Is the Market Mad? Evidence from *Mad Money*[*]

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Abstract

We document market inefficiency in the days following the buy recommendations of Jim Cramer, host of the popular CNBC show *Mad Money*. The average cumulative abnormal overnight return for the smallest quartile of recommended stocks is 5.19%, and these returns completely disappear within 12 trading days. We also find that trading volume, buy-sell imbalance, and short sales volume are all significantly higher than normal on the day following Cramer's recommendations. These findings allow us to test hypotheses about the behavior of different types of traders. Finally, our GMM estimates of the components of the bid-ask spread suggest that market makers are aware of Cramer's recommendations and anticipate the order flow imbalance following Cramer's recommendations.

Keywords: **market inefficiency, analyst recommendations, Efficient Market Hypothesis, Mad Money, Jim Cramer, CNBC**

JEL Classification: G14, G11, C15

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1 Introduction

The efficient market hypothesis (EMH), which holds that security prices always fully reflect available information, has been one of the most heavily debated topics in finance over the last 30 years. Event studies have received much attention in this debate because they provide a natural test of the EMH's implication that the market quickly and correctly reacts to new information. Examples of event studies whose results challenge the EMH are initial public offerings (IPOs) (Ibbotson, 1975), seasoned equity offerings (Loughran and Ritter, 1995), earnings announcements (Ball and Brown, 1968), dividend omissions (Michaely et al, 1995), and new exchange listings (Dharan and Ikenberry, 1995). These studies have lead many to believe that the market systematically errs when pricing new information. We document yet another news event the market appears unable to price: the recommendations of stocks by Jim Cramer, host of the popular television show *Mad Money.*

Mad Money is the most watched show on CNBC, drawing an audience of over 380,000 viewers every weeknight. Led by the energetic former hedge fund manager Jim Cramer, the show combines entertainment and financial advice. During each episode, Cramer provides stock recommendations to the sound of bulls roaring, cash registers ringing, bowling pins crashing and a slew of other effects.

Although the show's noises, dramatic camera angles and boisterous host may seem silly, Cramer's recommendations affect stock prices in the short run. We show that his recommendations are followed by economically and statistically significant cumulative abnormal returns (5.19% overnight, and 6.71% from its value three days before the recommendation) for the smallest quartile of stocks and 1.96% overnight (2.40% when including the pre-recommendation run-up) for the entire sample– but that these returns reverse within several days.

Most of the existing literature on market mispricing analyzes long-run returns. Fama (1998) argues that this is problematic because such studies are susceptible to the "bad-model problem" emphasized by Fama (1970). Unlike these studies of market inefficiencies, our analysis focuses on short-run abnormal returns, so it is less sensitive to the choice of asset pricing model used to calculate the abnormal returns. Hence, our study is immune to the bad-model problem. Indeed, we doubt that any asset pricing model resembling the Fama-French 3 factor model can explain the smallest quartile of recommended stocks' -6.61% cumulative abnormal return predictability over a 12 day horizon.

After documenting the severe mispricing following Cramer's recommendations, we attempt to explain the trading behavior that causes this phenomenon. We first observe that the mispricing of the stocks following Cramer's recommendations is caused by the actions of three types of players: *Mad Money* viewers who buy when Cramer recommends a security, the market makers who supply liquidity to these investors, and the arbitrageurs who attempt to profit from the mispricing following the recommendations.

In Section 4.1, we show that trading volume and buy-sell imbalance rise significantly following the recommendation event. For example, for the smallest quartile of his recommendations, the volume is almost 9 times its average amount on the day following his recommendation. In Section 4.2, we focus on the arbitrageurs. We find that short sales volume rises to 6.59 times its normal value in the opening minutes of the day following Cramer's recommendation, and it remains significantly higher than normal for 3 days. In Section 4.3, we turn our attention to the market makers. Following Madhavan, Richardson, and Roomans (1997), we split the bid-ask spread into adverse selection and order processing costs. As expected, the adverse selection component of the spread falls significantly following the recommendation. However, the order processing cost increases following the recommendation, offsetting the decrease in the adverse selection component.

An interesting, but mostly unrelated, finding concerns a run-up in price before Cramer's recommendation on *Mad Money*: in Section 3, we show that Cramer's recommendations affect trading volume and returns on the day the show airs. This is surprising considering the show is *recorded* at 4:30 PM ET – 30 minutes after the close of the NYSE and Nasdaq trading hours.

Barber and Loeffler (1993) and Liang (1999) also analyze stock returns immediately following recommendations; their sample comes from the monthly "Dartboard" column in the *Wall Street Journal*.[1] The authors of both papers found small returns following the recommendations, followed by a partial reversal, and they interpreted their evidence as support for the price pressure hypothesis. Since Barber and Loeffler only document a partial reversal, their findings could be driven by price pressure surrounding the release of relevant information. In contrast, we document a *complete* reversal following Cramer's recommendations, which suggests the market is significantly reacting to irrelevant information. Our paper is also related to Greene and Smart (1999), who used the model

[1] In the "Dartboard" column, four investment analysts would each recommend one stock. These picks were referred to as the "Pro's Picks." The Journal would also select four "Dartboard Stocks" by having a staffer throw a dart at a page full of stock quotes. The Journal would then compare the performance of "Pro's Picks" to the "Dartboard Stocks." Both papers document that the "Pro's Picks" experienced abnormal volume and short term (1 to 2 day) returns following publication, whereas the "Dartboard Stocks" did not. The "Pro's Picks" then experienced reversals–a partial reversal (equal to half of the initial 4% one day return) in Barber and Loeffler (1993) and a complete reversal within 80 days in Liang (1999).

proposed by Madhavan, Richardson, and Roomans (1997) to analyze the dynamics of the adverse selection and inventory cost components of the bid-ask spread following the recommendations in the "Dartboard" column.

Our paper is outlined as follows. Section 2 describes our data, Sections 3 and 4 present our main results, Section 5 provides ideas for further research, and Section 6 concludes.

2 Data

There are two websites the mainstream media cite as catalogues of Cramer's recommendations: TheStreet.com and YourMoneyWatch.com. TheStreet.com is affliated with Cramer and sells Cramer-related products (e.g. premium memberships accounts) and posts the prior two months of Cramer's recommendations. YourMoneyWatch.com is not affliated with Cramer or CNBC and posts a history of Cramer's recommendations dating back to July 28, 2005. Deciding what constitutes a buy recommendation by Cramer is not always obvious. For example, conditional recommendations (e.g. "wait three days, then buy") or noncommital language (e.g. "I like the stock") make the classification of what constitutes a buy recommendation subjective. After investigating the recommendations posted on both sites, it is clear to us that YourMoneyWatch.com has a stronger standard: they only list unconditional buy recommendations which follow particular criteria.[2] An empirical analysis of the difference between recommendations found on both sites can be found in the Appendix.

Our sample of recommendations consists of the 246 initial recommendations given by Jim Cramer on *Mad Money* episodes between July 28, 2005, and October 14, 2005 as recorded by YourMoneyWatch.com.[3] Our daily price and daily volume data are taken from *Datastream,* and our intraday trades and quotes data are taken from NYSE's TAQ database.

Following Chordia, Roll and Subrahmanyam (2001), we use only primary market quotes. Quotes and trades recorded out of sequence or recorded before or after the opening or closing of the market are discarded. We discard quotes with negative bid-ask spreads. We also follow Korajczyk and Sadka (2004) and discard observations where the bid-ask spread is above five dollars. Also, we discard observations where the bid-ask spread divided by the midpoint of the quoted bid and ask is more than 10% if the midpoint is greater than $50, and we discard observations where the bid-ask

[2] The criteria are listed in the methodology section of site at:
http://yourmoneywatch.com/index.php?name=Home&op=show_buffer&type=methodology.

[3] Throughout this paper, "recommendation" means "buy recommendation."

spread divided by the midpoint is more than 25% if the midpoint is less than $50. Finally, for the quotes data, we only consider quotes where the offer price is greater than the bid price and the bid size and offer size in number of round lots is positive. For trades, we only consider trades that are either regular trades that were not corrected, changed or signified as cancelled or errors, or trades that were later corrected. Only trades without any state sale condition are considered. We distinguish buyer-initiated trades from seller-initiated trades using the Lee and Ready (1991) algorithm with a one second lag to match trades with quotes. That is, all trades executed at a price above the midpoint of the quoted bid and ask are classified as buys and all trades executed at a price below the midpoint are classified as sells. All other trades are classified using the tick test.

3 Market Madness

One of the main implications of market efficiency is that simple trading strategies should not be able to produce abnormal returns after adjusting for risk. In this section, we show the existence of such a simple trading strategy.

To examine return behavior around Cramer's recommendation, we conduct a standard event-time study. First, we specify a benchmark return and define the daily abnormal return in the event window as the difference between the actual return and the benchmark return. Our benchmark return is found by running the following time-series regression for each security, i, between days -90 and -5:

$$r_{i,t} = a_i + b_i MKT_t + s_i SMB_t + h_i HML_t + u_i UMD_t + \varepsilon_{i,t}.$$

MKT is the monthly return on the CRSP value-weighted index, SMB is the difference between the daily returns on portfolios of small and big stocks, HML is the difference between the daily returns on portfolios of high and low book-to-market value of equity stocks, and UMD is the difference between the daily returns on portfolios of winners and losers.[4]

Therefore, the benchmark return for security i at any time τ in the event window [-4,20] is defined as:

$$r_{benchmark(i),\tau} = \hat{a}_i + \hat{b}_i MKT_\tau + \hat{s}_i SMB_\tau + \hat{h}_i HML_\tau + \hat{u}_i UMD_\tau,$$

[4]The daily values of MKT, SMB, HML and UMD are taken from Kenneth French's website at http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/

where $\hat{a}_i, \hat{b}_i, \hat{s}_i$, and $\hat{u}_i$ are the coefficients drawn from the estimation-window regression.

The cumulative abnormal return for any security i from time τ_1 to time τ_2 (with $\tau_2 > \tau_1$) is:

$$CAR_i(\tau_1, \tau_2) = \sum_{\tau=\tau_1}^{\tau=\tau_2} (r_{i,\tau} - r_{benchmark(i),\tau})^2.$$

Figures 1 through 4 plot $\overline{CAR}(-4, \tau_2)$: the mean CAR from event time -4 as a function of τ_2. The four plots show $\overline{CAR}(-4, \tau_2)$ for each of the four size quartiles. For the smallest quartile of firms, the market jumps 5.19% overnight–up 6.71% from its $t = -4$ value–and steadily returns to its $t = -4$ value within 12 days.[5]

For the Size 2 and Size 3 firms the pattern is similar except the overnight jump is smaller and the speed at which the firms return to the baseline increases. Notice also that there appears a price run-up *before* Cramer's recommendation on *Mad Money* in all size sorted portfolios, and the run-up is statistically significant for the Size 1 case. Such a run-up could endogenous (i.e. Cramer picks stocks with short-term momentum) or could be due to an earlier release of the recommendation.[6]

4 Behavior of Traders Following the Recommendations

Barber and Odean (2005) show that individual traders tend to be net buyers of "attention-grabbing" stocks, and that stocks purchased by individual investors on high attention days subsequently perform poorly.[7] *Mad Money* grabs the attention of over 380,000 viewers every weeknight. Therefore, we expect individual traders to be net buyers of the stocks Cramer recommends on the day following his recommendation. Of course, if individual traders are net buyers of the securities, institutions must be net sellers. Barber et al (2004) show that institutions profit from trading, whereas individuals lose from trading.

Motivated by Barber and Odean's (2005) findings, we hypothesize that uninformed traders flood the market with market buy orders for the stocks recommended by Cramer on the day following his recommendation, resulting in abnormally large trading volume and buy-sell imbalance on the

[5] Within the smallest quartile of Cramer's buy recommendations, the distribution of firm sizes is fairly uniform between \$67 million and \$1.6 bn, with a mean of \$773.718 million and a median of \$722.24 million.

[6] Possible venues for the earlier release of the information include Cramer's daily radio show or his frequent contributions to TheStreet.com.

In an earlier release of this paper we used the term "information leakage" rather than the term "earlier release of the recommendation." With either term we only mean to suggest that some traders are aware of Jim Cramer's opinion before it airs on *Mad Money* and we make no claim about the source of these traders' information.

[7] They define attention-grabbing stocks as stocks in the news, stocks experiencing high abnormal trading volume, and stocks with extreme one day returns.

day following his recommendation. Motivated by Barber et al's (2005) findings, we hypothesize that the market makers are sophisticated. In particular, we hypothesize that they are aware of the uninformed investors' tendency to buy the stocks Cramer recommends and that they know which stocks Cramer recommended the previous night. Finally, because Cramer's predictions have such a significant (and predictable) impact on security prices, we speculate that some arbitraguers short the stocks Cramer recommends on the day following his recommendation.

We test these hypotheses by analyzing trading volume, buy-sell imbalance, short sales volume, and bid-ask spreads around the time of Cramer's recommendations.

4.1 Effects of Recommendation on Trading Volume

Letting $Turnover_t$ be the turnover at day t, we define $TurnoverRatio_t$ as the ratio of turnover on day t to the mean turnover from days $t = -30$ to $t = -6$, where $t = 0$ denotes the day of Cramer's recommendation.[8] Formally,

$$TurnoverRatio_t = \frac{Turnover_t}{\frac{1}{25}\sum_{i=-30}^{-6} Turnover_i}.$$

As predicted, we find a significant rise in the *TurnoverRatio* on the day of the recommendation and the trading day following the recommendation. These findings are reported for each size quartile in Figures 5-8.[9] Not surprisingly, the findings are most dramatic for the smallest firms– turnover is 317% of its typical size on the day of the recommendation, 890% on the day following the recommendation and 451% on the second day following the recommendation. Cramer's impact on trading volume is long-lived: for the smallest firms, *TurnoverRatio* remains statistically larger than 100% until the 16th day following the recommendation. However, it is worth noting that the economic significance decreases substantially between days 1 and 4, as illustrated in Figure 1. Similar jumps in turnover on the day of and after the recommendation event exist for the other quartiles, but they are smaller and they mean-revert sooner.

[8] By turnover, we mean $\frac{\#shares\_traded}{\#shares\_outstanding}$

[9] In Figure 6, we see a spike in the VolumeRatio 10 days after the recommendation for stocks in the second quartile. The spike dissappears if we remove the Montpelier Re Holdings Ltd (MRP) stock from the pool of stocks. On September 12, 2005, 10 days after Cramer's recommendation of the stock, Associated Press reported that MRP, a company providing property and casualty insurance and reinsurance products, was expected to have significant losses from Katrina and the ensuing floods. On that day, the opening price was 7.3% lower than the price at which it closed on the previous business day and fell 10% during the day. This fall in price was accompanied by a significant increase in trading activity on that day.

Figure 9 shows the intraday dynamics of trading volume around the day of Cramer's stock recommendations. Intraday trading volume for stock i during the 30 minute time interval t is measured by VolumeRatio$_{itd}$, defined as

$$TurnoverRatio_{itd} = \frac{Vol_{itd}}{\frac{1}{20}\sum_{s=-25}^{-6} Vol_{its}},$$

where Vol_{itd} is the volume for stock i, during the 30 minute time interval t on day d.

Although TurnoverRatio$_{itd}$ is constructed to control for the "U" shaped behavior of trading volume, we still see significantly higher *TurnoverRatio* at the beginning of the days following Cramer's recommendations, and it tends to decline monotonically throughout the day.

The observed trading volume is consistent with our hypotheses. In fact, we suspect we are underestimating Cramer's true effect on trading volume since we do not consider after-hours trading.

4.2 Effects of Recommendation on Buy-Sell Imbalance

To test our prediction of increased buy-sell imbalance on the day following Cramer's recommendations, we use the variable ImbalanceRatio, defined as $ImbalanceRatio_{t,i} = \frac{Vol^b_{t,i} - Vol^s_{t,i}}{Vol^b_{t,i} + Vol^s_{t,i}}$ where, for $k = b$ ($k = s$), $Vol^k_{t,i}$ represents the buyer (seller) initiated volume for stock i during the 30 minute time interval t. We designate trades as buyer-initiated or seller-initiated by using the Lee and Ready (1991) algorithm with a one-second lag to match trades with quotes.

Figure 10 shows that the buy-sell imbalance rises following Cramer's recommendations. The first column of Table 2 shows that the ImbalanceRatio on day 1 (the day following Cramer's recommendation) is significantly higher than its value on days -11 to -1. As predicted, the stocks recommended by Cramer experience abnormally high buy-sell imbalance on the day following his recommendation. As with trading volume, we suspect we are underestimating Cramer's true effect on buy-sell imbalance since we do not consider after-hours trading.

Recall from Figure 1 that the prices for the stocks in smallest quartile returned to their intial level on day 12. The second column of Table 2 shows that the buy-sell imbalance is significantly lower on days 2 to 12 than on days -11 to -1. We believe that during the price reversal period, market makers' inventories return to normal levels as "quasi-informed" traders sell the overpriced securities to the liquidity suppliers.[10] This scenario would be consistent with theories of gradual

[10] By "quasi-informed" traders we mean traders who are sophisticated in that they can determine stocks' fundamental values, but are unsophisticated in that they are unaware of the effect Cramer has on stock prices.

information diffusion. Indeed, if the liquidity-demanding sellers on days 2 through 12 were aware of the Cramer effect, we would expect them to sell at day 1 rather than on days 2 through 12. Moreover, if they were not able to realize the securities were overvalued, we would not expect to find the unusually low buy-sell imbalance on days 2 through 12.

4.3 Effects of Recommendation on Short Sales Volume

Given the extremely high abnormal returns from selling Cramer's recommended stocks on day 1 and buying them back a few days later, we expect some traders to be aware of this strategy and to exploit the mispricing by shorting the recommended stocks.

To test this, we compute the statistic ShortSalesRatio, defined as

$$ShortSalesRatio_{itd} = \frac{SS_{itd}}{\frac{1}{20}\sum_{s=-25}^{-6} SS_{its}},$$

where SS_{itd} is the short sale volume for stock i during the 30 minute time interval t on day d. Data on short sale volume is taken from TAQ's Reg SHO dataset, which contains short sales reported to the NYSE for NYSE traded securities. Because we only have short sales data for the stocks that trade on the NYSE, in this section our sample is restricted to 176 recommendations.

Figure 11 shows that there is in fact a surge in short selling in the opening minutes of the trading day following Cramer's recommendations. Moreover, this increase is signficant at the 5% level until day 4. Hence, it appears that some arbitraguers are aware of stocks' predictable returns following Cramers' recommendations.

4.4 Effects of Recommendation on Bid-Ask Spreads

How do market makers respond to the surge in uninformed market buy orders following Cramer's recommendations? Recall that we hypothesized that market makers know which stocks Cramer recommended the previous night, and that they know that uninformed individual investors will flood the market with market buy orders on the day following Cramer's recommendation. This hypothesis predicts that on the day following Cramer's recommendations, the market makers will not update their valuations for the stocks in response to the information (or lack thereof) contained in the market buy orders.

To test our hypothesis, we analyze the market makers' behavior in the context of Madhavan,

Richardson, and Roomans' (1997) model. Their model breaks bid-ask spreads into two components, one (θ) representing the adverse selection component of the spread and the other (ϕ) representing the order processing/inventory cost component of the spread. θ captures the extent to which market makers update their valuations of the security in response to the information contained in the direction (buy or sell) of incoming order flow. ϕ is a per-transaction cost incurred by the market maker. Identification is obtained by imposing a zero profit restriction.

The results are consistent with our hypotheses. Table 1 shows that θ, the adverse selection parameter, falls from the day of the recommendation to the day following the recommendation and that ϕ, the order processing/inventory cost parameter, rises from the day of the recommendation to the day following the recommendation. Table 1 also reports the results from the Wilcoxon signed rank test, which suggests the changes in the two parameters are statistically significant. The decrease in θ and the increase in ϕ offset one another, resulting in a statistically insignificant change in the size of the bid-ask spread implied by the Madhavan, Richardson, and Roomans (1997) model.

Figure 12 shows that Cramer's recommendations appear to have little impact on quoted spreads. This is consistent with the predictions of both Madhavan, Richardson, and Roomans' (1997) model and our hypothesis that market makers do not fear an information asymmetry on the day following Cramer's recommendations.

5 Avenues for Further Research

Because we lack data on loan fees in the lending market, we are unable to comment on the actual profitability of our short-selling strategy. If the loan fees are abnormally high, our results highlight a significant limit to arbitrage in the form of short-sale constraints. If the loan fees are not abnormally high, the profitability of the strategy is likely due to arbitraguer ignorance of this opportunity. If this is the case, we expect the abnormal returns to dissipate as arbitraguers learn of this opportunity and begin to compete with the specialists for the uninformed *Mad Money* viewers' order flow. In the Appendix, we show that Cramer's effect on returns does not appear to be weakening, which suggests that arbitraguers are slow learners or that they face significant loan fees in the equity lending market. Which of these scenarios is true remains an open question.

6 Conclusion

We documented statistically significant abnormal returns for the stocks recommended by Jim Cramer on the popular television show, *Mad Money*. Since the abnormal returns were computed using short-return horizons, our results do not suffer from the "bad model" problem emphasized by Fama (1970, 1998).

After documenting this market inefficiency, we analyzed the trading activity following Cramer's recommendations. Our findings that trading volume and buy-sell imbalance are unusually high on the day following Cramer's recommendation suggests that uninformed traders buy the stocks recommended by Cramer on the previous night. The uninformed traders do this despite the fact that these stocks became overpriced overnight and earn negative cumulative abnormal returns over the next two weeks. Our finding that short sales volume is unusually high on the day following Cramer's recommendations suggest that some arbitraguers are aware of Cramer's effect on security prices.

We showed that spreads do not widen or contract significantly following Cramer's recommendations. To explain this, we used the microstructure model proposed by Madhavan, Richardson, and Roomans (1997) to break the bid-ask spread into an inventory/order processing cost component and an adverse selection component. We found a statistically significant decrease in the adverse selection component from the day of to the day after Cramer's recommendation, and a statistically significant increase in the inventory/order processing cost component of the spread from the day of to the day after Cramer's recommendation. These two effects offset one another, which explains the bid-ask spreads not widening or contracting.

Taken together, our results suggest that the aggregate losers in our event study are the *Mad Money* viewers who decide to buy the recommended securities when the markets open the following day, and that the winners are the market makers and arbitraguers who sell the overpriced recommended stocks on day 1, as well as the traders who sell the recommended stocks on days 2 through 12.

Individual investors who watch *Mad Money* would be wise to wait before purchasing the small stocks Cramer recommends, as these stocks tend to fall to their original levels following the overnight price spike caused by his recommendation.

A Appendix

The purpose of this appendix is two-fold: (1) to examine the empirical differences between the recommendations reported by the Cramer-affliated site TheStreet.com and the independent site YourMoneyWatch.com and (2) to see whether the return phonemenon documented herein persists. To do this we take a two-month sample of first-time Cramer recommendations posted on TheStreet.com between November 15, 2005 and January 15, 2006. This gives us 225 recommendations. Of those 225 recommendations, 151 (67%) were also recorded by YourMoneyWatch.com - which is consistent with the idea that YourMoneyWatch.com has a stronger standard for what constitutes a buy recommendation. We then repeat the CAR analysis of Section 3 on these two samples. The results are presented in Figure A1. The figure demonstrates that the return spike at recommendation and the subsequent reversal documented above are still present in the data. Moreover, the reversal apprears to slow. The figure also demonstrates that these effects are more pronounced in the recommendations recorded by YourMoneyWatch.com as one would expect if the site records only the strongest recommendations.

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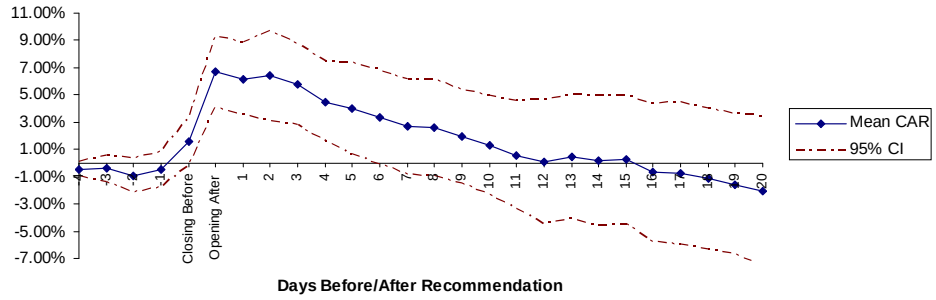
Figure 1: Price Response Around Recommendation (Size = 1)



Figures 1-4 plot $\overline{CAR}(-4, \tau_2)$: the mean CAR from event time -4 for the first size quartile. The label "Closing Before" indicates the market-close time before Cramer's recommendation and "Opening After" indicates the market-open time after Cramer's recommendation (*Mad Money* is filmed and aired while the U.S. market is closed). The 95% confidence intervals are calculated as: $\overline{CAR}(-4, \tau_2) \pm StudentT_{.025,N-1} * \sqrt{\frac{1}{N}\sum_{i=1}^{N}\left[\overline{CAR}(-4, \tau_2) - CAR_i(-4, \tau_2)\right]^2}$ where $StudentT_{.025,N-1}$ is the student T distribution with $N-1$ degress of freedom and .025 in the tail.

Figure 2: Price Response Around Recommendation (Size = 2)

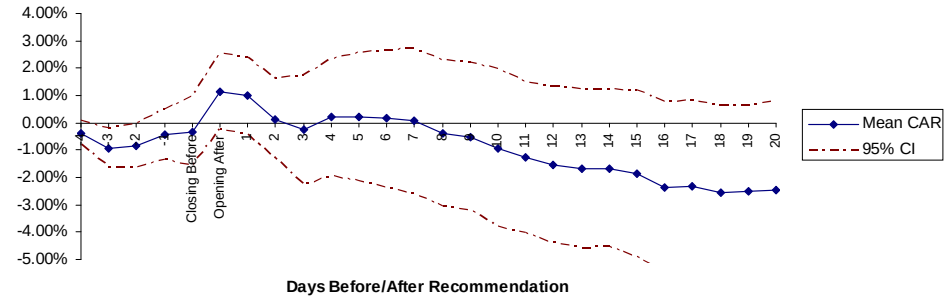


Figure 3: Price Response Around Recommendation (Size = 3)

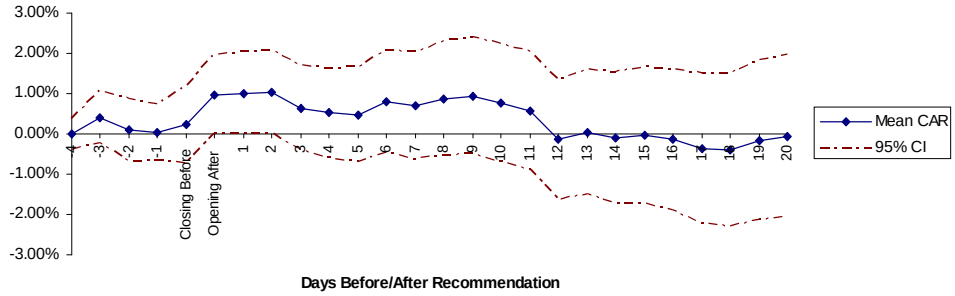


Figure 4: Price Response Around Recommendation (Size = 4)

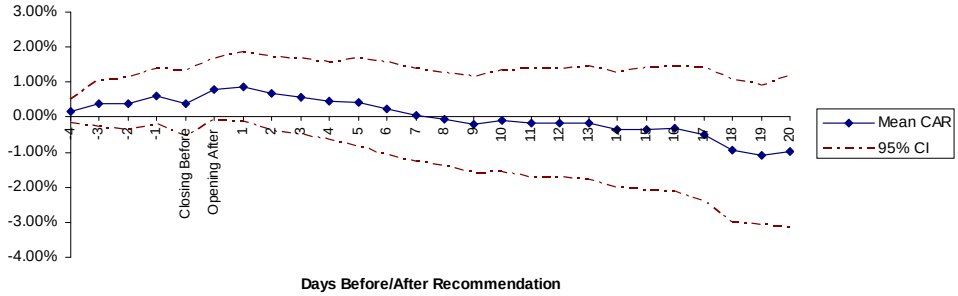
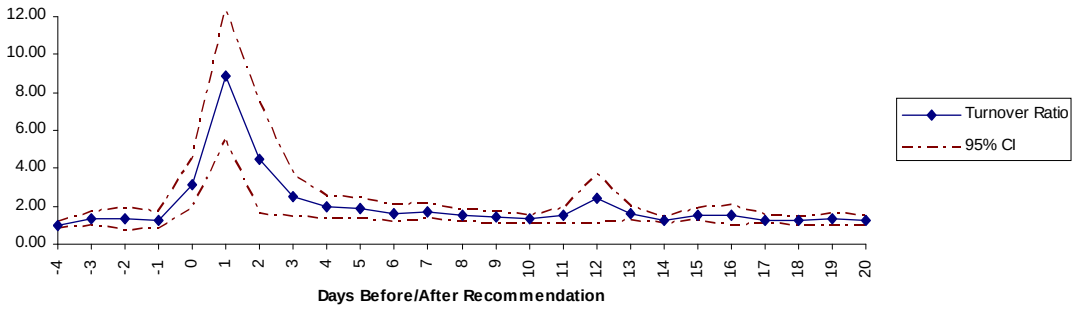


Figure 5: Turnover Ratio Around Recommendation (Size = 1)



Figures 5-8 plot the turnover ratio from event time -4 for the first size quartile. The turnover ratio is defined as $TurnoverRatio_t = \frac{Turnover_t}{\frac{1}{25}\sum_{i=-30}^{-6} Turnover_i}$, where $Turnover_t$ is defined as $\frac{\#shares\_traded}{\#shares\_outstanding}$ on day t. The label "Closing Before" indicates the market-close time before Cramer's recommendation and "Opening After" indicates the market-open time after Cramer's recommendation (Cramer's show Mad Money is filmed and aired while the U.S. market is closed). The 95% confidence intervals are calculated as: $TurnoverRatio_t \pm StudentT_{.025,N-1} * \sqrt{\frac{1}{N}\sum_{i=1}^{N}\left[\overline{TurnoverRatio_t} - TurnoverRatio_{it}\right]^2}$ where $StudentT_{.025,N-1}$ is the student T distribution with $N-1$ degress of freedom and .025 in the tail. Time 1 on the horizontal axis represents the first day after the recommendation.

Figure 6: Turnover Ratio Around Recommendation (Size = 2)

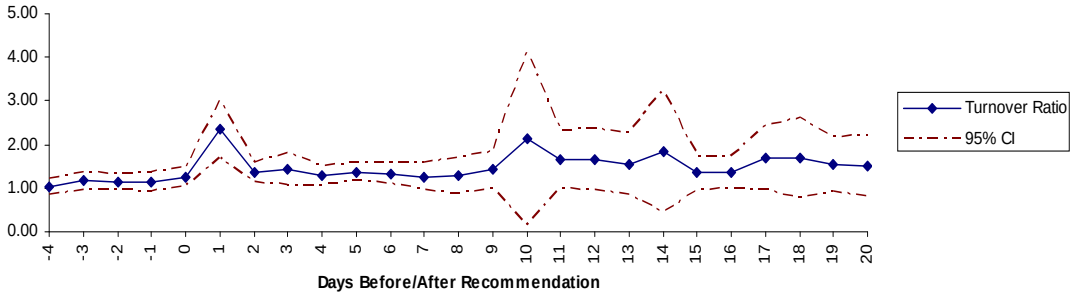


Figure 7: Turnover Ratio Around Recommendation (Size = 3)

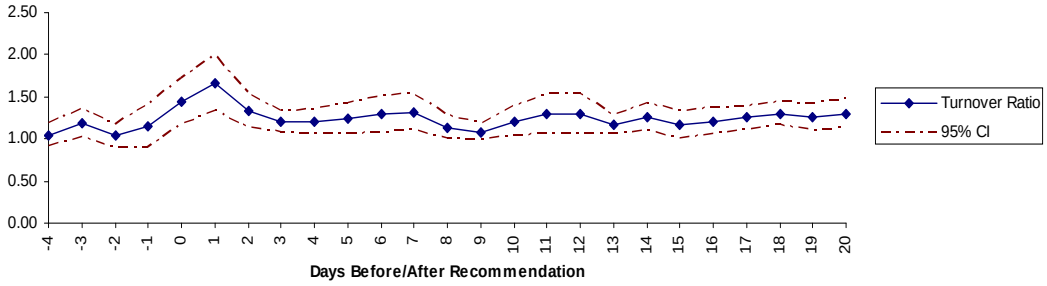


Figure 8: Turnover Ratio Around Recommendation (Size = 4)

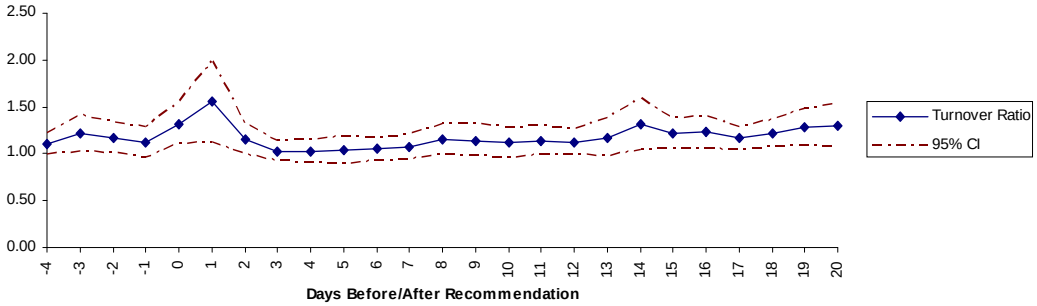


Figure 9: Intraday Turnover Ratio

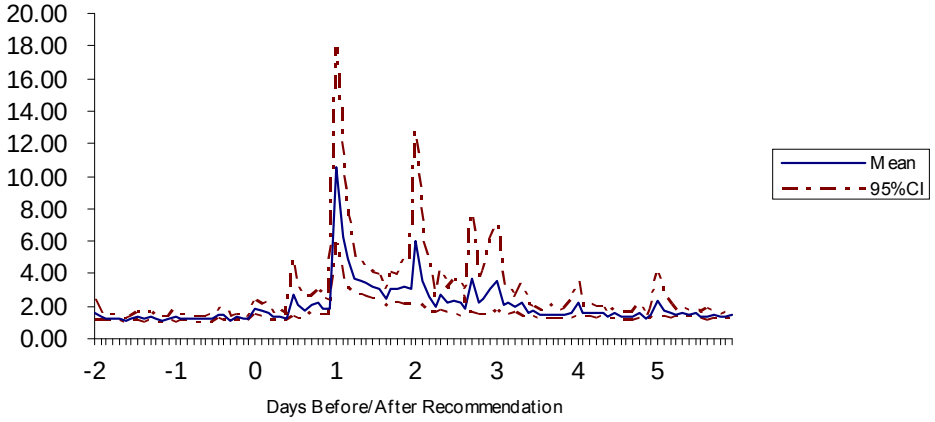


Figure 9 plots the intraday turnover ratio starting two days before the recommendation and ending three days after. The intraday turnover ratio is defined as $TurnoverRatio_{dt} = \frac{Turnover_{dt}}{\frac{1}{25}\sum_{i=-30}^{-6} Turnover_{dti}}$, where $Turnover_{dt}$ is defined as $\frac{\#shares\_traded}{\#shares\_outstanding}$ for time interval d on day t. The dotted lines are the 95% bootstrap confidence interval. The time intervals are 30 minute intervals during regular trading hours. Time 1 on the horizontal axis represents the opening of the market the day after the recommendation.

Figure 10: Imbalance Ratio

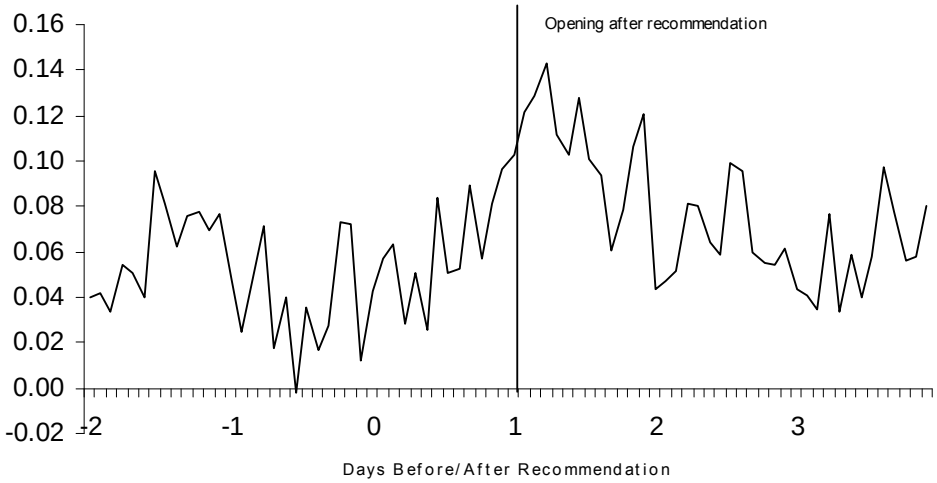


Figure 10 plots the imbalance ratio starting four days before the recommendation and ending three days after. The imbalance ratio during time interval t for recommendation i is defined as $ImbalanceRatio_{t,i} = \frac{Vol^b_{t,i} - Vol^s_{t,i}}{Vol^b_{t,i} + Vol^s_{t,i}}$ where, for $k = b$ ($k = s$), $Vol^k_{t,i}$ represents the buyer (seller) initiated volume for stock i during time interval t. The time intervals are 30 minute intervals during regular trading hours. Time 1 on the horizontal axis represents the opening of the market the day after the recommendation.

Figure 11: Short Sales Ratio

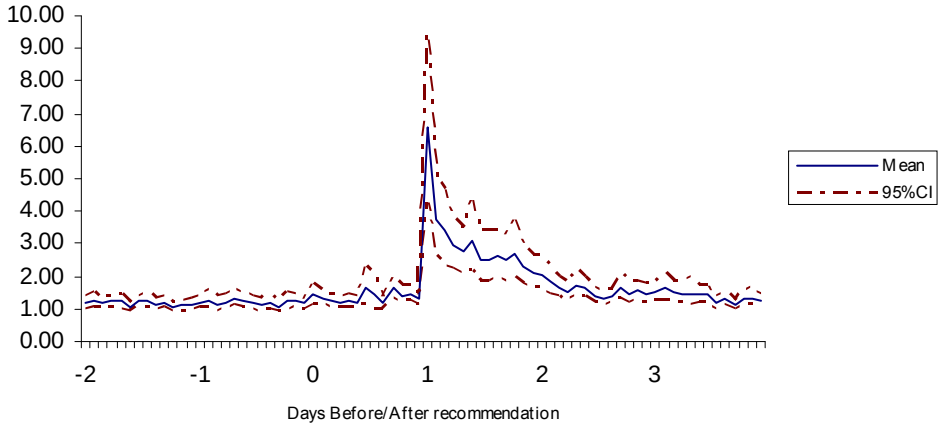


Figure 11 plots the short sales ratio starting two days before the recommendation and ending three days after. The short sales ratio is defined as $ShortSalesRatio_{itd} = \frac{SS_{itd}}{\frac{1}{20}\sum_{s=-25}^{-6} SS_{its}}$ where SS_{itd} is the short interest for stock i, during time interval t on day d. The time intervals are 30 minute intervals during regular trading hours. Time 1 on the horizontal axis represents the opening of the market the day after the recommendation.

Figure 12: Spread

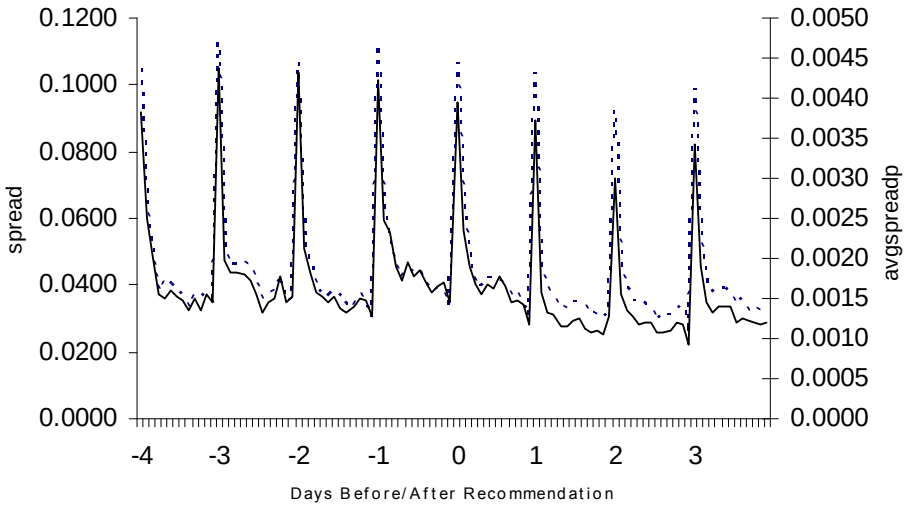
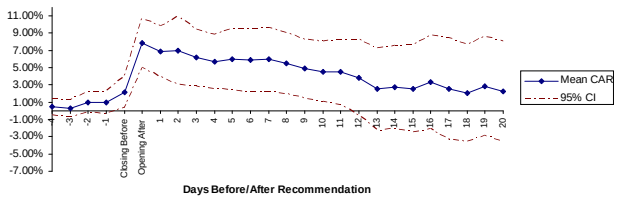


Figure 12 plots the spread starting four days before the recommendation and ending three days after. Spread (the solid line) is defined as the difference between the bid and the ask. Avgspreadp (the dotted line) is the spread divided by the midpoint of the bid and the ask. The time intervals are 30 minute intervals during regular trading hours. Time 1 on the horizontal axis represents the opening of the market the day after the recommendation.

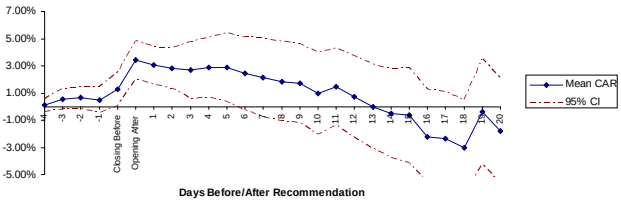
Figure A1: Datasource Comparison for Recommendations 11/15/05 - 1/15/06

TheStreet.com

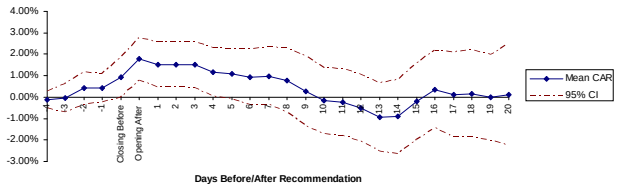
Size 1 Quartile (N=56)



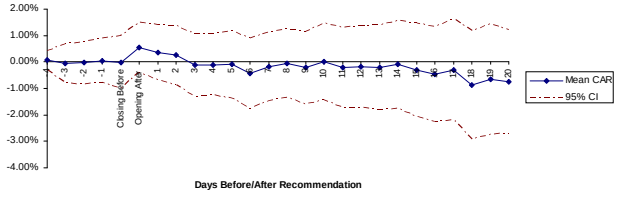
Size 2 Quartile (N=56)



Size 3 Quartile (N=56)

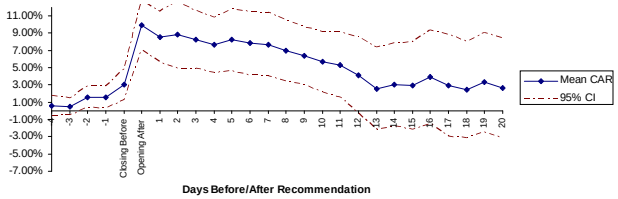


Size 4 Quartile (N=57)

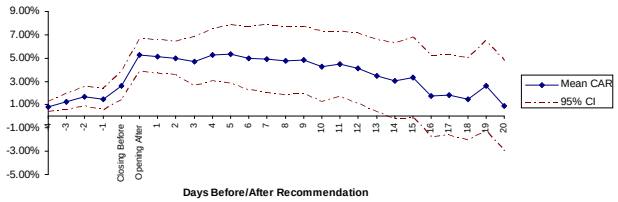


YourMoneyWatch.com

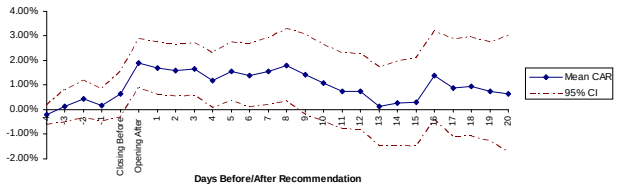
Size 1 Quartile (N=41)



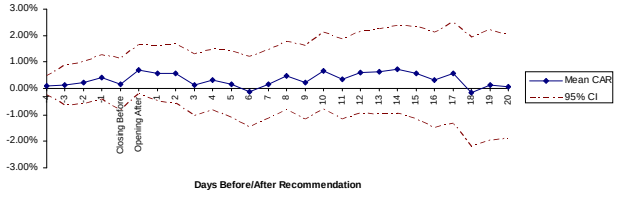
Size 2 Quartile (N=37)



Size 3 Quartile (N=34)



Size 4 Quartile (N=38)



This figure compares the first-time Cramer recommendations recorder by TheStreet.com and YourMoneyWatch.com between November 15, 2005 and January 15, 2006. The figures plot $\overline{CAR}(-4,\tau_2)$: the mean CAR from event time -4 for each of the four size quartiles. For ease of comparison, the size quartiles are determined by thestreet.com recommendations. The label "Closing Before" indicates the market-close time before Cramer's recommendation and "Opening After" indicates the market-open time after Cramer's recommendation (Cramer's show Mad Money is filmed and aired while the U.S. market is closed). The 95% confidence intervals are calculated as: $\overline{CAR}(-4,\tau_2) \pm StudentT_{.025,N-1} * \sqrt{\frac{1}{N}\sum_{i=1}^{N}\left[\overline{CAR}(-4,\tau_2) - CAR_i(-4,\tau_{002})\right]^2}$ where $StudentT_{.025,N-1}$ is the student T distribution with $N-1$ degress of freedom and .025 in the tail.

Table 1 : RMM (1997) GMM Estimates of the Bid-Ask Spread Components

Parameter Estimates	θ_1	θ_2	θ_3	ϕ_1	ϕ_2	ϕ_3	spread	spread	spread
Day 0									
N	236	239	241	238	238	241	235	236	240
Mean	0.004046	0.003641	0.003012	0.006401	0.005307	0.005355	0.020807	0.017621	0.016549
stdev	0.003792	0.003928	0.003378	0.005462	0.004369	0.004258	0.014286	0.012547	0.012406
median	0.002921	0.002375	0.002045	0.004667	0.004185	0.004327	0.016025	0.012755	0.012117
Day 1									
N	241	242	243	239	241	244	239	241	243
Mean	0.003519	0.002834	0.002547	0.00732	0.005702	0.005631	0.021558	0.017125	0.016156
stdev	0.003581	0.002585	0.003043	0.005156	0.003741	0.003588	0.01333	0.009608	0.009872
median	0.002598	0.002405	0.001663	0.005583	0.00469	0.004594	0.016604	0.013884	0.0121
Day 1 minus Day 0									
N	235	238	241	235	237	241	233	235	240
Mean	-0.00075	-0.00088	-0.00049	0.00101	0.00037	0.000139	0.000331	-0.00086	-0.00066
stdev	0.003682	0.00339	0.003348	0.004683	0.003679	0.003736	0.008788	0.008795	0.008846
median	-0.00031	-0.0003	-0.00023	0.000299	7.9E-05	0.000275	0.000241	-0.00014	4.86E-05
sign p-value	0.0026	0.0077	0.0045	0.0366	0.2986	0.0002	0.5125	0.5143	0.9486
sign rank p-value	0.0008	0.0005	0.0008	0.0015	0.0539	0.0038	0.1666	0.4775	0.9115

Estimates of the bid-ask spread components follow the methodology of Madhavan, Richardson, and Roomans (1997). θ is the adverse selection component of the half-spread, and ϕ is the order processing/inventory cost component of the half-spread. The implied spread has a mean of $2(\theta+\phi)$. Day 0 is the day of the recommendation, and Day 1 is the next trading day. Mad Money is recorded after the market closes (4:30 EST), and it airs later that night (6:00 EST). The number We divide each trading day into three intervals: 1 represents the first two hours of trading, 2 represents the middle two and a half hours, and 3 represents the closing two hours. θ_t $t = 1, 2, 3$, is the cross sectional average of the parameter estimates using the trades occuring during time interval t. For some stocks, some days, and some time intervals, there was insufficient trading volume to estimate the parameters, causing variation in the number of parameter estimates, N. Finally, the implied spread is the cross sectional average of $2(\phi_t^i + \theta_t^i)$ among all i for which we have estimates for both ϕ_t and θ_t for that time interval. "sign p-value" and "sign rank p-value" are the p-values for the sign test and the signed rank test.

Table 2 : Imbalance Ratio

Pre-recommendation ImbalanceRatio		
N	244	244
Mean	0.06876	0.06876
stdev	0.10765	0.10765
median	0.06611	0.06611
Post-recommendation ImbalanceRatio		
N	244	244
Mean	0.04767	0.10165
stdev	0.104476	0.15765
median	0.046128	0.08863
Post-recommendation Minus Pre-Recommendation		
N	244	244
Mean	-0.02108	0.03289
stdev	0.10247	0.15560
median	-0.02143	0.01467
sign p-value	$<$0.0001	$<$0.0632
sign rank p-value	$<$0.0001	$<$0.0032

Table 2 presents estimates for the imbalance ratio before and after the recommendation event. The imbalance ratio during time interval t for recommendation i is defined as $ImbalanceRatio_{t,i} = \frac{Vol^b_{t,i} - Vol^s_{t,i}}{Vol^b_{t,i} + Vol^s_{t,i}}$ where, for $k = b$ ($k = s$), $Vol^k_{t,i}$ represents the buyer (seller) initiated volume for stock i during time interval t. The time intervals are 30 minute intervals during regular trading hours. "Pre-recommendation" Period is the period starting 11 days before the recommendation and ending one day before. For the first column, "Post-recommendation" is the period starting 2 days after the recommendation and ending 12 days after. For the second column, "Post-recommendation" is only the day after the recommendation (day 1). The "Post-recommendation Minus Pre-recommendation" panel presents the difference in the imbalance ratio during the two periods. "sign p-value" and "sign rank p-value" are the p-values for the sign test and the signed rank test.