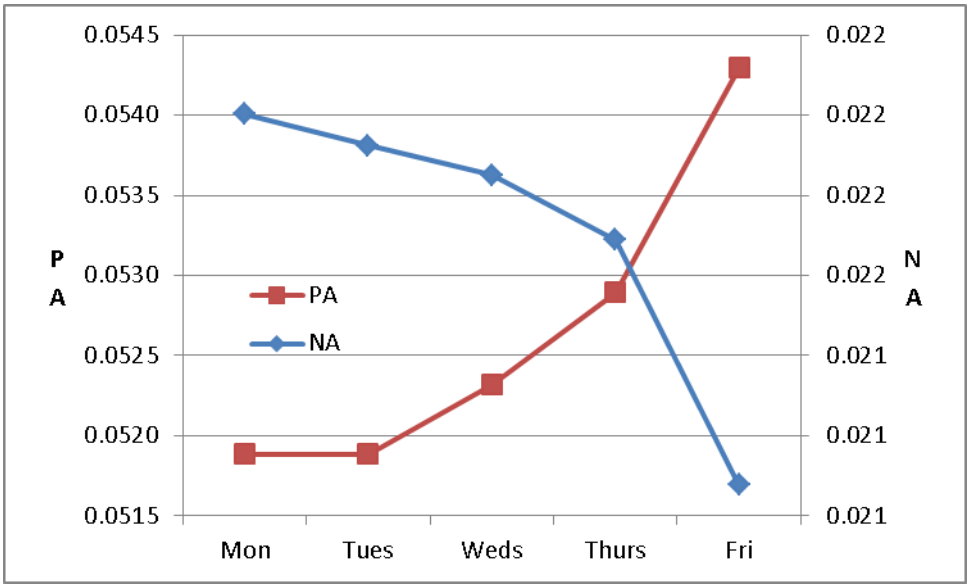


Figure 2: Level and Change of Positive and Negative Affect

Panel A plots the level of positive affect (PA) and negative affect (NA) on the specified day of the week. Panel B plots the daily change in affect relative to the previous weekday. Data are obtained from Golder and Macy (2011).

Panel A: Daily Level: PA and NA



Panel B: Daily Change: PA and NA

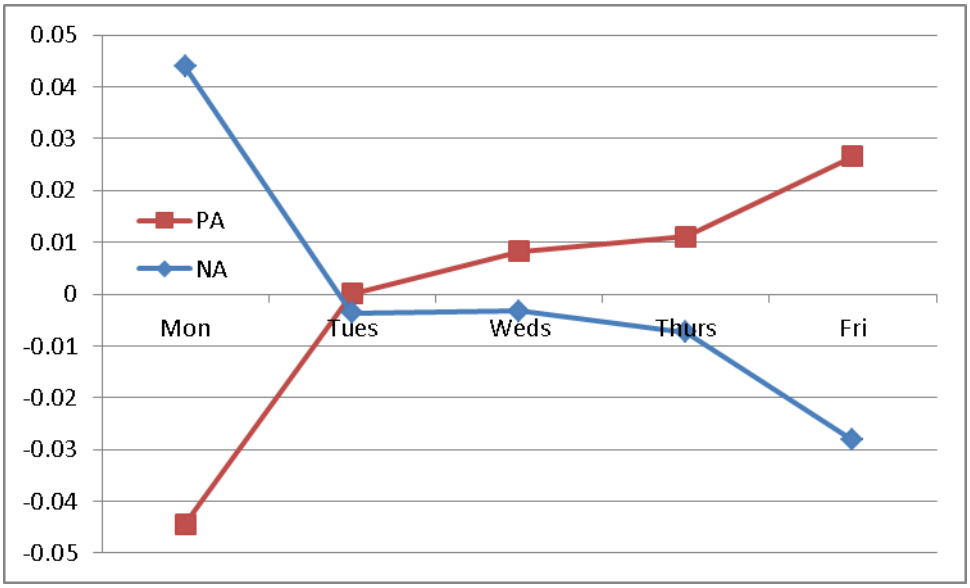
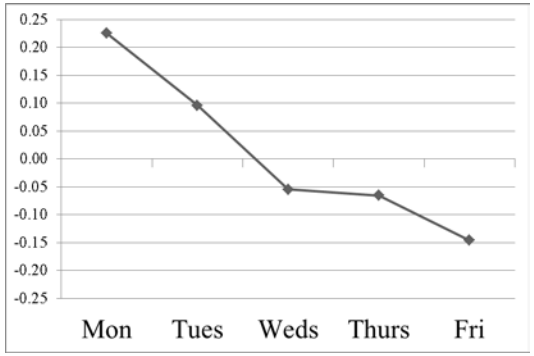


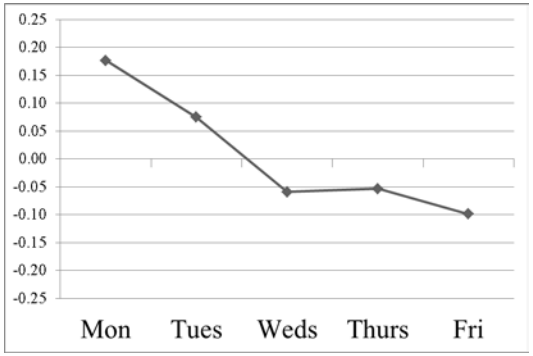
Figure 3: Daily Long-Short Strategy Excess Returns (%) for all Weekdays

This figure reports average daily excess returns for a long minus short strategy that invests in the anomaly on only the specified days. Portfolios are value weighted and formed using NYSE breakpoints. Anomaly definitions are in Appendix A.

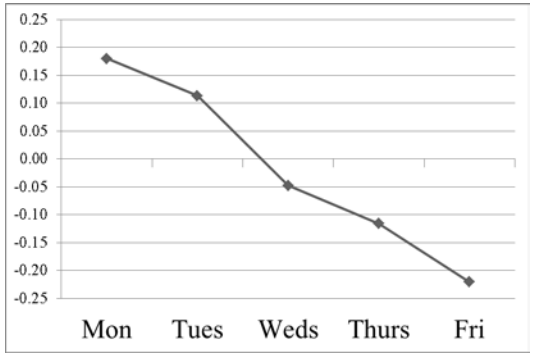
Panel A: Ivol



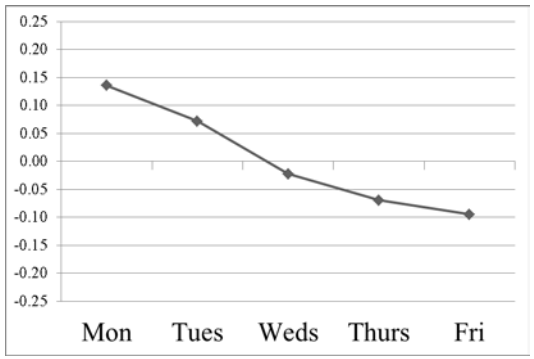
Panel B: Max



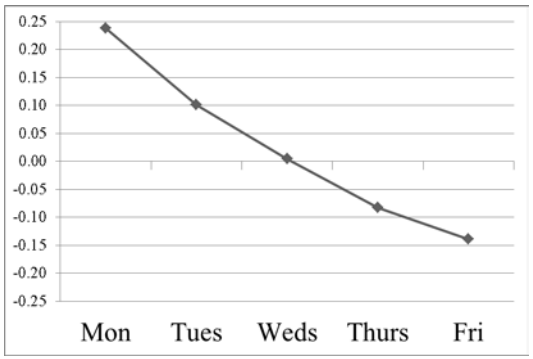
Panel C: Price



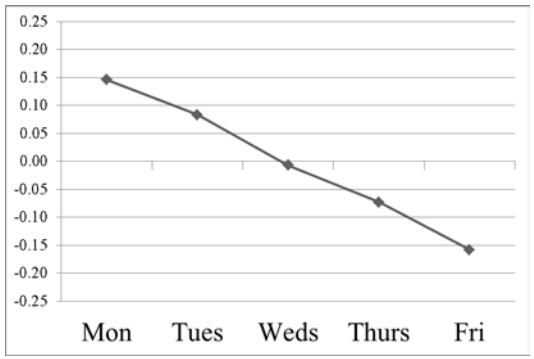
Panel D: Age



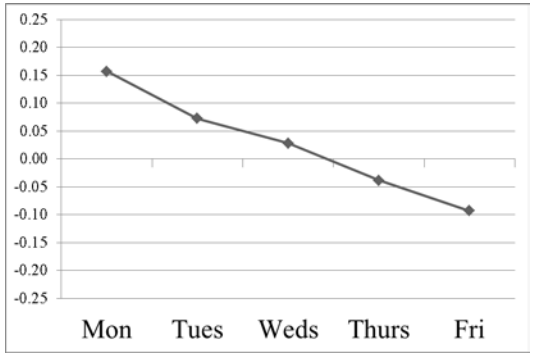
Panel E: FP



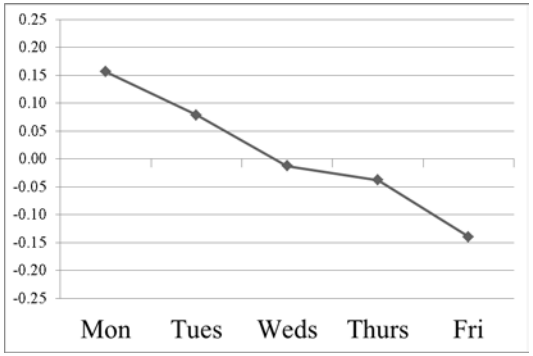
Panel F: *O*-score



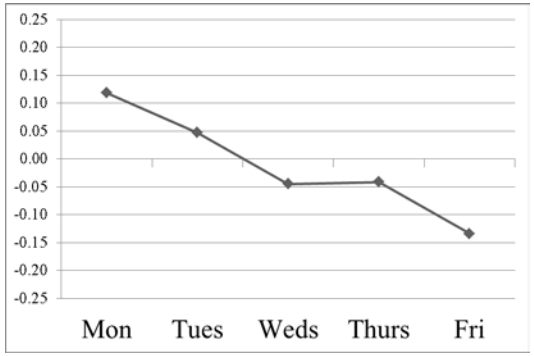
Panel G: ROA



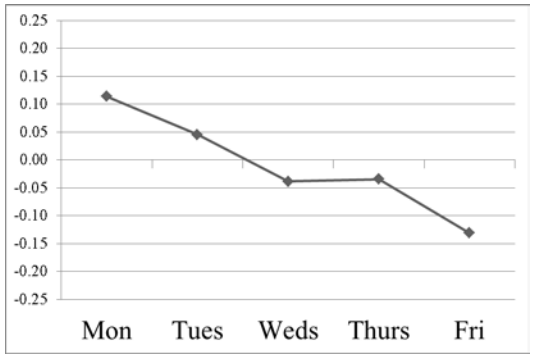
Panel H: OP



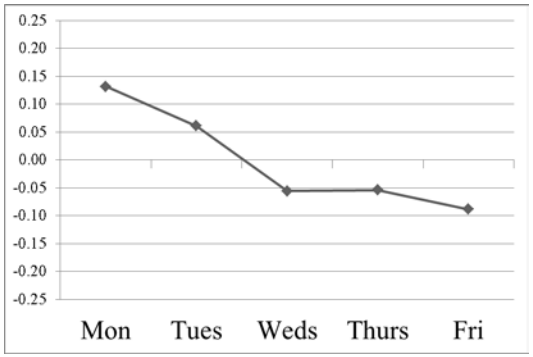
Panel I: E



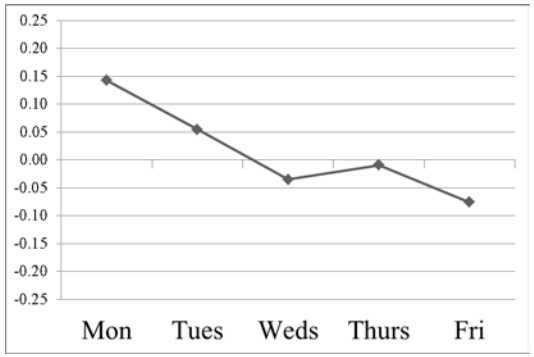
Panel J: CF



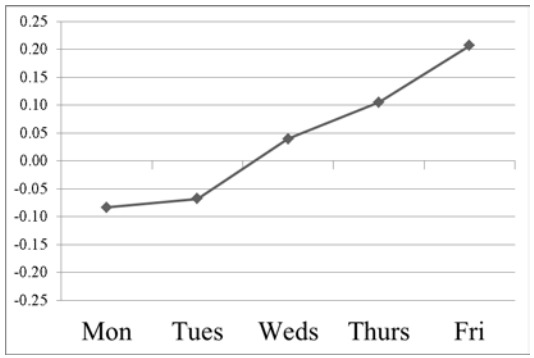
Panel K: D



Panel L: NXF



Panel M: Size



Panel N: Illiq

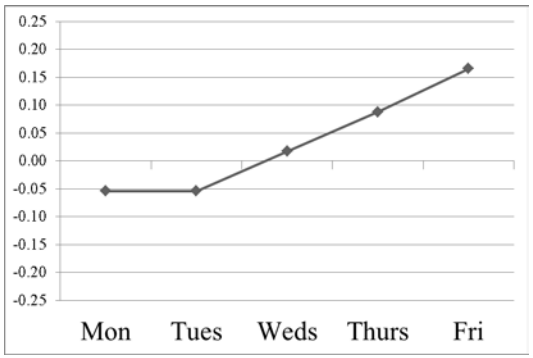
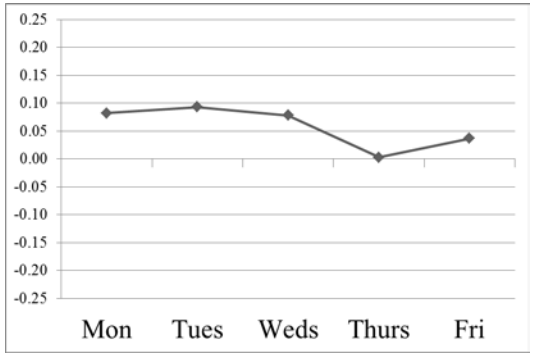


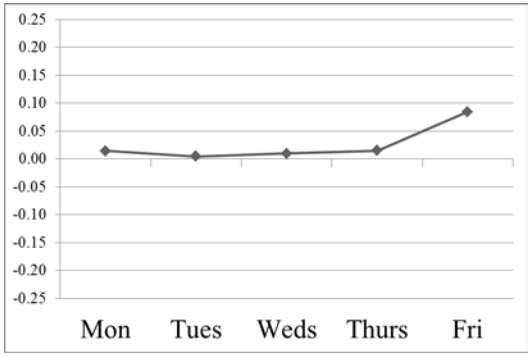
Figure 4: Non-Speculative Anomalies - Daily Long-Short Strategy Excess Returns (%)

This figure reports average daily excess returns for a long minus short strategy that invests in the anomaly on only the specified days. Portfolios are value weighted and formed using NYSE breakpoints.

Panel A: Momentum



Panel B: B/M



Panel C: Investment/Assets

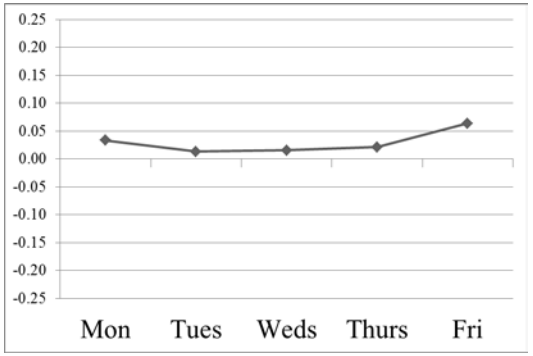


Table 1: Monday and Friday vs All Other Days

This table reports monthly portfolio returns to a long minus short strategy that invests in the anomaly on only the specified days. The sample period is from July of 1963 to December of 2013. For NXF and ROA the sample period begins in July of 1972. For FP the sample period begins in July of 1976. 3-Factor is the Fama-French alpha. 4-Factor includes the UMD momentum factor. Portfolios are value weighted and formed using NYSE breakpoints. T-statistics adjusted for heteroscedasticity and autocorrelation are reported.

Panel A: Monday vs All Other Days

	Monday				Tuesday - Friday			
Anomaly	Excess	CAPM	3-Factor	4-Factor	Excess	CAPM	3-Factor	4-Factor
Ivol	0.916	1.013	1.001	1.049	-0.582	-0.260	-0.205	-0.543
Max	0.726	0.838	0.798	0.863	-0.446	-0.129	-0.134	-0.398
Price	0.734	0.781	0.869	0.851	-0.906	-0.730	-0.355	-0.595
Age	0.542	0.590	0.562	0.574	-0.528	-0.325	-0.391	-0.566
FP	0.983	1.076	1.105	1.071	-0.496	-0.032	0.342	-0.427
O-score	0.595	0.630	0.660	0.649	-0.595	-0.422	-0.186	-0.387
ROA	0.701	0.727	0.760	0.730	-0.161	-0.003	0.168	-0.140
OP	0.651	0.688	0.755	0.746	-0.429	-0.253	0.036	-0.172
E	0.472	0.530	0.573	0.596	-0.653	-0.458	-0.274	-0.483
CF	0.462	0.524	0.553	0.564	-0.606	-0.405	-0.215	-0.419
D	0.520	0.590	0.576	0.600	-0.552	-0.363	-0.425	-0.534
NXF	0.581	0.636	0.630	0.641	-0.311	-0.129	-0.001	-0.160

Panel B: Friday vs All Other Days

	Friday				Monday - Thursday			
Anomaly	Excess	CAPM	3-Factor	4-Factor	Excess	CAPM	3-Factor	4-Factor
Size	0.882	0.886	0.862	0.885	-0.285	-0.378	-0.420	-0.361
Illiq	0.704	0.716	0.626	0.654	-0.197	-0.261	-0.581	-0.491

Table 1 (continued)

Panel C: Monday vs All Other Days (*T*-Statistics)

	Monday				Tuesday - Friday			
Anomaly	Excess	CAPM	3-Factor	4-Factor	Excess	CAPM	3-Factor	4-Factor
Ivol	(-7.61)	(-9.34)	(-9.31)	(-8.72)	(-2.39)	(-1.15)	(-1.57)	(-3.92)
Max	(6.18)	(8.24)	(7.90)	(7.76)	(-2.05)	(-0.64)	(-0.87)	(-2.75)
Price	(7.01)	(7.70)	(9.75)	(9.04)	(-4.14)	(-3.49)	(-2.82)	(-4.20)
Age	(5.57)	(5.96)	(6.67)	(6.41)	(-3.31)	(-2.27)	(-4.30)	(-4.91)
FP	(5.07)	(5.75)	(6.90)	(5.88)	(-1.65)	(-0.11)	(1.79)	(-2.31)
O-score	(6.37)	(6.91)	(7.24)	(6.85)	(-3.21)	(-2.54)	(-1.41)	(-2.90)
ROA	(6.96)	(7.31)	(8.70)	(7.27)	(-0.82)	(-0.02)	(1.06)	(-0.95)
Ball OP	(8.10)	(9.03)	(9.94)	(9.66)	(-2.10)	(-1.32)	(0.24)	(-1.06)
E	(5.63)	(6.84)	(7.26)	(7.19)	(-3.36)	(-2.54)	(-1.92)	(-3.69)
CF	(6.19)	(7.90)	(8.06)	(7.53)	(-3.05)	(-2.22)	(-1.47)	(-3.27)
D	(6.70)	(7.74)	(8.55)	(8.08)	(-3.39)	(-2.39)	(-4.77)	(-5.64)
NXF	(6.55)	(7.02)	(7.33)	(7.47)	(-1.92)	(-0.90)	(-0.01)	(-1.30)

Panel D: Friday vs All Other Days (*T*-Statistics)

	Friday				Monday - Thursday			
Anomaly	Excess	CAPM	3-Factor	4-Factor	Excess	CAPM	3-Factor	4-Factor
Size	(10.00)	(9.75)	(9.57)	(9.88)	(-1.45)	(-1.98)	(-2.15)	(-1.93)
Illiq	(9.09)	(9.11)	(9.87)	(9.91)	(-1.21)	(-1.65)	(-6.76)	(-5.83)

Table 2: Friday and Monday Portfolio Returns

This table reports monthly portfolio returns to a long minus short strategy that invests in the anomaly on only the specified days. The sample period is from July of 1963 to December of 2013. For NXF and ROA the sample period begins in July of 1972. For FP the sample period begins in July of 1976. 3-Factor is the Fama-French alpha. 4-Factor includes the UMD momentum factor. Portfolios are value weighted and formed using NYSE breakpoints. *T*-statistics adjusted for heteroscedasticity and autocorrelation are reported.

Panel A: Long Minus Short Portfolio Returns

	Monday Long Minus Short				Friday Long Minus Short				Friday Minus Monday			
Anomaly	Excess	CAPM	3-Factor	4-Factor	Excess	CAPM	3-Factor	4-Factor	Excess	CAPM	3-Factor	4-Factor
Ivol	0.916	1.013	1.001	1.049	-0.639	-0.587	-0.568	-0.581	-1.555	-1.599	-1.569	-1.630
Max	0.726	0.838	0.798	0.863	-0.425	-0.350	-0.349	-0.359	-1.151	-1.188	-1.147	-1.222
Price	0.734	0.781	0.869	0.851	-0.946	-0.931	-0.842	-0.890	-1.680	-1.712	-1.711	-1.740
Age	0.542	0.590	0.562	0.574	-0.411	-0.383	-0.389	-0.398	-0.953	-0.973	-0.951	-0.972
FP	0.983	1.076	1.105	1.071	-0.609	-0.541	-0.464	-0.555	-1.591	-1.617	-1.570	-1.627
O-score	0.595	0.630	0.660	0.649	-0.676	-0.659	-0.582	-0.595	-1.271	-1.289	-1.242	-1.244
ROA	0.701	0.727	0.760	0.730	-0.449	-0.434	-0.364	-0.390	-1.149	-1.161	-1.124	-1.120
OP	0.651	0.688	0.755	0.746	-0.590	-0.581	-0.507	-0.507	-1.240	-1.269	-1.262	-1.253
E	0.472	0.530	0.573	0.596	-0.598	-0.558	-0.514	-0.515	-1.070	-1.088	-1.087	-1.110
CF	0.462	0.524	0.553	0.564	-0.601	-0.559	-0.507	-0.515	-1.063	-1.083	-1.060	-1.079
D	0.520	0.590	0.576	0.600	-0.387	-0.350	-0.360	-0.372	-0.908	-0.940	-0.936	-0.972
NXF	0.581	0.636	0.630	0.641	-0.330	-0.312	-0.277	-0.275	-0.911	-0.948	-0.907	-0.916
Size	-0.331	-0.348	-0.359	-0.335	0.882	0.886	0.862	0.885	1.213	1.233	1.222	1.221
Illiq	-0.223	-0.226	-0.311	-0.272	0.704	0.716	0.626	0.654	0.928	0.942	0.937	0.926

Table 2 (continued)

Panel B: *T*-Statistics

	Monday Long Minus Short				Friday Long Minus Short				Friday Minus Monday			
Anomaly	Excess	CAPM	3-Factor	4-Factor	Excess	CAPM	3-Factor	4-Factor	Excess	CAPM	3-Factor	4-Factor
Ivol	(7.61)	(9.34)	(9.31)	(8.72)	(-6.08)	(-5.15)	(-5.51)	(-5.31)	(9.71)	(10.17)	(10.53)	(10.02)
Max	(6.18)	(8.24)	(7.90)	(7.76)	(-4.14)	(-3.39)	(-3.91)	(-3.90)	(-7.38)	(-8.19)	(-8.51)	(-8.47)
Price	(7.01)	(7.70)	(9.75)	(9.04)	(-9.60)	(-9.14)	(-9.26)	(-9.82)	(-11.66)	(-11.89)	(-13.43)	(-13.31)
Age	(5.57)	(5.96)	(6.67)	(6.41)	(-5.70)	(-5.22)	(-5.92)	(-6.01)	(-7.87)	(-7.90)	(-8.90)	(-8.72)
FP	(5.07)	(5.75)	(6.90)	(5.88)	(-4.64)	(-3.83)	(-3.40)	(-3.77)	(-6.83)	(-6.91)	(-7.46)	(-6.95)
O-score	(6.37)	(6.91)	(7.24)	(6.85)	(-7.97)	(-7.56)	(-7.47)	(-7.74)	(-10.04)	(-10.20)	(-10.33)	(-10.17)
ROA	(6.96)	(7.31)	(8.70)	(7.27)	(-5.97)	(-5.59)	(-5.11)	(-5.44)	(-9.13)	(-9.20)	(-9.96)	(-9.07)
OP	(8.10)	(9.03)	(9.94)	(9.66)	(-8.65)	(-7.98)	(-7.75)	(-7.01)	(-11.77)	(-12.04)	(-12.59)	(-11.85)
E	(5.63)	(6.84)	(7.26)	(7.19)	(-6.76)	(-6.34)	(-6.67)	(-6.68)	(-8.78)	(-9.28)	(-9.86)	(-9.81)
CF	(6.19)	(7.90)	(8.06)	(7.53)	(-6.62)	(-6.24)	(-6.53)	(-6.47)	(-9.01)	(-9.71)	(-10.22)	(-9.87)
D	(6.70)	(7.74)	(8.55)	(8.08)	(-5.10)	(-4.58)	(-5.81)	(-5.71)	(-8.35)	(-8.71)	(-10.22)	(-9.84)
NXF	(6.55)	(7.02)	(7.33)	(7.47)	(-3.77)	(-3.51)	(-3.59)	(-3.84)	(-7.32)	(-7.47)	(-7.85)	(-8.20)
Size	(-4.10)	(-4.22)	(-4.32)	(-3.84)	(10.00)	(9.75)	(9.57)	(9.88)	(10.12)	(10.04)	(9.95)	(9.74)
Illiq	(-2.94)	(-2.89)	(-4.18)	(-3.48)	(9.09)	(9.11)	(9.87)	(9.91)	(8.54)	(8.48)	(9.57)	(9.05)

Table 3: Short Leg

This table reports monthly portfolio returns to a strategy that invests in the short leg of the specified anomaly on only the specified days. The sample period is from July of 1963 to December of 2013. For NXF and ROA the sample period begins in July of 1972. For FP the sample period begins in July of 1976. 3-Factor is the Fama-French alpha. 4-Factor includes the UMD momentum factor. Portfolios are value weighted and formed using NYSE breakpoints. *T*-statistics adjusted for heteroscedasticity and autocorrelation are reported.

Panel A: Short Portfolio Returns

	Monday Short Leg				Friday Short Leg				Friday Minus Monday			
Anomaly	Excess	CAPM	3-Factor	4-Factor	Excess	CAPM	3-Factor	4-Factor	Excess	CAPM	3-Factor	4-Factor
Ivol	-0.982	-1.168	-1.155	-1.249	0.785	0.660	0.646	0.651	1.767	1.828	1.801	1.901
Max	-0.817	-1.005	-0.987	-1.086	0.636	0.496	0.483	0.488	1.453	1.502	1.469	1.575
Price	-0.868	-1.034	-1.088	-1.146	1.086	0.973	0.928	0.966	1.954	2.007	2.016	2.113
Age	-0.610	-0.761	-0.734	-0.799	0.543	0.427	0.444	0.454	1.153	1.188	1.177	1.253
FP	-0.876	-1.106	-1.112	-1.167	0.687	0.488	0.452	0.529	1.563	1.595	1.564	1.696
O-score	-0.712	-0.869	-0.856	-0.918	0.742	0.623	0.601	0.631	1.454	1.492	1.457	1.549
ROA	-0.740	-0.897	-0.866	-0.926	0.486	0.359	0.348	0.370	1.227	1.256	1.213	1.295
OP	-0.790	-0.954	-0.968	-1.030	0.639	0.524	0.513	0.533	1.429	1.478	1.481	1.563
E	-0.696	-0.873	-0.905	-0.988	0.787	0.648	0.629	0.640	1.483	1.521	1.534	1.628
CF	-0.691	-0.871	-0.889	-0.961	0.794	0.653	0.626	0.644	1.485	1.524	1.515	1.605
D	-0.714	-0.894	-0.884	-0.964	0.583	0.451	0.474	0.491	1.297	1.346	1.358	1.454
NXF	-0.601	-0.773	-0.730	-0.800	0.379	0.243	0.252	0.271	0.979	1.015	0.982	1.071
Size	-0.155	-0.271	-0.266	-0.324	0.108	0.008	0.028	0.030	0.263	0.279	0.294	0.354
Illiq	-0.153	-0.273	-0.252	-0.322	0.115	0.015	0.051	0.041	0.267	0.288	0.303	0.363

Table 3 (continued)

Panel B: *T*-Statistics

	Monday Short Leg				Friday Short Leg				Friday Minus Monday			
Anomaly	Excess	CAPM	3-Factor	4-Factor	Excess	CAPM	3-Factor	4-Factor	Excess	CAPM	3-Factor	4-Factor
Ivol	(-7.61)	(-9.34)	(-9.31)	(-8.72)	(6.08)	(5.15)	(5.51)	(5.31)	(9.72)	(9.99)	(10.17)	(9.31)
Max	(-5.05)	(-7.62)	(-7.15)	(-7.22)	(5.49)	(4.38)	(4.50)	(4.16)	(8.08)	(8.14)	(8.22)	(7.89)
Price	(-6.02)	(-8.74)	(-9.90)	(-9.47)	(10.62)	(9.47)	(9.36)	(9.30)	(12.20)	(12.59)	(12.79)	(11.83)
Age	(-4.91)	(-7.73)	(-7.06)	(-7.02)	(6.69)	(5.29)	(5.51)	(4.99)	(8.62)	(8.67)	(8.71)	(8.15)
FP	(-3.48)	(-5.20)	(-5.83)	(-5.39)	(4.21)	(2.92)	(2.70)	(2.90)	(5.74)	(5.40)	(5.70)	(5.46)
O-score	(-5.17)	(-7.74)	(-7.16)	(-7.15)	(8.18)	(7.01)	(6.55)	(6.15)	(9.54)	(9.56)	(9.36)	(8.86)
ROA	(-4.79)	(-6.80)	(-6.44)	(-6.01)	(4.67)	(3.55)	(3.40)	(3.25)	(6.98)	(6.71)	(6.64)	(6.18)
OP	(-5.75)	(-9.03)	(-8.56)	(-8.27)	(7.28)	(5.81)	(5.62)	(5.01)	(9.30)	(9.40)	(9.70)	(8.84)
E	(-4.38)	(-6.60)	(-6.22)	(-6.41)	(6.27)	(5.29)	(5.27)	(5.04)	(7.90)	(7.90)	(7.90)	(7.68)
CF	(-4.55)	(-7.10)	(-6.48)	(-6.53)	(6.25)	(5.34)	(5.28)	(5.07)	(8.38)	(8.37)	(8.27)	(7.99)
D	(-5.08)	(-7.73)	(-7.09)	(-7.17)	(5.23)	(4.20)	(4.71)	(4.43)	(8.18)	(8.22)	(8.30)	(7.95)
NXF	(-4.18)	(-5.96)	(-5.22)	(-5.33)	(3.63)	(2.38)	(2.37)	(2.29)	(5.68)	(5.60)	(5.31)	(5.14)
Size	(-1.44)	(-2.83)	(-2.71)	(-2.94)	(1.35)	(0.11)	(0.36)	(0.37)	(2.12)	(2.13)	(2.24)	(2.42)
Illiq	(-1.41)	(-2.80)	(-2.43)	(-2.83)	(1.52)	(0.21)	(0.70)	(0.53)	(2.18)	(2.23)	(2.31)	(2.50)

Table 4: Long Leg

This table reports monthly portfolio returns to a strategy that invests in the long leg of the specified anomaly on only the specified days. The sample period is from July of 1963 to December of 2013. For NXF and ROA the sample period begins in July of 1972. For FP the sample period begins in July of 1976. 3-Factor is the Fama-French alpha. 4-Factor includes the UMD momentum factor. Portfolios are value weighted and formed using NYSE breakpoints. *T*-statistics adjusted for heteroscedasticity and autocorrelation are reported.

Panel A: Portfolio Returns

	Monday Long Leg				Friday Long Leg				Friday Minus Monday			
Anomaly	Excess	CAPM	3-Factor	4-Factor	Excess	CAPM	3-Factor	4-Factor	Excess	CAPM	3-Factor	4-Factor
Ivol	-0.065	-0.156	-0.154	-0.200	0.147	0.073	0.078	0.070	0.212	0.229	0.232	0.271
Max	-0.091	-0.167	-0.188	-0.223	0.211	0.146	0.134	0.129	0.302	0.313	0.322	0.353
Price	-0.134	-0.253	-0.219	-0.296	0.141	0.042	0.087	0.077	0.274	0.295	0.305	0.372
Age	-0.068	-0.171	-0.172	-0.225	0.132	0.044	0.054	0.057	0.200	0.215	0.226	0.282
FP	0.106	-0.031	-0.007	-0.095	0.078	-0.053	-0.013	-0.026	-0.028	-0.022	-0.005	0.069
O-score	-0.117	-0.239	-0.197	-0.268	0.067	-0.036	0.019	0.036	0.184	0.203	0.215	0.304
ROA	-0.039	-0.170	-0.106	-0.196	0.038	-0.074	-0.016	-0.020	0.077	0.095	0.090	0.175
OP	-0.139	-0.266	-0.213	-0.284	0.050	-0.057	0.006	0.026	0.189	0.209	0.219	0.310
E	-0.225	-0.343	-0.332	-0.393	0.189	0.090	0.115	0.125	0.414	0.433	0.447	0.518
CF	-0.229	-0.347	-0.337	-0.397	0.193	0.094	0.119	0.129	0.422	0.441	0.455	0.526
D	-0.194	-0.304	-0.308	-0.364	0.196	0.102	0.114	0.119	0.389	0.406	0.422	0.483
NXF	-0.020	-0.137	-0.100	-0.159	0.048	-0.070	-0.025	-0.004	0.068	0.067	0.075	0.155
Size	-0.486	-0.619	-0.624	-0.659	0.990	0.894	0.890	0.915	1.476	1.513	1.514	1.574
Illiq	-0.376	-0.500	-0.564	-0.594	0.819	0.731	0.676	0.695	1.195	1.231	1.240	1.289

Table 4 (continued)

Panel B: T-Statistics

	Monday Long Leg				Friday Long Leg				Friday Minus Monday			
Anomaly	Excess	CAPM	3-Factor	4-Factor	Excess	CAPM	3-Factor	4-Factor	Excess	CAPM	3-Factor	4-Factor
Ivol	(-0.67)	(-1.75)	(-1.70)	(-2.11)	(2.52)	(1.38)	(1.40)	(1.19)	(2.06)	(2.15)	(2.11)	(2.29)
Max	(-1.06)	(-2.05)	(-2.25)	(-2.55)	(4.06)	(2.90)	(2.49)	(2.26)	(3.18)	(3.10)	(3.07)	(3.11)
Price	(-1.28)	(-2.77)	(-2.21)	(-2.74)	(1.89)	(0.60)	(1.21)	(0.98)	(2.34)	(2.37)	(2.41)	(2.63)
Age	(-0.64)	(-1.63)	(-1.58)	(-1.90)	(1.89)	(0.69)	(0.80)	(0.79)	(1.61)	(1.62)	(1.68)	(1.91)
FP	(0.97)	(-0.25)	(-0.05)	(-0.63)	(0.90)	(-0.65)	(-0.15)	(-0.31)	(-0.21)	(-0.14)	(-0.03)	(0.38)
O-score	(-1.09)	(-2.53)	(-1.91)	(-2.40)	(0.75)	(-0.44)	(0.24)	(0.43)	(1.44)	(1.50)	(1.58)	(2.04)
ROA	(-0.31)	(-1.41)	(-0.81)	(-1.38)	(0.39)	(-0.86)	(-0.18)	(-0.22)	(0.55)	(0.63)	(0.57)	(1.03)
OP	(-1.28)	(-2.68)	(-1.96)	(-2.42)	(0.53)	(-0.65)	(0.07)	(0.30)	(1.46)	(1.52)	(1.57)	(2.05)
E	(-2.20)	(-3.70)	(-3.33)	(-3.63)	(2.61)	(1.35)	(1.68)	(1.67)	(3.53)	(3.45)	(3.56)	(3.67)
CF	(-2.23)	(-3.76)	(-3.38)	(-3.67)	(2.67)	(1.41)	(1.73)	(1.71)	(3.59)	(3.52)	(3.62)	(3.72)
D	(-1.82)	(-3.06)	(-3.10)	(-3.32)	(2.79)	(1.57)	(1.62)	(1.56)	(3.17)	(3.11)	(3.29)	(3.31)
NXF	(-0.17)	(-1.22)	(-0.82)	(-1.24)	(0.45)	(-0.72)	(-0.27)	(-0.05)	(0.47)	(0.43)	(0.48)	(0.93)
Size	(-4.40)	(-6.94)	(-6.89)	(-7.23)	(13.53)	(12.09)	(11.68)	(11.61)	(13.91)	(14.20)	(14.26)	(13.28)
Illiq	(-3.80)	(-6.59)	(-8.04)	(-8.07)	(11.87)	(10.44)	(10.48)	(10.14)	(11.83)	(12.07)	(12.43)	(11.47)

Table 5: Long Minus Short Portfolio Returns: Daily Factor Components

This table reports monthly portfolio returns to a long minus short strategy that invests in the anomaly on only the specified days. Alphas are calculated using factors that are decomposed into daily components. The sample period is from July of 1963 to December of 2013. For NXF and ROA the sample period begins in July of 1972. For FP the sample period begins in July of 1976. 3-Factor is the Fama-French alpha. 4-Factor includes the UMD momentum factor. Portfolios are value weighted and formed using NYSE breakpoints. *T*-statistics adjusted for heteroscedasticity and autocorrelation are reported.

Panel A: Portfolio Returns

	Monday Long Minus Short				Friday Long Minus Short				Friday Minus Monday			
Anomaly	Excess	CAPM	3-Factor	4-Factor	Excess	CAPM	3-Factor	4-Factor	Excess	CAPM	3-Factor	4-Factor
Ivol	0.916	0.753	0.389	0.341	-0.639	-0.518	-0.180	-0.211	-1.555	-1.271	-0.569	-0.553
Max	0.726	0.523	0.217	0.171	-0.425	-0.265	-0.025	-0.053	-1.151	-0.788	-0.242	-0.224
Price	0.734	0.734	0.416	0.388	-0.946	-0.966	-0.476	-0.490	-1.680	-1.700	-0.892	-0.878
Age	0.542	0.518	0.228	0.209	-0.411	-0.371	-0.121	-0.134	-0.953	-0.889	-0.349	-0.343
FP	0.983	0.916	0.726	0.462	-0.609	-0.513	-0.110	-0.221	-1.591	-1.430	-0.836	-0.683
O-score	0.595	0.585	0.350	0.323	-0.676	-0.668	-0.328	-0.342	-1.271	-1.252	-0.678	-0.665
ROA	0.701	0.679	0.415	0.355	-0.449	-0.424	-0.118	-0.153	-1.149	-1.104	-0.533	-0.509
OP	0.651	0.629	0.452	0.421	-0.590	-0.580	-0.255	-0.271	-1.240	-1.209	-0.707	-0.692
E	0.472	0.389	0.189	0.176	-0.598	-0.531	-0.255	-0.259	-1.070	-0.920	-0.444	-0.435
CF	0.462	0.386	0.180	0.169	-0.601	-0.535	-0.242	-0.247	-1.063	-0.921	-0.422	-0.416
D	0.520	0.448	0.164	0.171	-0.387	-0.320	-0.142	-0.148	-0.908	-0.769	-0.306	-0.318
NXF	0.581	0.544	0.361	0.339	-0.330	-0.296	-0.065	-0.071	-0.911	-0.839	-0.426	-0.410
Size	-0.331	-0.414	-0.429	-0.434	0.882	0.969	0.931	0.928	1.213	1.383	1.360	1.362
Illiq	-0.223	-0.315	-0.061	-0.040	0.704	0.789	0.380	0.389	0.928	1.104	0.441	0.428

Table 5 (continued)

Panel B: T-Statistics

	Monday Long Minus Short				Friday Long Minus Short				Friday Minus Monday			
Anomaly	Excess	CAPM	3-Factor	4-Factor	Excess	CAPM	3-Factor	4-Factor	Excess	CAPM	3-Factor	4-Factor
Ivol	(7.61)	(6.75)	(4.71)	(4.21)	(-6.08)	(-5.12)	(-2.22)	(-2.54)	(9.71)	(-8.43)	(-4.92)	(-4.77)
Max	(6.18)	(5.23)	(2.31)	(1.85)	(-4.14)	(-2.76)	(-0.32)	(-0.69)	(-7.38)	(-5.69)	(-1.98)	(-1.87)
Price	(7.01)	(6.53)	(7.03)	(6.62)	(-9.60)	(-9.08)	(-7.74)	(-7.76)	(-11.66)	(-10.97)	(-10.44)	(-10.18)
Age	(5.57)	(5.43)	(4.36)	(4.49)	(-5.70)	(-5.39)	(-2.27)	(-2.48)	(-7.87)	(-7.55)	(-4.68)	(-4.81)
FP	(5.07)	(6.13)	(4.79)	(4.93)	(-4.64)	(-4.18)	(-1.03)	(-2.52)	(-6.83)	(-7.43)	(-4.52)	(-5.31)
O-score	(6.37)	(6.00)	(5.25)	(4.53)	(-7.97)	(-7.89)	(-5.98)	(-6.22)	(-10.04)	(-9.67)	(-7.85)	(-7.38)
ROA	(6.96)	(6.84)	(5.32)	(4.49)	(-5.97)	(-5.69)	(-1.93)	(-2.36)	(-9.13)	(-8.87)	(-5.40)	(-5.00)
OP	(8.10)	(7.73)	(7.20)	(6.94)	(-8.65)	(-8.50)	(-4.67)	(-5.01)	(-11.77)	(-11.38)	(-8.50)	(-8.53)
E	(5.63)	(5.31)	(2.85)	(2.65)	(-6.76)	(-6.68)	(-4.18)	(-4.42)	(-8.78)	(-8.52)	(-4.92)	(-4.91)
CF	(6.19)	(5.80)	(3.09)	(2.93)	(-6.62)	(-6.57)	(-3.91)	(-4.08)	(-9.01)	(-8.75)	(-4.96)	(-4.98)
D	(6.70)	(6.28)	(4.51)	(4.39)	(-5.10)	(-4.48)	(-2.76)	(-3.01)	(-8.35)	(-7.60)	(-4.86)	(-5.09)
NXF	(6.55)	(6.35)	(5.23)	(4.77)	(-3.77)	(-3.42)	(-0.94)	(-1.06)	(-7.32)	(-6.90)	(-4.37)	(-4.20)
Size	(-4.10)	(-4.77)	(-5.07)	(-5.27)	(10.00)	(11.12)	(10.91)	(11.50)	(10.12)	(11.23)	(11.30)	(11.78)
Illiq	(-2.94)	(-4.01)	(-1.83)	(-1.31)	(9.09)	(10.76)	(9.95)	(10.42)	(8.54)	(10.25)	(8.71)	(8.91)

Table 6: Subsample Analysis (Four-Factor Alpha)

This table reports monthly portfolio four-factor alphas to a long minus short strategy that invests in the anomaly on only the specified days. Portfolio returns are displayed separately for July of 1963 to December of 1974, January of 1975 to December of 1994, and January of 1995 to December of 2013. Because data for NXF and ROA begins in July of 1972, the 1963-1974 time period is excluded for these two anomalies. For FP the sample period begins in July of 1976. 4-Factor alpha is from the Fama-French model with the UMD momentum factor. Portfolios are value weighted and formed using NYSE breakpoints. *T*-statistics adjusted for heteroscedasticity and autocorrelation are reported.

Panel A: Portfolio Four-Factor Alpha

	1963-1974			1975-1994			1995-2013		
Anomaly	Monday	Friday	Fri - Mon	Monday	Friday	Fri - Mon	Monday	Friday	Fri - Mon
Ivol	0.912	-0.439	-1.350	1.407	-0.708	-2.115	0.832	-0.453	-1.285
Max	0.905	-0.340	-1.245	1.117	-0.484	-1.601	0.629	-0.144	-0.773
Price	0.464	-0.903	-1.368	1.326	-1.174	-2.501	0.693	-0.560	-1.252
Age	0.170	-0.161	-0.331	0.772	-0.483	-1.255	0.683	-0.442	-1.125
FP	-	-	-	0.964	-0.746	-1.710	1.229	-0.342	-1.571
O-score	0.106	-0.229	-0.335	1.193	-0.867	-2.061	0.538	-0.548	-1.085
ROA	-	-	-	0.852	-0.370	-1.222	0.792	-0.359	-1.151
OP	0.531	-0.440	-0.971	1.043	-0.623	-1.666	0.678	-0.425	-1.103
E	0.735	-0.769	-1.504	0.716	-0.538	-1.254	0.495	-0.306	-0.801
CF	0.667	-0.751	-1.417	0.707	-0.581	-1.288	0.473	-0.270	-0.744
D	0.709	-0.409	-1.117	0.702	-0.520	-1.222	0.468	-0.180	-0.648
NXF	-	-	-	0.709	-0.221	-0.930	0.651	-0.322	-0.974
Size	-0.119	0.701	0.820	-0.676	0.932	1.608	-0.363	0.797	1.160
Illiq	0.205	0.608	0.403	-0.537	0.743	1.280	-0.340	0.600	0.940

Panel B: T-Statistics

	1963-1974			1975-1994			1995-2013		
Anomaly	Monday	Friday	Fri - Mon	Monday	Friday	Fri - Mon	Monday	Friday	Fri - Mon
Ivol	(7.17)	(-3.98)	(-8.09)	(9.35)	(-7.99)	(-12.34)	(4.05)	(-1.81)	(-3.96)
Max	(5.60)	(-3.10)	(-6.37)	(8.35)	(-6.05)	(-10.44)	(3.19)	(-0.67)	(-2.65)
Price	(4.64)	(-8.64)	(-9.56)	(11.20)	(-9.27)	(-14.43)	(4.36)	(-3.38)	(-5.47)
Age	(2.88)	(-1.81)	(-3.07)	(8.78)	(-4.90)	(-9.40)	(3.63)	(-3.29)	(-4.87)
FP	-	-	-	(8.44)	(-6.10)	(-10.22)	(3.98)	(-1.31)	(-3.88)
O-score	(0.86)	(-1.59)	(-1.82)	(11.60)	(-7.49)	(-13.30)	(4.17)	(-4.59)	(-6.19)
ROA	-	-	-	(11.37)	(-4.03)	(-10.30)	(5.44)	(-3.80)	(-6.62)
OP	(5.99)	(-3.09)	(-5.83)	(11.87)	(-6.23)	(-12.54)	(5.08)	(-3.38)	(-6.02)
E	(4.22)	(-5.58)	(-6.82)	(5.48)	(-4.21)	(-6.97)	(4.45)	(-3.04)	(-5.34)
CF	(5.02)	(-4.89)	(-7.02)	(6.42)	(-4.45)	(-7.69)	(4.12)	(-2.60)	(-4.80)
D	(6.93)	(-4.52)	(-8.18)	(8.43)	(-5.61)	(-9.95)	(3.06)	(-1.60)	(-3.41)
NXF	-	-	-	(8.39)	(-2.07)	(-6.88)	(3.99)	(-2.93)	(-4.94)
Size	(-1.34)	(7.02)	(6.15)	(-4.91)	(7.92)	(8.89)	(-3.19)	(5.45)	(6.28)
Illiq	(2.12)	(5.29)	(2.67)	(-3.54)	(6.20)	(6.64)	(-3.97)	(5.83)	(7.04)

Table 7: Excluding Macro Announcement Dates

This table reports monthly portfolio returns to a long minus short strategy that invests in the anomaly on only the specified days. Returns are excluded for macroeconomic announcement dates (CPI, PPI, employment, and FMOC announcements). The sample period is from July of 1963 to December of 2013. For NXF and ROA the sample period begins in July of 1972. For FP the sample period begins in July of 1976. 3-Factor is the Fama-French alpha. 4-Factor includes the UMD momentum factor. Portfolios are value weighted and formed using NYSE breakpoints. T-statistics adjusted for heteroscedasticity and autocorrelation are reported.

Panel A: Portfolio Returns

	Monday Long Minus Short				Friday Long Minus Short				Friday Minus Monday			
Anomaly	Excess	CAPM	3-Factor	4-Factor	Excess	CAPM	3-Factor	4-Factor	Excess	CAPM	3-Factor	4-Factor
Ivol	0.889	0.982	0.972	1.024	-0.415	-0.387	-0.378	-0.396	-1.304	-1.370	-1.350	-1.420
Max	0.706	0.816	0.777	0.849	-0.274	-0.237	-0.232	-0.251	-0.979	-1.053	-1.009	-1.100
Price	0.712	0.758	0.846	0.831	-0.703	-0.697	-0.645	-0.668	-1.415	-1.455	-1.492	-1.498
Age	0.538	0.585	0.557	0.570	-0.306	-0.293	-0.308	-0.318	-0.844	-0.878	-0.865	-0.888
FP	0.977	1.070	1.100	1.069	-0.461	-0.430	-0.362	-0.413	-1.438	-1.500	-1.462	-1.483
O-score	0.590	0.625	0.654	0.645	-0.492	-0.490	-0.447	-0.456	-1.083	-1.115	-1.101	-1.101
ROA	0.696	0.722	0.755	0.729	-0.360	-0.354	-0.308	-0.334	-1.056	-1.076	-1.063	-1.064
OP	0.635	0.673	0.739	0.732	-0.467	-0.467	-0.426	-0.419	-1.102	-1.139	-1.165	-1.150
E	0.454	0.510	0.552	0.577	-0.453	-0.434	-0.406	-0.408	-0.906	-0.943	-0.958	-0.985
CF	0.445	0.505	0.536	0.550	-0.474	-0.453	-0.419	-0.430	-0.919	-0.958	-0.955	-0.980
D	0.508	0.576	0.562	0.588	-0.270	-0.249	-0.260	-0.270	-0.777	-0.825	-0.822	-0.857
NXF	0.576	0.631	0.626	0.637	-0.275	-0.269	-0.253	-0.245	-0.851	-0.900	-0.878	-0.882
Size	-0.327	-0.343	-0.354	-0.329	0.651	0.651	0.649	0.657	0.978	0.995	1.004	0.986
Illiq	-0.222	-0.226	-0.311	-0.270	0.544	0.550	0.512	0.524	0.767	0.776	0.823	0.794

Table 7 (continued)

Panel B: T-Statistics

	Monday Long Minus Short				Friday Long Minus Short				Friday Minus Monday			
Anomaly	Excess	CAPM	3-Factor	4-Factor	Excess	CAPM	3-Factor	4-Factor	Excess	CAPM	3-Factor	4-Factor
Ivol	(7.48)	(9.00)	(8.96)	(8.52)	(-5.65)	(-4.91)	(-5.02)	(-5.07)	(9.32)	(10.17)	(10.21)	(9.90)
Max	(6.00)	(7.93)	(7.69)	(7.61)	(-3.84)	(-3.18)	(-3.26)	(-3.30)	(7.12)	(8.29)	(8.16)	(8.14)
Price	(6.64)	(7.28)	(9.20)	(8.58)	(-9.54)	(-9.21)	(-9.08)	(-9.16)	(10.85)	(11.29)	(12.83)	(12.36)
Age	(5.54)	(5.92)	(6.62)	(6.38)	(-6.37)	(-5.70)	(-6.48)	(-6.35)	(7.79)	(7.88)	(8.95)	(8.67)
FP	(5.01)	(5.69)	(6.82)	(5.84)	(-5.41)	(-4.62)	(-3.65)	(-3.87)	(6.79)	(7.16)	(7.72)	(6.99)
O-score	(6.32)	(6.86)	(7.17)	(6.79)	(-7.33)	(-6.90)	(-6.81)	(-6.89)	(9.39)	(9.63)	(9.78)	(9.49)
ROA	(6.80)	(7.14)	(8.48)	(7.20)	(-5.98)	(-5.71)	(-5.13)	(-5.47)	(8.89)	(9.07)	(9.90)	(8.98)
OP	(7.81)	(8.73)	(9.65)	(9.39)	(-8.29)	(-7.64)	(-7.29)	(-6.83)	(11.14)	(11.59)	(12.09)	(11.61)
E	(5.41)	(6.56)	(7.10)	(7.06)	(-5.89)	(-5.63)	(-5.80)	(-5.96)	(7.97)	(8.63)	(9.16)	(9.24)
CF	(5.80)	(7.40)	(7.77)	(7.36)	(-5.85)	(-5.59)	(-5.71)	(-5.82)	(8.25)	(9.05)	(9.50)	(9.34)
D	(6.59)	(7.58)	(8.47)	(8.01)	(-5.08)	(-4.64)	(-5.55)	(-5.51)	(8.30)	(8.87)	(10.12)	(9.72)
NXF	(6.49)	(6.94)	(7.26)	(7.45)	(-4.06)	(-3.83)	(-4.12)	(-4.21)	(7.63)	(7.84)	(8.31)	(8.53)
Size	(-4.02)	(-4.15)	(-4.26)	(-3.77)	(11.31)	(10.98)	(11.01)	(11.78)	(-9.80)	(-9.76)	(-9.83)	(-9.51)
Illiq	(-2.91)	(-2.87)	(-4.15)	(-3.42)	(10.07)	(9.85)	(10.67)	(10.60)	(-8.18)	(-8.03)	(-9.24)	(-8.53)

Table 8: Excluding Firm-Specific News Announcements

This table reports monthly portfolio returns to a long minus short strategy that invests in the anomaly on only the specified days. Returns are excluded for the five day window (*t*-2, *t*+2) around earnings announcements dates, dividend announcement dates, stock split announcement dates, dividend ex-dates, and stock split ex-dates. The sample period is from January of 1972 to December of 2013. For NXF and ROA the sample period begins in July of 1972. For FP the sample period begins in July of 1976. 3-Factor is the Fama-French alpha. 4-Factor includes the UMD momentum factor. Portfolios are value weighted and formed using NYSE breakpoints. *T*-statistics adjusted for heteroscedasticity and autocorrelation are reported.

Panel A: Portfolio Returns

	Monday Long Minus Short				Friday Long Minus Short				Friday Minus Monday			
Anomaly	Excess	CAPM	3-Factor	4-Factor	Excess	CAPM	3-Factor	4-Factor	Excess	CAPM	3-Factor	4-Factor
Ivol	0.809	0.910	0.887	0.912	-0.585	-0.534	-0.523	-0.540	-1.393	-1.444	-1.409	-1.451
Max	0.563	0.672	0.634	0.650	-0.362	-0.288	-0.288	-0.287	-0.926	-0.960	-0.923	-0.937
Price	0.762	0.834	0.901	0.883	-0.962	-0.936	-0.858	-0.895	-1.724	-1.770	-1.759	-1.779
Age	0.548	0.599	0.557	0.565	-0.351	-0.320	-0.330	-0.333	-0.899	-0.919	-0.887	-0.898
FP	0.795	0.907	0.959	0.890	-0.612	-0.557	-0.510	-0.578	-1.406	-1.464	-1.469	-1.468
O-score	0.618	0.664	0.688	0.694	-0.732	-0.710	-0.644	-0.658	-1.349	-1.374	-1.332	-1.352
ROA	0.605	0.633	0.666	0.639	-0.380	-0.366	-0.309	-0.319	-0.986	-0.999	-0.975	-0.958
OP	0.614	0.662	0.713	0.716	-0.569	-0.562	-0.495	-0.498	-1.182	-1.224	-1.209	-1.214
E	0.357	0.413	0.440	0.462	-0.491	-0.449	-0.393	-0.398	-0.848	-0.862	-0.833	-0.860
CF	0.357	0.419	0.441	0.455	-0.512	-0.468	-0.415	-0.428	-0.869	-0.887	-0.856	-0.883
D	0.436	0.517	0.487	0.507	-0.315	-0.269	-0.274	-0.279	-0.751	-0.786	-0.761	-0.786
NXF	0.461	0.517	0.510	0.520	-0.314	-0.295	-0.267	-0.264	-0.775	-0.812	-0.777	-0.784
Size	-0.388	-0.420	-0.430	-0.416	0.847	0.844	0.818	0.838	1.235	1.264	1.248	1.254
Illiq	-0.342	-0.361	-0.424	-0.404	0.662	0.667	0.595	0.614	1.004	1.028	1.020	1.018

Table 8 (continued)

Panel B: *T*-Statistics

	Monday Long Minus Short				Friday Long Minus Short				Friday Minus Monday			
Anomaly	Excess	CAPM	3-Factor	4-Factor	Excess	CAPM	3-Factor	4-Factor	Excess	CAPM	3-Factor	4-Factor
Ivol	(6.52)	(8.28)	(8.26)	(7.53)	(-5.39)	(-4.57)	(-4.87)	(-4.58)	(-8.47)	(-9.00)	(-9.29)	(-8.59)
Max	(4.90)	(6.70)	(6.53)	(6.05)	(-3.57)	(-2.85)	(-3.16)	(-3.08)	(-6.04)	(-6.74)	(-6.93)	(-6.59)
Price	(7.49)	(8.72)	(10.69)	(9.89)	(-9.05)	(-8.49)	(-8.92)	(-9.15)	(-11.70)	(-12.11)	(-13.72)	(-13.40)
Age	(5.93)	(6.49)	(7.16)	(6.64)	(-5.06)	(-4.46)	(-5.24)	(-5.22)	(-7.77)	(-7.86)	(-8.84)	(-8.43)
FP	(4.52)	(5.35)	(6.59)	(5.65)	(-5.00)	(-4.14)	(-3.88)	(-4.06)	(-6.59)	(-6.77)	(-7.50)	(-6.91)
O-score	(7.56)	(8.80)	(9.20)	(9.17)	(-9.41)	(-8.76)	(-9.51)	(-9.85)	(-11.95)	(-12.40)	(-13.18)	(-13.37)
ROA	(6.99)	(7.38)	(8.90)	(7.40)	(-5.66)	(-5.30)	(-4.96)	(-4.91)	(-8.99)	(-9.08)	(-10.01)	(-8.87)
OP	(7.98)	(9.36)	(9.82)	(9.99)	(-9.02)	(-8.46)	(-7.87)	(-6.76)	(-11.90)	(-12.63)	(-12.58)	(-11.82)
E	(4.71)	(6.02)	(6.37)	(6.48)	(-5.73)	(-5.52)	(-5.51)	(-5.39)	(-7.41)	(-8.10)	(-8.39)	(-8.38)
CF	(4.77)	(6.46)	(6.42)	(6.21)	(-5.88)	(-5.68)	(-5.68)	(-5.53)	(-7.57)	(-8.46)	(-8.53)	(-8.28)
D	(5.39)	(6.69)	(7.09)	(6.64)	(-4.15)	(-3.58)	(-4.41)	(-4.18)	(-6.78)	(-7.30)	(-8.22)	(-7.75)
NXF	(5.95)	(6.65)	(6.63)	(6.75)	(-4.26)	(-3.97)	(-4.24)	(-4.41)	(-7.26)	(-7.55)	(-7.82)	(-8.04)
Size	(-5.02)	(-5.51)	(-5.59)	(-5.33)	(9.77)	(9.36)	(9.04)	(9.07)	(10.62)	(10.69)	(10.50)	(10.36)
Illiq	(-5.17)	(-5.62)	(-7.01)	(-6.77)	(8.76)	(8.68)	(9.65)	(9.46)	(10.00)	(10.27)	(11.79)	(11.54)

Table 9: Intraday vs Overnight Returns (Four-Factor Alpha)

This table reports monthly portfolio four-factor alphas to a long minus short strategy that invests in the anomaly on only the specified days. Returns are decomposed into an intraday and overnight component. The sample period is from July of 1992 to December of 2013. 4-Factor alpha is from the Fama-French model with the UMD momentum factor. Portfolios are value weighted and formed using NYSE breakpoints. *T*-statistics adjusted for heteroscedasticity and autocorrelation are reported.

Panel A: Four-Factor Alpha

	Intraday			Overnight		
	Monday	Friday	Fri - Mon	Monday	Friday	Fri - Mon
Ivol	1.399	-0.118	-1.516	-0.664	-0.356	0.308
Max	0.940	-0.111	-1.051	-0.386	-0.087	0.299
Price	1.030	-0.607	-1.638	-0.281	-0.040	0.241
Age	0.893	-0.261	-1.154	-0.225	-0.182	0.043
FP	1.555	-0.257	-1.811	-0.528	-0.101	0.427
O-score	0.986	-0.353	-1.339	-0.423	-0.219	0.203
ROA	0.960	-0.241	-1.201	-0.181	-0.134	0.047
OP	1.089	-0.188	-1.277	-0.383	-0.282	0.101
E	0.755	-0.060	-0.815	-0.358	-0.230	0.128
CF	0.799	0.005	-0.794	-0.426	-0.272	0.154
D	0.559	-0.104	-0.663	-0.102	-0.094	0.007
NXF	0.967	-0.118	-1.085	-0.316	-0.208	0.108
Size	-0.432	0.869	1.301	-0.011	-0.022	-0.010
Illiq	-0.270	0.760	1.031	-0.151	-0.148	0.003

Panel B: *T*-Statistics

	Intraday			Overnight		
	Monday	Friday	Fri - Mon	Monday	Friday	Fri - Mon
Ivol	(6.33)	(-0.60)	(-5.16)	(-3.40)	(-2.52)	(1.28)
Max	(4.97)	(-0.68)	(-4.21)	(-2.70)	(-0.57)	(1.44)
Price	(6.24)	(-3.22)	(-6.55)	(-1.80)	(-0.41)	(1.31)
Age	(4.65)	(-2.67)	(-5.36)	(-3.06)	(-2.21)	(0.39)
FP	(4.36)	(-1.17)	(-4.33)	(-2.65)	(-0.82)	(1.82)
O-score	(7.67)	(-4.15)	(-8.71)	(-3.58)	(-2.72)	(1.42)
ROA	(6.41)	(-2.91)	(-7.02)	(-2.57)	(-1.94)	(0.48)
OP	(7.57)	(-1.70)	(-7.04)	(-3.33)	(-3.40)	(0.72)
E	(5.70)	(-0.97)	(-5.58)	(-4.83)	(-3.16)	(1.24)
CF	(5.63)	(0.08)	(-5.09)	(-4.68)	(-3.31)	(1.26)
D	(4.40)	(-1.34)	(-4.45)	(-1.74)	(-1.48)	(0.08)
NXF	(6.18)	(-1.14)	(-5.77)	(-4.47)	(-3.36)	(1.15)
Size	(-3.42)	(5.28)	(6.28)	(-0.11)	(-0.21)	(-0.07)
Illiq	(-3.12)	(6.91)	(7.38)	(-2.17)	(-1.91)	(0.03)

Table 10: Institutional Ownership (Four-Factor Alpha)

This table reports monthly portfolio four-factor alphas to a long minus short strategy that invests in the anomaly on only the specified days. Returns are reported separately for high and low institutional ownership firms. The sample period is from January of 1980 to December of 2013. 4-Factor alpha is from the Fama-French model with the UMD momentum factor. Portfolios are value weighted and formed using NYSE breakpoints. *T*-statistics adjusted for heteroscedasticity and autocorrelation are reported.

Panel A: Four-Factor Alphas

	Low IO			High IO		
Anomaly	Monday	Friday	Fri - Mon	Monday	Friday	Fri - Mon
Ivol	1.218	-0.622	-1.840	1.075	-0.448	-1.523
Max	1.050	-0.520	-1.570	0.824	-0.177	-1.002
Price	0.764	-0.817	-1.581	0.916	-0.826	-1.742
Age	1.010	-0.850	-1.860	0.671	-0.394	-1.065
FP	1.294	-0.449	-1.743	0.954	-0.469	-1.422
O-score	0.558	-0.694	-1.252	0.789	-0.563	-1.351
ROA	0.765	-0.319	-1.084	0.715	-0.335	-1.050
OP	0.677	-0.523	-1.200	0.703	-0.386	-1.090
E	0.758	-0.745	-1.503	0.423	-0.212	-0.635
CF	0.746	-0.690	-1.437	0.404	-0.238	-0.642
D	0.726	-0.571	-1.297	0.527	-0.200	-0.727
NXF	0.801	-0.038	-0.839	0.683	-0.221	-0.904
Size	-0.399	1.084	1.482	-0.326	0.768	1.094
Illiq	0.019	1.008	0.989	-0.261	0.595	0.855

Panel B: *T*-Statistics

	Low IO			High IO		
Anomaly	Monday	Friday	Fri - Mon	Monday	Friday	Fri - Mon
Ivol	(6.38)	(-4.65)	(7.94)	(6.72)	(-2.52)	(6.37)
Max	(5.86)	(-4.09)	(7.18)	(5.68)	(-1.25)	(4.94)
Price	(5.06)	(-5.24)	(7.31)	(6.71)	(-6.31)	(9.27)
Age	(4.10)	(-3.35)	(5.26)	(5.49)	(-4.54)	(7.12)
FP	(5.20)	(-3.53)	(6.27)	(4.66)	(-2.63)	(5.26)
O-score	(4.10)	(-5.36)	(6.69)	(7.12)	(-6.58)	(9.75)
ROA	(5.60)	(-2.48)	(5.78)	(6.81)	(-4.20)	(7.96)
OP	(4.78)	(-3.63)	(5.95)	(7.37)	(-4.16)	(8.16)
E	(6.65)	(-7.02)	(9.76)	(4.78)	(-2.69)	(5.36)
CF	(6.67)	(-6.51)	(9.39)	(4.65)	(-2.91)	(5.38)
D	(6.77)	(-4.66)	(7.98)	(5.44)	(-2.64)	(5.92)
NXF	(5.55)	(-0.27)	(4.14)	(6.96)	(-3.00)	(7.40)
Size	(-2.37)	(6.88)	(-6.43)	(-2.74)	(6.38)	(-6.45)
Illiq	(0.07)	(4.02)	(-2.58)	(-2.45)	(6.94)	(-6.25)

Table 11: Monday and Friday Returns when there is Saturday Trading (1927-1952)

This table reports monthly portfolio four-factor alphas to a long minus short strategy that invests in the anomaly on only the specified days. The analysis is carried out for Mondays and Fridays during months in which there is Saturday trading. The sample period is from January of 1927 to May of 1952. The market closed Saturdays during July and August of 1945, and during June through September of 1946 through 1952. 4-Factor alpha is from the Fama-French model with the UMD momentum factor. Portfolios are value weighted and formed using NYSE breakpoints. *T*-statistics adjusted for heteroscedasticity and autocorrelation are reported.

Panel A: Four-Factor Alphas

Anomaly	Monday	Friday	Fri - Mon
Ivol	1.360	-2.788	-4.148
Max	1.516	-2.173	-3.689
Price	0.875	-0.546	-1.422
D	0.930	-0.030	-0.960
Size	0.244	1.076	0.833
Illiq	0.234	0.679	0.445

Panel B: *T*-Statistics

	Monday	Friday	Fri - Mon
Ivol	(3.63)	(-1.96)	(-2.82)
Max	(4.92)	(-1.60)	(-2.65)
Price	(2.82)	(-2.55)	(-3.77)
D	(6.59)	(-0.20)	(-4.73)
Size	(0.84)	(4.79)	(2.26)
Illiq	(0.74)	(2.55)	(1.08)

Table 12: VIX and Treasury Daily Returns

This table examines the difference in VIX and Treasury daily returns between Monday and Friday. The table reports coefficient estimates from a regression of VIX or Treasury returns on a Monday dummy and a number of controls. Regressions include only observations from Monday and Friday. Controls include one lag of the dependent variable, one lag of the dependent variable squared, and a dummy variable for days of macroeconomic announcements (CPI, PPI, employment, and FMOC announcements). The sample period for Treasury returns is June 1961 - December 2013. The sample period for VIX is January 1990 - December 2013. *T*-statistics are in parentheses.

	VIX	Treasury: 1 month	Treasury: 6 month	Treasury: 1 year	Treasury: 5 year
Monday	2.440	0.031	0.030	0.038	0.020
	(8.11)	(46.33)	(16.96)	(14.89)	(1.97)
Controls	Yes	Yes	Yes	Yes	Yes
N	2,348	5,089	5,089	5,089	5,089

Table 13: Monday through Friday Daily Returns

This table reports average daily excess returns for the high minus low decile of each anomaly by day of the week. For each anomaly, the high minus low decile return is calculated for each day and then averaged across each day of the week for each month. Portfolios are value weighted and formed using NYSE breakpoints. *T*-statistics adjusted for heteroscedasticity and autocorrelation are reported.

	Long Minus Short (Excess Returns)					Long Minus Short (*t*-stats)				
Anomaly	Mon	Tues	Weds	Thurs	Fri	Mon	Tues	Weds	Thurs	Fri
Ivol	0.225	0.096	-0.054	-0.065	-0.146	(7.29)	(3.64)	(-2.22)	(-2.52)	(-5.72)
Max	0.176	0.075	-0.059	-0.053	-0.099	(5.77)	(3.06)	(-2.55)	(-2.21)	(-3.98)
Price	0.180	0.113	-0.048	-0.116	-0.221	(6.65)	(5.20)	(-2.76)	(-5.77)	(-9.51)
Age	0.136	0.072	-0.023	-0.069	-0.095	(5.56)	(4.21)	(-1.38)	(-4.86)	(-5.50)
FP	0.238	0.101	0.004	-0.083	-0.139	(4.77)	(2.99)	(0.14)	(-2.40)	(-4.29)
O-score	0.146	0.083	-0.007	-0.073	-0.158	(6.16)	(4.58)	(-0.41)	(-3.70)	(-8.10)
ROA	0.157	0.073	0.028	-0.039	-0.093	(5.75)	(3.62)	(1.44)	(-2.44)	(-5.34)
OP	0.156	0.079	-0.013	-0.038	-0.140	(7.90)	(4.38)	(-0.70)	(-1.92)	(-8.68)
E	0.118	0.047	-0.045	-0.042	-0.134	(5.50)	(2.67)	(-2.44)	(-2.85)	(-6.43)
CF	0.114	0.045	-0.038	-0.035	-0.131	(5.58)	(2.14)	(-2.00)	(-2.04)	(-6.09)
D	0.132	0.061	-0.056	-0.054	-0.088	(6.68)	(3.82)	(-3.52)	(-3.37)	(-4.78)
NXF	0.143	0.055	-0.035	-0.009	-0.076	(6.15)	(3.19)	(-2.03)	(-0.50)	(-3.77)
Size	-0.083	-0.068	0.040	0.105	0.207	(-4.08)	(-2.98)	(2.52)	(5.98)	(9.90)
Illiq	-0.054	-0.054	0.017	0.088	0.166	(-2.82)	(-2.49)	(1.13)	(5.72)	(9.05)