

# *THE MOVING AVERAGE*

An Analysis of the Profitability of the 50-Day and 200-Day  
Moving Average Trading Rule in Different Market Conditions.

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## **Abstract**

In this paper, I am analyzing the profitability of the 50- and 200-day moving average technical trading rule in different market conditions. I use SAS Statistical Analyses Software to analyze all non-financial stocks in the U.S. stock exchanges over the time period 2005-2010. I conduct the parametric t-test, Wilcoxon non-parametric test and multiple regressions to evaluate the statistical significance of the difference in profitability of the moving average trading rule between three different time periods: pre-crisis, crisis, and post-crisis. I find that profitability when using the moving average technical trading rule was significantly higher in the pre-crisis period than in the crisis and post-crisis period. The profitability was especially lowest during the crisis period. This implies that the moving average technical indicator should be avoided in bear markets. The results hold in multiple regressions in control for Fama-French 4 factors and industry fixed effects. Furthermore, long positions based upon the moving average technical indicator generated the highest returns in the before-crisis period while short positions did in the crisis period. The differences in the profitability between the three periods also vary significantly between firm market capitalization deciles. My study builds on past studies in the field and expands the current literature on how profitability accrued to technical trading rules can vary across different market conditions.

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# 1. Introduction

There are many technical indicators used in stock analysis that utilize different statistics from the past to try to forecast future results. In general practice, they are used in some combination by most stock analysts to form the basis of their stock analysis. Some analysts and hedge fund managers even go as far as using technical indicators and trend analysis as their sole indicator of future success (Covel, 2005). However, as Zhu and Zhou (2009) discuss, there are three reasons why academics tend to be disbelieving of technical indicators. First, no theoretical basis exists for it. Second, older attempts at theoretical studies assume that stock prices will follow the random walk model which makes profitability for indicators impossible. Lastly, early findings, like Cowles (1933) and Fama and Blume (1966) are inconclusive. However, as Zhu and Zhou state, there is more recent evidence that points towards the potential for profitability, like Brock et al (1992) and Lo et al (2000).

In this paper, I will be analyzing one of the most simple technical indicators: the simple moving average. The simple moving average (here on referred to as MA) is very intuitive: take the average stock price over a certain amount of time, and allow it to continue to move as time moves to reflect the changes in the stock price. The MA is especially popular with short-term traders looking to “time the market” (Mitchell, 2021). Different time horizons for the MA might make some stocks more or less volatile. In this paper, I will be analyzing the 50-day (short-term) and 200-day (long-term) MA.

According to the MA trading rule, if the current price crosses more than 1% above the MA, then a buy signal is triggered. The position should then be held until the current price crosses the moving average again from the opposite side, at which point it is sold. Similarly, if the current price drops to more than 1% below the MA, a sell signal is triggered, and the stock

should be sold short. The position should be closed when the current price next intersects with the MA (Brock et al. 1992), (Hayes et al. 2016).

There are advantages and disadvantages to using the MA. For example, using only closing prices does not reflect correct returns, because stocks are bought and sold at the ask and bid prices. While this spread is mostly very small, in infrequently traded companies it can be a wider margin which will drastically change buy-and-hold returns. In this paper, the adjusted closing prices will be tested for the 50- and 200-day MA, as well as the bid and ask prices in order to reflect the true stock trading experience. Another potential disadvantage for the MA is that it is a lagging indicator, which means that it “lags” behind the data, forecasting off of historical information. While this isn’t necessarily a bad thing, the future can react very differently than anything done in the past (Mitchell, 2021). The major advantage of the MA is its simplistic nature. It is very easy to calculate and is therefore easy to manipulate. The MA is used as the basis of many other technical indicators, like Bollinger Bands and the MACD.

This paper is organized as follows. Section 2 provides a literature review that I will build on with this study. Section 3 provides an overview of the data and methodology used to find the results, which are presented in section 4. Section 4 first details the sample distribution, and then it details profitability from trading using the 50 and 200 day MA and adjusted closing prices. There is then a robustness check and the last two sections of section 4 focus on the profitability using the bid-ask prices. Section 6 is the conclusion.

## **2. Review of literature**

Technical indicators as a whole have a very mixed history of research. As previously stated, early findings like Cowles (1933) and Fama and Blume (1966) show that the use of

technical indicators provides no advantage over buy-and-hold strategies. However, as time has gone on, more and more research has come out that has opened back up the discussion on the potential profitability of technical indicators, like Brock et al (1992) and Lo et al (2000). Though Brock et al was later refuted for the lacking of transaction costs, it paved the way for more research into technical indicators and the moving average.

Technical analysis became a large part of stock evaluation around 2010, when backtests of technical trading rules were performed after the period from 2000-2010 showed the potential for profitability over the market. Faber (2007) showed the potential for “equity-like returns with bond-like volatility”, alongside 30 consecutive years of positive returns. Gwilym (2010) finds that using technical indicators reduces the volatility for international equity markets and provides superior returns over buy-and-hold strategies. Further studies, like Emir (2013), show that 6 technical indicators all outperformed the buy-and-hold strategy for the Istanbul Stock Exchange National 100 Index. Hayes et al (2016) showed that multiple technical indicators were shown to have consistently higher risk-to-reward ratios with specific asset conditions and time horizons.

Research has also been done into the profitability of technical indicators in alternative markets. For example, in the commodities market, Yin et al (2016) show that technical indicators can significantly forecast indexed and off-index investments, proving that they are apt predictors of the market. Gencay (1999) shows that simple technical indicators can provide statistically significant forecast improvements for foreign exchange rates.

For the moving average technical indicator, as with other indicators, studies have trended towards the potential for statistically significant profitability. Gencay (1996) discusses the evidence of non-linear predictability using the MA rule from the DJIA from 1963-1988, contradicting the efficient market hypothesis. Kilgallen (2012) shows the MA trading rule



before-tax returns that are comparable or better than a buy-and-hold strategy with less volatility, comparing the use of the indicator to a diversification strategy. Clare et al (2013) finds that the 200 Day MA is superior to buy-and-hold returns from passive investing. In contrast to these studies, Zakamulin (2014) discovered that most studies of market timing strategies exhibit data-mining bias and ignore market frictions, detailing that the positive performance of these strategies is overstated.

More recently, Glabadanidis (2015) discusses that the MA trading rule has a greater average return and lower variance than the buy-and-hold strategy. That study, which used 18,000 US stocks in addition to foreign stocks, outlined the importance of using value-weighted portfolios sorted by market size, book-to-market ratios, and momentum. The study showed that the MA strategy generated returns of 3-7% after transaction costs. However, Zakamulin (2018) released a paper refuting the Glabadanidis study, citing that simulated trading with look-ahead bias as the reason for the inflated returns. Zakamulin ran the study again without look-ahead bias and shows that the returns are statistically indistinguishable between the MA rule and buy-and-hold strategy.

There is little research that has been done on how the profitability of the MA changes by the market conditions, ie. bull vs bear markets. This study looks to fill in the gap and expand on the existing literature.

### **3. Data and Methodology**

I obtain the initial sample of all stocks listed in The Chicago Center for Research in Security Prices (CRSP) from 2005 to 2010, covering the 2-year period before the financial crisis (2005-2006), the 2-year period during the financial crisis (2007-2008) and the 2-year period after

the financial crisis (2009-2010). Following prior studies in finance research, I remove financial firms (e.g. firms with 4-digit SIC codes from 6000 to 6999) and utilities firms (e.g. firms with 4-digit SIC codes from 4900 to 4999) due to the regulated nature of these firms. I also remove firms with missing information on bid and ask prices. This screening procedure provides an initial sample of 5,110,997 daily stock price observations.

With the initial sample identified, I calculate the 50-day and 200-day moving average adjusted close prices of each of the stocks in the sample. I follow Brock et al. (1992) and Hayes et al. (2016) to construct the basic structure of the moving average rules as follows.

1. Sell (buy) when the short-period 1-day adjusted close price crosses from above (below) the long period (50 days or 200 days moving average) adjusted close prices by more than 1%.
2. Close any open position if the short-period 1-day adjusted close price crosses the long period (50-day or 200-day moving average) adjusted close prices.

I calculate the buy-and-hold returns from the opening date of the position triggered by the moving averages to the closing date of the position. These buy-and-hold returns capture the profitability accrued to the MA trading rules. I also use the bid prices (upon sell trigger) and the ask prices (upon buy trigger) instead of the adjusted close prices given that investors sell at (lower) bid prices and buy at (higher) ask prices. This robustness check controls for transaction costs and are reported in section 4.3.1 for 50-day MA and section 4.3.2 for 200-day MA.

## 4. Results

### 4.1. Sample Distribution

In this section, I report the sample distribution by subperiods, by industries and by market capitalization deciles with trading triggers (buy or sell triggers) from 50-day and from 200-day moving averages (MA) of adjusted close prices, alternatively.

Table 1 reports the distribution of stocks with trading triggers (buy or sell triggers) on 50-day moving averages (MA) of adjusted close prices. Panel A shows the number of stocks with trading triggers in each period. Panel B shows the number of days with a MA trigger out of the total number of trading days in the period. It compares each period with another period, and lists the mean, median, 25<sup>th</sup> percentile, and 75<sup>th</sup> percentile. Panel B also lists the number of days with specifically a buy or a sell signal in each period. The last table on Panel C lists the average number of days from position opening to position closing in each period.

[INSERT TABLE 1 ABOUT HERE]

Panel A in Table 1 shows that the number of unique stocks with a trading trigger decreases between the *before crisis* and *crisis* periods, and again decreases between the *crisis* and *after crisis* periods. Panel B shows that the average number of days with a trading trigger for each stock actually follows the opposite pattern. It increases from 356 to 367 from the *before crisis* and *crisis* periods, and from 367 to 372 from the *crisis* to *after crisis* periods. All P values are  $<.0001$  except for the difference in mean between the *after crisis* and *crisis* periods (.0198), indicating that the differences otherwise are significant. Panel B also shows how differently the

“buy” and “sell” signals were triggered in the different periods for each stock. “Buy” was triggered on average 188 times before the crisis, 139 times during the crisis, and 231 times after the crisis, as opposed to “sell” being triggered 169 times before, 230 times during, and 142 times after (all p values <.0001). This makes intuitive sense, as the economy going into a downturn during the crisis period would obviously lead to more sell signals than buy signals, and a recovery post-crisis would lead to more buy signals than sell signals. Lastly, Panel C shows that the average number of days from opening date to closing date is very constant between signals and periods, ranging from 1.46 to 1.48 days for each.

Table 2 shows the same information as Table 1 except that the trading triggers are based upon the 200-day MA as opposed to the 50-day MA. Panel A in Table 2 shows that the number of unique stocks with a trading trigger decreases between the *before crisis* and *crisis* periods, and again decreases between the *crisis* and *after crisis* periods. Panel B shows that the average number of days with a trading trigger for each stock stays pretty constant. It is 275 before the crisis, 279 during the crisis, and 278 after the crisis. All p-values are significant, indicating that these average statistics well represent the sample distribution. Panel B also shows how differently the “buy” and “sell” signals were triggered in the different periods for each stock. “Buy” was triggered on average 154 times before the crisis, 73 times during the crisis, and 163 times after the crisis, as opposed to “sell” being triggered 122 times before, 207 times during, and 115 times after (all p-values are less than 0.001). Lastly, Panel C shows that the average number of days from opening date to closing date is very constant between signals and periods, ranging from 1.45 to 1.47 days for each of the periods. Overall, the distributions in Table 2 (based upon 200-day MA) are quite similar to those in Table 1 (based upon 50-day MA).

[INSERT TABLE 2 ABOUT HERE]

Table 3 shows the number of days with trading triggers on average for each firm in an industry in each period with trading triggers (buy or sell triggers) on 50-day moving averages (MA) of adjusted close prices. It shows how many days out of the total trading days there was a buy signal triggered, a sell trigger signaled, and the difference between the two. Panel A reports the distribution in the before crisis period; Panel B during the crisis period and Panel C after the crisis period. Most industries had more days with buy signals before the crisis, more with “sell” during the crisis, and again more with “buy” after the crisis. Some industries to note that followed this pattern in a large way were non-necessity goods: BEER, RTAIL, TRANS (all p values  $<.05$ ), which would have obviously done poorly in times of economic hardship. There was only one industry that had more “buy” signals than “sell” in the *crisis* period, and the p values weren’t significant. Likewise, there was only one industry with more “sell” signals than “buy” in the *after crisis* period, and the p values were not significant. It can be concluded that most industries were affected by the changing economic conditions in similar ways as it relates to the number of “buy” and “sell” triggers from the 50-Day MA.

[INSERT TABLE 3 ABOUT HERE]

Table 4 shows the number of days with trading triggers on average for each firm in an industry in each period with trading triggers (buy or sell triggers) on 200-day moving averages (MA) of adjusted close prices. Similar to the distribution in Table 3, most industries had more

days with buy signals before the crisis, more with “sell” during the crisis, and again more with “buy” after the crisis.

[INSERT TABLE 4 ABOUT HERE]

Table 5 shows the number of days that each firm had a trading trigger on 50-day moving averages (MA) of adjusted close prices in each period sorted by firm size. The firms are split up in 10 different deciles based on their market cap. For example, in the Before Crisis table, 78.49 represents that in the lowest 10% of market caps the firms had an average of 78.49 days with a “buy” trading trigger before the crisis, while 175.53 shows that the highest 10% of market caps had this many days on average with the “buy” signal before the crisis. Panel A shows *before crisis*, Panel B shows *crisis*, and Panel C shows *after crisis*. Table 5 shows some very important information. First, it shows that the difference in “buy” and “sell” triggers when sorted by market cap deciles follow an almost linear relationship. In each of the three periods, there is a clear correlation between larger firms and “buy” signals, and smaller firms and “sell” signals. Nearly all p-values are significant, suggesting that larger firms tend to produce “buy” signals more frequently than “sell” signals, regardless of economic conditions.

[INSERT TABLE 5 ABOUT HERE]

Table 6 shows the same information as Table 5, the distribution of the number of days with trading triggers broken down by market cap and period, but with trading trigger on 200-day MA of adjusted close prices as opposed to the 50-day MA. The firms are split up in 10 different

deciles based on their market cap. For example, in the *Before Crisis* table, 81.91 represents that in the lowest 10% of market caps the firms had an average of 81.91 days with a “buy” trading trigger. Table 20 shows that the difference in “buy” and “sell” triggers when sorted by market cap deciles follow an almost linear relationship. In both the *before crisis* and *after crisis* periods, there is a clear correlation between larger firms and “buy” signals, and smaller firms and “sell” signals. Nearly all P values are significant, except for a few of the smaller market caps in the *before crisis* and *after crisis* periods. Interestingly, in the *crisis* period, the number of trading days follows a “U” shape, with the smallest and largest firms both having significantly more “sell” signals than “buy” signals. Nevertheless, there is enough information to say that the market cap of the firm has a significant impact on the amount of trading triggers with the 200 Day MA.

[INSERT TABLE 6 ABOUT HERE]

#### **4.2. Profitability from trading triggers based upon 50-day moving averages of adjusted close prices**

Table 7 shows the average buy and hold return when the “buy” and “sell” signals are triggered, broken down by period. It then provides the comparison in the buy and hold returns between the three periods. The “buy” trigger before the crisis produced average returns of .016%, compared to in-crisis returns of -.174% and post-crisis returns of .085%. The “sell” signal before the crisis produced average returns of -.063%, compared to in-crisis returns of .138% and post-crisis returns of -.308% (all P values <.0001). During the crisis, when a stock was bought long following the MA rules, it was much more likely to lose money; on average, the return from MA trading rule was .19% higher before the crisis and .259% higher after the crisis

(as compared to during the crisis). On the flip side, when a stock was shorted in the crisis period following the MA rules, it was far more likely to earn money: it returned .201% more than *before crisis* and .446% more than *after crisis*. On average, however, if the 50-Day MA rules were followed for every stock in the market from 2005-2010, it would be a losing proposition. In each period, either the “buy” or the “sell” signal lost money. In both *before crisis* and *after crisis* periods the “buy” signal gained money, as opposed to the “sell” signal gaining money in the *crisis* period, indicating that it is best to adhere to “buy” signals in times of economic growth and “sell” signals in times of economic hardship.

[INSERT TABLE 7 ABOUT HERE]

Table 8 shows the buy and hold return for both the “buy” and “sell” signals broken down by industry and period (in Panels A-C). It also shows the differences between different periods for each industry and the associated statistical tests for the differences (in Panels D-F). The “buy” signal yield higher return than the “sell” signal in most industries before and after the crisis periods. However, during the crisis, the “buy” signal yielded significantly lower returns than the “sell” signal. Some examples of industries that fit this mold were: BEER, GOLD, STEEL (all p values <.05). Most industries that did not follow this mold returned p-values that were insignificant, like the SMOKE industry. Note that there was not a single industry that gave a higher return when sold short as opposed to long in the *after crisis* industry. The industry with the highest return before the crisis was a “buy” signal in OTHER, and that with the lowest return was the “sell” signal in GOLD. The industry with the highest return in the crisis was the “sell” signal in COMPS, and that with the lowest return was the buy signal in BOOKS. The industry



with the highest return after the crisis was a “buy” signal in GOLD, while the industry with the lowest return was a “sell” signal in FABPR. Similar to Table 7, it can be concluded that most industries were affected by the changing economic conditions in similar ways as it relates to the return in each period.

[INSERT TABLE 8 ABOUT HERE]

Table 9 shows the buy and hold return broken down by market cap deciles and period (Panels A-C). The firms are split into 10 different deciles based on market cap. In Panels D through F, I compare the buy-and-hold return between the three periods for each of the market capitalization deciles. Before the crisis, firms above the bottom 30% showed a relatively constant return percentage (about .07%) when bought long. During the crisis, there is a clear correlation between the size of the firm and the profitability with the “buy” signal. Smaller firms performed more poorly than larger firms. After the crisis, the “buy” signal reverted to a pretty constant return percentage except for the bottom 20% of firms, which produced a significantly lower return. For the “sell” signal, results were different. The return with a “sell” signal before the crisis produced a lower return for small companies than it did for larger companies, indicating that in times of uncertainty, short selling smaller firms will produce better results than short selling larger firms. In the *crisis* period, the “sell” signal produced higher results for smaller companies yet again, but conversely in the *after crisis* period the “sell” signal produced worse results for smaller firms than for larger firms.

[INSERT TABLE 9 ABOUT HERE]

In Panel D of Table 9, “buy” signals consistently yielded higher BHRs in the before-crisis period (as compared to the crisis-period) and the BHRs linearly increased with firm size. “Sell” signals, on the other hand, yielded lower BHRs in the before-crisis period (as compared to the crisis-period). In Panel E of Table 9, “buy” signals consistently yielded lower BHRs in the before-crisis period (as compared to the after-crisis period) while “sell” signals yielded higher BHRs in the before-crisis period (as compared to the after-crisis period). In Panel F of Table 9, “buy” signals consistently yielded lower BHRs in the crisis period (as compared to the after-crisis period) while “sell” signals yielded higher BHRs in the crisis period (as compared to the after-crisis period).

The univariate results in Tables 7 through 9 so far suggest that trading strategies based upon the 50-day moving averages of adjusted close price yielded higher returns in pre-crisis and post-crisis period. Furthermore, long positions during the pre-crisis and post-crisis period yielded better returns than short positions. Short positions won over long positions during the crisis period. In the next tables, I perform multiple regressions to show that the univariate results hold even in control for other market risk premium factors.

Table 10 shows the regression analysis for the BHR for the entire sample. Tables 7-9 build on the univariate analyses from tables 7-9 by providing multivariate regressions to confirm that the differences between periods, firm size and economic conditions are statistically significant while controlling for the Fama-French 3 factors and momentum factor, both of which have been discussed in previous studies. I estimate the following regression:

$$BHR_{i,t} = \alpha_{i,t} + \beta_{1,t}MKTRF_t + \beta_{2,t}SMB_t + \beta_{3,t}HML_t + \beta_{4,t}UMD_t + \beta_4BEFORECRISIS + \beta_5CRISIS + \sum_{ind=1}^{43} \beta_{ind}IND\_CODE + \varepsilon_{it} \quad [1]$$

The dependent variable,  $BHR_{i,t}$ , is buy-and hold return for a trading position for firm  $i$  at time  $t$  based upon the 50-Day moving averages of adjusted close prices. The independent variables of interest are the variables  $BEFORECRISIS$  and  $CRISIS$ .  $BEFORECRISIS$  and  $CRISIS$  are dummy variables set equal to 1 for positions opened in the before-crisis or crisis periods, respectively, and 0 otherwise. The intercept  $\alpha_{i,t}$  represents the after-crisis period.  $IND\_CODE$  is a set of 43 dummy variables for each of the 43 industries in this study. The goal of this regression analysis is to see whether the coefficients on the  $BEFORECRISIS$  and  $CRISIS$  variables stay statistically significant while controlling for the Fama and French 3 factors, the momentum factor and industry fixed effects. The t-statistics are calculated based upon heteroskedasticity-robust standard errors.

[INSERT TABLE 10 ABOUT HERE]

The 4 elements that will be controlled for are  $MKTRF_t$ ,  $SMB$ ,  $HML$ , and  $UMD$ .  $MKTRF_t$  is the market risk premium, while  $SMB$  is “small-big”, which is the difference between returns from small firms and big firms.  $HML$  is “high-low”, which is the difference between firms with high book-to-market return and firms with low book-to-market return. Lastly,  $UMD$  is the momentum factor, calculated as the difference in the returns on the equal weighed average of the highest performing firms and the equal weighted average of the lowest performing firms in the preceding period (Carhart, 1997).

The coefficient on the *BEFORECRISIS* and  $\alpha_{i,t}$  variables were not statistically significant, but the coefficient on the *CRISIS* variable is -.0002 and significant, meaning that following the 50-Day MA strategy during the crisis period returned significantly lower returns than the *BEFORECRISIS* and *AFTERCRISIS* periods. The results in Table 10 confirm in the univariate results that trading strategies based upon the 50-day moving averages of adjusted close price yielded lower returns during the crisis period. Thus, investors should avoid trades based upon moving average rules during the crisis period.

Table 11 shows the regression analysis for the BHR broken down by each market cap decile. The results stay qualitatively similar to the results in Table 10. For brevity, I only report the coefficients on the two variables of interest: *BEFORECRISIS* and *CRISIS* even though I also control for Fama and French 3 factors, the momentum factor and industry fixed effects. The coefficient on the *CRISIS* is negative and significant in a few of the market cap deciles, and positive and significant in a few as well. The results here confirm the robustness of the univariate results and the results from the multiple regressions in Table 10. Trading strategies based upon the 50-day moving averages of adjusted close price yielded lower returns during the crisis period.

[INSERT TABLE 11 ABOUT HERE]

## 4.2. Profitability from trading triggers based upon 200-day moving averages of adjusted close prices

Table 12 shows the same information as Table 7, the summary statistics of the buy and hold returns for “buy” and “sell” trading triggers based upon the 200-day MA as opposed to the 50-day MA. The “buy” trigger before the crisis produced average returns of .028%, compared to in-crisis returns of -.312% and post-crisis returns of .040%. The “sell” signal before the crisis produced average returns of -.085%, compared to in-crisis returns of -.179% and post-crisis returns of -.147% (all P values <.0001). During the crisis, when a stock was bought long following the MA rules, it was much more likely to lose money; on average, it returned .340% more before the crisis and .352% more after the crisis. Similar to the results using 50-day MA, when a stock was bought short in the crisis period following the 200-day MA rules, it was far more likely to earn money. It returned .264% more than *before crisis* and .326% more than *after crisis* (all P values were less than 5%). On average, similar to the 50-Day MA, if the 200-Day MA were followed for every stock in the market from 2005-2010, it would be a losing proposition. In each period, either the “buy” or the “sell” signal lost money. In both *before crisis* and *after crisis* periods the “buy” signal gained money, as opposed to the “sell” signal gaining money in only the *crisis* period, indicating that it is best to adhere to “buy” signals in times of economic growth and “sell” signals in times of economic hardship.

[INSERT TABLE 12 ABOUT HERE]

Table 13 shows the same information as Table 8, the distribution of the buy and hold returns of the trading triggers broken down by industry and period (Panels A-C), but with

different results with trading triggers (buy or sell triggers) on the 200 Day MA as opposed to the 50 Day MA. It also shows the comparison between industries in Panels D-F. All industries again gave a higher return with the “buy” signal than the “sell” signal before the crisis (one outlier, COAL, statistically insignificant), a lower return in the *crisis* (one outlier, AGRIC, statistically insignificant), and a much higher return in the *after crisis* period (two outliers, CONSTR and GUNS, statistically insignificant). Every other industry followed this pattern, though a decent amount weren’t statistically significant. The industry with the highest return before the crisis was a “buy” signal in SODA, and that with the lowest return was the “sell” signal in GOLD. The industry with the highest return in the crisis was the “sell” signal in BEER, and that with the lowest return was the buy signal in CLTHS. The industry with the highest return after the crisis was a “buy” signal in GOLD, while the industry with the lowest return was a “sell” signal in BEER. It can be concluded that most industries were significantly affected by the changing economic conditions in similar ways as it relates to the return in each period.

[INSERT TABLE 13 ABOUT HERE]

Table 14 shows the same information as Table 9, the buy and hold returns broken down by market cap and period (Panels A-C), but with different results due to using the 200-day MA as opposed to the 50-day MA. Panels D-F show the comparison between the periods. Before the crisis, firms above the bottom 30% showed a relatively constant return percentage (between .04% and .07%) when bought long. Those in the bottom 30% returned far less. During the crisis, there is a clear correlation between the size of the firm and the profitability with the “buy” signal. Smaller firms performed more poorly than larger firms. After the crisis, the “buy” signal reverted

to a pretty constant return percentage except for the bottom 20% of firms, which produced a significantly lower return. For the “sell” signal, results were different. The return with a “sell” signal before the crisis produced a lower return for small companies than it did for larger companies, indicating that in times of uncertainty, short selling smaller firms will produce better results than short selling larger firms. In the *crisis* period, the “sell” signal produced better results for smaller companies yet again, and it did so again in the *after crisis* period.

[INSERT TABLE 14 ABOUT HERE]

The results in Panel D of Table 14 suggest that “buy” signals consistently yield higher returns in the before-crisis period as compared to the crisis period, while “sell” signals consistently yielded lower returns. In Panel E, “sell” signals consistently yield higher returns in the before-crisis period as compared to the after-crisis period, while “buy” signals do not. Comparison between the crisis period and after-crisis period in Panel F shows that “buy” signals yielded lower returns in the crisis period but “sell” signals yielded higher returns.

Table 15 shows the same information as Table 10, the regression analyses of the buy-and-hold returns for the whole sample based upon the 200-day MA trading triggers as opposed to the 50-day MA. The coefficient on the *BEFORECRISIS* and  $\alpha_{i,t}$  variables were not statistically significant, but the coefficient on the *CRISIS* variable is -.0001 and significant, meaning that following the 200-Day MA strategy during the crisis period returned significantly lower returns than the other periods. This result is consistent with the results from the 50-day MA trading rule.

[INSERT TABLE 15 ABOUT HERE]

Table 16 shows the same information as Table 11, the regression analyses of the buy-and-hold returns broken down by market cap upon the 200-day MA trading triggers as opposed to the 50-day MA. For brevity, I only report the coefficients on the two variables of interest: *BEFORECRISIS* and *CRISIS* even though I also control for Fama and French 3 factors, the momentum factor and industry fixed effects. The coefficient on the *CRISIS* is negative and significant in the 7 largest deciles, and positive and significant in the 3 smallest. Thus, the lower BHR from moving average trading rule during the crisis is driven mainly by larger firms. There is potential to achieve higher BHR from trading strategy built on moving averages among smallest firm deciles.

[INSERT TABLE 16 ABOUT HERE]

### **4.3. Robustness checks to control for transaction costs.**

In section 4.1 and 4.2, the trading trigger points are identified, and the buy-and-hold returns are calculated using the adjusted daily close prices. However, in practice, investors sell at (lower) bid prices and buy at (higher) ask prices. In other words, investors have to incur transaction costs (e.g. bid-ask spread) which can cut in their profitability. Therefore, in this section, I perform robustness checks to examine whether the results documented in the previous sections hold once I take into account transaction costs. In section 4.3.1 below, I report the profitability from the trading strategy based upon 50-day moving averages of bid and ask prices. In section 4.3.2 below, I report the results from the trading strategy based upon 200-day moving averages of bid and ask prices.



### **4.3.1. Profitability from the trading strategy based upon 50-day moving averages of bid and ask prices**

Similar to Table 7, Table 17 reports the summary statistics of the buy and hold returns from the trading strategy based upon 50-day moving averages of bid and ask prices (instead of adjusted closing prices in Table 7). The “buy” trigger before the crisis produced average returns of -.471%, compared to in-crisis returns of -.799% and post-crisis returns of .369%. The “sell” signal before the crisis produced average returns of -.84%, compared to in-crisis returns of -1.336% and post-crisis returns of -1.329% (all P values <.0001). During the crisis, when a stock was bought long following the MA rules, it was much more likely to lose money: on average, it returned .328% more before the crisis and .165% more after the crisis. Interestingly, when using the bid-ask spread, stocks bought short in the crisis period using the 50 Day MA rule lost the most money as well: they returned .495% less than before crisis and .006% less than after crisis. On average, however, if the 50-Day MA rules were followed for every stock in the market from 2005-2010, it would be a losing proposition. In each period, both the “buy” and the “sell” signal lost money. This indicates that when using the bid-ask spread in the real world, the moving average trading indicator is not a profitable indicator to follow.

[INSERT TABLE 17 ABOUT HERE]

Similar to Table 8, Table 18 shows the buy and hold returns from the trading strategy based upon 50-day moving averages of bid and ask prices (instead of adjusted closing prices in Table 7) for each industry and period (Panels A-C). Panels D-F show the comparison of buy and

hold returns between periods. Most industries again gave a higher return with the “buy” signal than the “sell” signal before the crisis, a lower return in the *crisis*, and a much higher return in the *after crisis* period. Only one industry gave a statistically significant higher return with a “buy” signal than a sell signal during the crisis: BOOKS. Every other industry followed this pattern, though a decent amount weren’t statistically significant. The industry with the highest return before the crisis was a “buy” signal in SMOKE, and that with the lowest return was the “sell” signal in BEER. The industry with the highest return in the crisis was the “buy” signal in COAL, and that with the lowest return was the “sell” signal in OTHER. The industry with the highest return after the crisis was a “buy” signal in SMOKE, while the industry with the lowest return was a “sell” signal in BEER. Most industries were significantly affected by the changing economic conditions in similar ways as it relates to the return in each period.

[INSERT TABLE 18 ABOUT HERE]

Similar to Table 9, Table 19 shows the buy and hold returns from the trading strategy based upon 50-day moving averages of bid and ask prices (instead of adjusted closing prices in Table 7) for each market capitalization decile and period (Panels A-C). Panels D-F show the comparison of buy and hold returns between periods. Between all three periods, there is a very clear correlation between size of firm and profitability with the 50-Day MA between both the “buy” and “sell” signals.

[INSERT TABLE 19 ABOUT HERE]

The comparison in Panel D suggests that the BHRs from long positions based upon 50-day moving averages of bid and ask prices are higher in the before crisis period (as compared to during crisis period) among firms in the lower market capitalization deciles. Short positions, on the other hand, are associated with higher BHRs in the before crisis period among the bottom 5 market capitalization deciles while being associated with lower BHRs in the before crisis period among the top 5 market capitalization deciles. In Panel E, long positions are associated with higher BHRs in the before crisis period (as compared to the after-crisis period) among the bottom 5 market capitalization deciles while being associated with lower BHRs in the before crisis period among the top 5 market capitalization deciles. Short positions consistently bring about higher BHRs in the before-crisis period; the differences in BHRs between the before-crisis period and the after-crisis period decrease as firm size increases. In Panel F, long positions are associated with higher BHRs during crisis period (as compared to the after-crisis period) among the bottom 2 market capitalization deciles while being associated with lower BHRs in the before crisis period among the remaining market capitalization deciles. Short positions, on the other hand, bring about lower BHRs during crisis period in the bottom 4 market capitalization deciles while higher BHRs in the remaining larger market capitalization deciles. The results in this Table 19 suggest that the differences in BHRs between the 3 periods vary significantly between firm size deciles.

Similar to Table 10, Table 20 reports the results from the regressions of the BHRs from the trading strategy based upon 50-day moving averages of bid and ask prices (instead of adjusted closing prices in Table 10). All coefficients were statistically significant. The coefficient on the *BEFORE CRISIS* variable is .002, suggesting that following the 50-Day MA trading

strategy during the before crisis period produces significantly higher returns (0.2%) than the other periods. The coefficient on the *CRISIS* variable is -.003, suggesting that the 50-day MA trading strategy during the crisis period returns are significantly lower (-0.3% lower) than the other periods. The coefficient on the intercept (representing the *after crisis* period) was -.01, indicating significantly lower returns after the crisis compared to other periods using the 50-Day MA. Thus, even after controlling for market risk premium factors and industry fixed effects, the main results stay qualitatively consistent in that the profitability from MA trading rules was lower during the crisis period while being higher in the before-crisis period. Thus, investors should avoid trades based upon moving average rules during the crisis period.

[INSERT TABLE 20 ABOUT HERE]

Similar to Table 11, Table 21 shows the regression analysis for the BHR broken down by each market cap decile. The results stay qualitatively similar to the results in Table 11. For brevity, I only report the coefficients on the two variables of interest: *BEFORECRISIS* and *CRISIS* even though I also control for Fama and French 3 factors, the momentum factor and industry fixed effects. The coefficient on the *CRISIS* is consistently negative and significant in all market capitalization deciles. The coefficient on the *BEFORE CRISIS* is positive and significant in the lowest 5 market capitalization deciles while being negative and significant in the highest 5 market capitalization deciles. Thus, the higher BHRs in the before-crisis period were driven mainly by smaller firms.

[INSERT TABLE 21 ABOUT HERE]

#### **4.3.2. Profitability from the trading strategy based upon 200-day moving averages of bid and ask prices**

Similar to Table 12, Table 22 reports the summary statistics of the buy and hold returns from the trading strategy based upon 200-day moving averages of bid and ask prices (instead of adjusted closing prices in Table 7). The “buy” trigger before the crisis produced average returns of -.373%, compared to in-crisis returns of -.916% and post-crisis returns of -.411%. The “sell” signal before the crisis produced average returns of -.731%, compared to in-crisis returns of -1.326% and post-crisis returns of -.940% (all P values significant except differences in buy versus sell returns in crisis). During the crisis, when a stock was bought long following the MA rules, it was much more likely to lose money (as seen throughout this study): on average, it returned .543% more before the crisis and .506% more after the crisis. Interestingly, similar to the 50-Day MA when using the bid-ask spread, stocks bought short in the crisis period using the 200 Day MA rule lost the most money as well. They returned .595% less than *before crisis* and .386% less than *after crisis*. On average, again, if the 200-Day MA rules were followed for every stock in the market from 2005-2010, it would be a losing proposition. In each period, both the “buy” and the “sell” signal lost money. This indicates yet again that when using the bid-ask spread in the real world, the moving average trading indicator is not a profitable indicator to follow.

[INSERT TABLE 22 ABOUT HERE]

Similar to Table 13, Table 23 shows the buy and hold returns from the trading strategy based upon 200-day moving averages of bid and ask prices (instead of adjusted closing prices in Table 7) for each industry and period (Panels A-C). Panels D-F show the comparison of buy and hold returns between periods. Table 26 shows the same information as Table 19, the buy and hold returns broken down by industry and period (Panels A-C), but with different returns due to using the bid-ask prices instead of the adjusted closing prices. Panels D-F compare the industries between periods. Most industries again gave a higher return with the “buy” signal than the “sell” signal before the crisis. Differently than the other datasets, however, the 200-Day MA gave varied results for the “buy” and “sell” signals in the *crisis*. Thirty-three industries made more money with the sell signal, while ten made more money with the buy signal. However, both signals lost money in every industry on average. Again, most industries produced a higher return in the *after- crisis* period using the “buy” signal as opposed to the “sell” signal. The industry with the highest return before the crisis was a “buy” signal in SMOKE, and that with the lowest return was the “sell” signal in AGRIC. The industry with the highest return in the crisis was the “buy” signal in COAL, and that with the lowest return was the “sell” signal in BOXES. The industry with the highest return after the crisis was a “buy” signal in GOLD, while the industry with the lowest return was a “sell” signal in BEER. It can be concluded that most industries were significantly affected by the changing economic conditions in similar ways as it relates to the return in each period.

[INSERT TABLE 23 ABOUT HERE]

Similar to Table 14, Table 24 shows the buy and hold returns from the trading strategy based upon 200-day moving averages of bid and ask prices (instead of adjusted closing prices in Table 7) for each market capitalization decile and period (Panels A-C). Panels D-F show the comparison of buy and hold returns between periods. Between all three periods, there is a very clear correlation between size of firm and profitability with the 50-Day MA between both the “buy” and “sell” signals. The results in Table 24 mirror the results in Table 19 in that the differences in BHRs between the 3 periods vary significantly between firm size deciles.

[INSERT TABLE 24 ABOUT HERE]

Similar to Table 15, Table 25 reports the results from the regressions of the BHRs from the trading strategy based upon 200-day moving averages of bid and ask prices (instead of adjusted closing prices in Table 10). All coefficients were statistically significant. The coefficient on the *BEFORE CRISIS* variable was .001, meaning that following the 200-day MA strategy during the before crisis period produced significantly higher returns than the other periods. The coefficient on the *CRISIS* variable is -.007, meaning that following the 200-day MA strategy during the crisis period returned significantly lower returns than the other periods. The coefficient on the intercept (representing the *after crisis* period) was -.007, indicating significantly lower returns after the crisis using the 200-day MA trading rule. Thus, even after controlling for market risk premium factors and industry fixed effects, the main results stay qualitatively consistent in that the profitability from MA trading rules was lower during the crisis period while being higher in the before-crisis period. Thus, investors should avoid trades based upon moving average rules during the crisis period.

[INSERT TABLE 25 ABOUT HERE]

Similar to Table 16, Table 26 shows the regression analysis for the BHR broken down by each market cap decile. The results stay qualitatively similar to the results in Table 25. For brevity, I only report the coefficients on the two variables of interest: *BEFORECRISIS* and *CRISIS* even though I also control for Fama and French 3 factors, the momentum factor and industry fixed effects. The coefficient on the *CRISIS* is consistently negative and significant in all market capitalization deciles. The coefficient on the *BEFORE CRISIS* is positive and significant in in all market capitalization deciles.

[INSERT TABLE 26 ABOUT HERE]

## 5. Conclusion

In this paper, I analyzed the profitability of the 50- and 200-day moving average technical trading rule in different market conditions. I used SAS Statistical Analyses Software to analyze all non-financial stocks in the U.S. stock exchanges over the time period 2005-2010. I conducted the parametric t-test, Wilcoxon non-parametric test and multiple regressions to evaluate the statistical significance of the difference in profitability of the moving average trading rule between three different time periods: pre-crisis, crisis, and post-crisis. I found that profitability when using the moving average technical trading rule was significantly higher in the pre-crisis period than in the crisis and post-crisis period, and it was especially lowest during the crisis period. This implies that the moving average technical indicator should be avoided in bear markets. The results held in multiple regressions in control for Fama-French 4 factors and



industry fixed effects. Furthermore, long positions based upon the moving average technical indicator generated the highest returns in the before-crisis period while short positions did in the crisis period. The differences in the profitability between the three periods also vary significantly between firm market capitalization deciles.

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**Table 1 - Distribution of stocks with trading triggers based upon 50-day moving averages of adjusted close prices**

<i>Panel A - Number of unique stocks by periods</i>						
Period	Number of stocks with trading triggers			Percent		
before crisis	3,988			35.72%		
crisis	3,794			33.98%		
after crisis	3,383			30.30%		
<i>Panel B - Comparison of distribution among stocks with trading triggers</i>						
<u>Number of days with trading triggers per each stock in each period</u>						
	Mean	Median	25th Pctl	75th Pctl		
Before crisis (503 trading days)	356.46	399.00	352.00	417.00		
Crisis (504 trading days)	366.92	408.00	369.00	422.00		
difference	10.46	9.00				
p-values from t-stats/Wilcoxon-stats	<.0001	<.0001				
Before crisis (503 trading days)	356.46	399.00	352	417		
After Crisis (504 trading days)	372.18	412.00	381	425		
difference	15.72	13.00				
p-values from t-stats/Wilcoxon-stats	<.0001	<.0001				
After crisis (504 trading days)	372.18	412.00	381	425		
Crisis (504 trading days)	366.92	408.00	369	422		
difference	-5.26	-4.00				
p-values from t-stats/Wilcoxon-stats	0.0198	<.0001				
<u>Number of days with BUY vs. SELL triggers per each stock in each period</u>						
	BUY signal		SELL signal			
	Mean	Median	Mean	Median		
Before crisis (503 trading days)	187.90	198.00	169.47	171.00		
Crisis (504 trading days)	139.48	141.00	229.72	239.00		
After crisis	231.29	247.00	141.71	141.00		
Before crisis vs. Crisis	-48.42	-57.00	60.26	68.00		
p-values from t-stats/Wilcoxon-stats	<.0001	<.0001	<.0001	<.0001		
Before crisis vs. after Crisis	-43.40	-49.00	27.76	30.00		
p-values from t-stats/Wilcoxon-stats	<.0001	<.0001	<.0001	<.0001		
During crisis vs. after Crisis	91.82	106.00	-88.02	-98.00		
p-values from t-stats/Wilcoxon-stats	<.0001	<.0001	<.0001	<.0001		
<i>Panel C - Number of days from opening date to closing date</i>						
Trading signal	<u>Before crisis</u>		<u>Crisis</u>		<u>After crisis</u>	
	Mean	Median	Mean	Median	Mean	Median
BUY signal	1.47	1.00	1.46	1.00	1.46	1.00
SELL signal	1.46	1.00	1.47	1.00	1.48	1.00

**Table 2 - Distribution of stocks with trading triggers based upon 200-day moving averages of adjusted close prices**

<i>Panel A - Number of unique stocks by periods</i>						
Period	Number of stocks with trading triggers			Percent		
before crisis	3,197			35.10%		
crisis	3,098			34.01%		
after crisis	2,813			30.88%		
<i>Panel B - Comparison of distribution among stocks with trading triggers</i>						
<u>Number of days with trading triggers per each stock in each period</u>						
	Mean	Median	25th Pctl	75th Pctl		
Before crisis (503 trading days)	274.79	280.00	268.00	288.00		
Crisis (504 trading days)	279.41	286.00	275.00	292.00		
difference	4.61	6.00				
p-values from t-stats/Wilcoxon-stats	<.0001	<.0001				
Before crisis (503 trading days)	274.79	280.00	268.00	288.00		
After Crisis (504 trading days)	277.91	283.00	272	290		
difference	3.12	3.00				
p-values from t-stats/Wilcoxon-stats	0.0043	<.0001				
After crisis (504 trading days)	277.91	283.00	272	290		
Crisis (504 trading days)	279.41	286.00	275.00	292.00		
difference	1.49	3.00				
p-values from t-stats/Wilcoxon-stats	<.0001	<.0001				
<u>Number of days with BUY vs. SELL triggers per each stock in each period</u>						
	BUY signal		SELL signal			
	Mean	Median	Mean	Median		
Before crisis (503 trading days)	154.42	149.00	121.82	123.00		
Crisis (504 trading days)	73.68	51.00	207.46	225.00		
After crisis	163.55	171.00	114.91	102.00		
Before crisis vs. Crisis	-80.74	-98.00	85.63	102.00		
p-values from t-stats/Wilcoxon-stats	<.0001	<.0001	<.0001	<.0001		
Before crisis vs. after Crisis	-9.14	-22.00	6.91	21.00		
p-values from t-stats/Wilcoxon-stats	<.0001	<.0001	0.0009	<.0001		
During crisis vs. after Crisis	89.87	120.00	-92.55	-123.00		
p-values from t-stats/Wilcoxon-stats	<.0001	<.0001	<.0001	<.0001		
<i>Panel C - Number of days from opening date to closing date</i>						
	Before crisis		Crisis		After crisis	
Trading signal	Mean	Median	Mean	Median	Mean	Median
BUY signal	1.46	1.00	1.46	1.00	1.45	1.00
SELL signal	1.45	1.00	1.47	1.00	1.46	1.00

**Table 3 - Distribution of number of days with trading triggers per firm by industries by period with trading triggers based upon 50-day moving averages of adjusted close prices**

<i>Panel A-Before crisis</i>						
Industries	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test	
AERO	197.28	144.20	53.08	0.012**	0.015**	
AGRIC	151.73	152.00	-0.27	0.992	0.808	
AUTOS	158.82	184.08	-25.26	0.061*	0.07*	
BEER	184.21	110.14	74.07	0.009***	0.038**	
BLDMT	172.47	140.53	31.94	0.014**	0.009***	
BOOKS	155.96	174.27	-18.31	0.2	0.167	
BOXES	176.00	153.50	22.50	0.431	0.427	
BUSSV	178.11	157.56	20.54	0.000***	0.000***	
CHEM	168.90	153.79	15.11	0.18	0.131	
CHIPS	183.20	173.22	9.97	0.079*	0.024**	
CLTHS	188.22	136.07	52.15	0.000***	0.000***	
CNSTR	185.57	172.86	12.71	0.387	0.485	
COAL	166.83	165.75	1.08	0.974	0.932	
COMPS	173.32	164.16	9.17	0.253	0.124	
DRUGS	176.19	180.57	-4.38	0.439	0.53	
ELCEQ	177.07	183.74	-6.67	0.505	0.458	
FABPR	173.00	133.86	39.14	0.237	0.43	
FOOD	158.31	147.43	10.88	0.378	0.326	
FUN	165.84	159.54	6.30	0.634	0.581	
GOLD	197.56	130.78	66.78	0.119	0.075*	
GUNS	192.27	163.27	29.00	0.339	0.439	
HLTH	162.59	147.85	14.74	0.168	0.166	
HSHLD	160.79	149.47	11.32	0.378	0.395	
LABEQ	182.10	163.38	18.72	0.057*	0.038**	
MACH	191.79	147.26	44.53	0.000***	0.000***	
MEALS	177.50	147.61	29.89	0.000***	0.000***	
MEDEQ	166.58	162.07	4.52	0.577	0.366	
MINES	148.61	110.05	38.56	0.219	0.166	
OIL	182.96	147.35	35.61	0.000***	0.000***	
OTHER	76.00	94.00	-18.00	0.000***	1	
PAPER	173.74	139.00	34.74	0.026**	0.033**	
PERSV	162.72	131.61	31.11	0.019**	0.016**	
RTAIL	187.64	152.88	34.77	0.000***	0.000***	
RUBBR	168.38	141.43	26.95	0.178	0.224	
SHIPS	181.00	120.55	60.46	0.132	0.214	
SMOKE	215.00	146.40	68.60	0.178	0.425	
SODA	160.10	133.24	26.86	0.183	0.145	
STEEL	210.94	158.54	52.41	0.000***	0.000***	
TELCM	157.17	157.03	0.14	0.987	0.976	
TOYS	147.21	159.71	-12.51	0.426	0.338	
TRANS	183.25	149.49	33.76	0.000***	0.000***	
TXTLS	143.19	178.60	-35.41	0.246	0.195	
WHLSL	164.80	147.70	17.10	0.019**	0.014**	

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

<i>Panel B- Crisis</i>						
Industries	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test	
AERO	172.33	196.40	-24.07	0.163	0.058*	
AGRIC	142.64	167.25	-24.61	0.477	0.486	
AUTOS	122.20	244.53	-122.33	0.000***	0.000***	
BEER	142.46	233.77	-91.31	0.003***	0.007***	
BLDMT	148.70	225.50	-76.80	0.000***	0.000***	
BOOKS	98.08	250.92	-152.84	0.000***	0.000***	
BOXES	161.40	218.70	-57.30	0.029**	0.024**	
BUSSV	132.58	216.62	-84.04	0.000***	0.000***	
CHEM	153.26	222.84	-69.58	0.000***	0.000***	
CHIPS	136.16	238.26	-102.10	0.000***	0.000***	
CLTHS	131.06	243.69	-112.63	0.000***	0.000***	
CNSTR	136.40	232.13	-95.73	0.000***	0.000***	
COAL	218.08	198.17	19.92	0.394	0.188	
COMPS	140.27	230.54	-90.27	0.000***	0.000***	
DRUGS	135.91	238.06	-102.15	0.000***	0.000***	
ELCEQ	144.92	211.48	-66.57	0.000***	0.000***	
FABPR	197.30	219.50	-22.20	0.132	0.189	
FOOD	144.08	217.55	-73.47	0.000***	0.000***	
FUN	111.94	238.40	-126.46	0.000***	0.000***	
GOLD	151.73	204.18	-52.46	0.053*	0.096*	
GUNS	180.10	231.70	-51.60	0.043**	0.044**	
HLTH	138.11	208.20	-70.09	0.000***	0.000***	
HSHLD	124.60	229.51	-104.91	0.000***	0.000***	
LABEQ	142.27	224.17	-81.89	0.000***	0.000***	
MACH	165.19	215.85	-50.66	0.000***	0.000***	
MEALS	118.52	245.20	-126.68	0.000***	0.000***	
MEDEQ	143.28	222.09	-78.81	0.000***	0.000***	
MINES	108.94	219.50	-110.56	0.000***	0.002***	
OIL	171.78	210.92	-39.15	0.000***	0.000***	
OTHER	39.81	66.88	-27.07	0.093*	0.063*	
PAPER	127.56	238.96	-111.40	0.000***	0.000***	
PERSV	150.90	210.79	-59.89	0.000***	0.000***	
RTAIL	129.14	244.13	-114.99	0.000***	0.000***	
RUBBR	107.41	248.47	-141.06	0.000***	0.000***	
SHIPS	164.67	245.67	-81.00	0.000***	0.006***	
SMOKE	111.67	163.67	-52.00	0.124	0.14	
SODA	141.86	220.19	-78.33	0.000***	0.003***	
STEEL	143.09	203.25	-60.15	0.000***	0.000***	
TELCM	120.78	245.72	-124.94	0.000***	0.000***	
TOYS	123.15	243.42	-120.27	0.000***	0.000***	
TRANS	141.46	216.03	-74.57	0.000***	0.000***	
TXTLS	124.93	230.27	-105.33	0.000***	0.001***	
WHLSL	134.40	225.61	-91.21	0.000***	0.000***	

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

<i>Panel C-After crisis</i>					
Industries	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
AERO	282.00	127.68	154.32	0.000***	0.000***
AGRIC	184.33	200.83	-16.50	0.479	0.628
AUTOS	264.92	125.89	139.04	0.000***	0.000***
BEER	225.17	126.42	98.75	0.006***	0.013**
BLDMT	233.46	133.25	100.21	0.000***	0.000***
BOOKS	239.54	164.41	75.13	0.000***	0.000***
BOXES	233.82	101.27	132.55	0.000***	0.01**
BUSSV	226.33	135.89	90.43	0.000***	0.000***
CHEM	250.36	144.64	105.73	0.000***	0.000***
CHIPS	229.86	141.26	88.60	0.000***	0.000***
CLTHS	260.46	130.81	129.66	0.000***	0.000***
CNSTR	200.59	178.79	21.80	0.098*	0.019**
COAL	233.77	152.54	81.23	0.033**	0.054*
COMPS	234.82	136.90	97.93	0.000***	0.000***
DRUGS	203.67	171.81	31.86	0.000***	0.000***
ELCEQ	239.20	148.68	90.52	0.000***	0.000***
FABPR	230.73	123.50	107.23	0.000***	0.006***
FOOD	216.42	139.54	76.88	0.000***	0.000***
FUN	221.93	146.51	75.42	0.000***	0.000***
GOLD	249.10	112.80	136.30	0.000***	0.015**
GUNS	214.60	184.30	30.30	0.212	0.338
HLTH	237.19	149.97	87.22	0.000***	0.000***
HSHLD	244.54	128.32	116.22	0.000***	0.000***
LABEQ	250.08	132.89	117.19	0.000***	0.000***
MACH	262.40	127.88	134.51	0.000***	0.000***
MEALS	236.64	127.43	109.21	0.000***	0.000***
MEDEQ	219.22	143.48	75.74	0.000***	0.000***
MINES	202.17	139.04	63.12	0.016**	0.01***
OIL	233.49	153.66	79.83	0.000***	0.000***
OTHER	112.46	90.66	21.80	0.038**	0.186
PAPER	259.35	117.49	141.86	0.000***	0.000***
PERSV	219.04	162.56	56.47	0.000***	0.000***
RTAIL	245.48	146.08	99.40	0.000***	0.000***
RUBBR	230.29	147.00	83.29	0.005***	0.007***
SHIPS	273.33	129.67	143.67	0.000***	0.003***
SMOKE	277.86	109.86	168.00	0.000***	0.012**
SODA	243.74	132.32	111.42	0.000***	0.000***
STEEL	248.04	145.71	102.33	0.000***	0.000***
TELCM	228.31	130.85	97.47	0.000***	0.000***
TOYS	234.86	146.39	88.46	0.000***	0.000***
TRANS	237.65	146.19	91.46	0.000***	0.000***
TXTLS	271.15	135.31	135.85	0.000***	0.000***
WHLSL	236.16	123.28	112.88	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.



**Table 4 - Distribution of number of days with trading triggers per firm by industries by period with trading triggers based upon 200-day moving averages of adjusted close prices**

*Panel A- Before crisis*

Industries	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
AERO	207.00	53.32	153.68	0.000***	0.000***
AGRIC	191.83	71.67	120.17	0.016**	0.054*
AUTOS	127.19	133.76	-6.56	0.666	0.407
BEER	224.00	44.44	179.56	0.000***	0.003***
BLDMT	142.31	102.24	40.07	0.008***	0.016**
BOOKS	105.16	154.36	-49.20	0.009***	0.009***
BOXES	150.70	97.60	53.10	0.115	0.256
BUSSV	141.60	120.93	20.67	0.000***	0.000***
CHEM	163.89	93.45	70.44	0.000***	0.000***
CHIPS	146.34	124.61	21.73	0.001***	0.003***
CLTHS	190.49	77.57	112.92	0.000***	0.000***
CNSTR	119.65	151.58	-31.93	0.086*	0.219
COAL	129.89	139.00	-9.11	0.74	0.84
COMPS	135.93	119.13	16.79	0.067*	0.065*
DRUGS	131.39	143.43	-12.04	0.082*	0.087*
ELCEQ	140.09	126.78	13.31	0.284	0.322
FABPR	154.25	89.55	64.71	0.097*	0.131
FOOD	146.49	105.20	41.29	0.007***	0.008***
FUN	159.93	101.37	58.55	0.000***	0.002***
GOLD	200.29	85.29	115.00	0.003***	0.024**
GUNS	175.80	80.56	95.24	0.011**	0.061*
HLTH	129.22	122.11	7.11	0.57	0.555
HSHLD	134.74	102.82	31.92	0.038**	0.043**
LABEQ	149.32	111.53	37.79	0.001***	0.002***
MACH	160.96	93.51	67.45	0.000***	0.000***
MEALS	166.33	92.28	74.05	0.000***	0.000***
MEDEQ	129.40	133.95	-4.55	0.654	0.717
MINES	133.93	82.92	51.01	0.096*	0.144
OIL	144.92	117.02	27.90	0.004***	0.011**
OTHER	163.85	91.30	72.55	0.000***	0.000***
PAPER	121.49	118.72	2.77	0.87	0.887
PERSV	158.49	101.20	57.29	0.000***	0.000***
RTAIL	179.73	67.76	111.97	0.000***	0.000***
RUBBR	157.50	96.00	61.50	0.065*	0.103
SHIPS	176.75	136.67	40.08	0.641	0.615
SMOKE	146.31	95.67	50.65	0.061*	0.056*
SODA	200.35	70.19	130.16	0.000***	0.000***
STEEL	144.85	126.50	18.35	0.126	0.117
TELCM	133.00	112.78	20.22	0.273	0.276
TOYS	170.24	101.97	68.28	0.000***	0.000***
TRANS	131.36	119.39	11.97	0.712	0.737
TXTLS	144.12	101.53	42.59	0.000***	0.000***
WHLSL	164.80	147.70	17.10	0.019**	0.014**

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

<i>Panel B-Crisis</i>					
Industries	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
AERO	54.86	220.86	-166.00	0.000***	0.000***
AGRIC	83.88	177.75	-93.88	0.016**	0.048**
AUTOS	53.08	232.49	-179.41	0.000***	0.000***
BEER	69.55	208.27	-138.73	0.000***	0.002***
BLDMT	84.76	191.96	-107.21	0.000***	0.000***
BOOKS	37.12	248.03	-210.91	0.000***	0.000***
BOXES	77.56	192.78	-115.22	0.000***	0.01***
BUSSV	66.01	210.88	-144.87	0.000***	0.000***
CHEM	88.92	190.15	-101.23	0.000***	0.000***
CHIPS	63.31	215.87	-152.56	0.000***	0.000***
CLTHS	66.90	206.33	-139.43	0.000***	0.000***
CNSTR	88.37	194.74	-106.37	0.000***	0.000***
COAL	179.09	112.36	66.73	0.028**	0.021**
COMPS	66.91	214.37	-147.46	0.000***	0.000***
DRUGS	71.23	209.24	-138.00	0.000***	0.000***
ELCEQ	75.16	197.81	-122.65	0.000***	0.000***
FABPR	89.60	194.60	-105.00	0.000***	0.003***
FOOD	87.60	183.10	-95.50	0.000***	0.000***
FUN	46.60	234.65	-188.06	0.000***	0.000***
GOLD	77.25	196.88	-119.63	0.000***	0.006***
GUNS	44.67	240.90	-196.23	0.000***	0.002***
HLTH	74.49	199.04	-124.55	0.000***	0.000***
HSHLD	70.00	201.79	-131.79	0.000***	0.000***
LABEQ	64.14	207.94	-143.80	0.000***	0.000***
MACH	95.33	185.92	-90.59	0.000***	0.000***
MEALS	41.64	235.39	-193.75	0.000***	0.000***
MEDEQ	79.18	194.40	-115.23	0.000***	0.000***
MINES	62.46	228.46	-166.00	0.000***	0.001***
OIL	128.45	151.00	-22.56	0.004***	0.086*
OTHER	49.00	17.00	32.00	0.486	0.724
PAPER	52.40	219.95	-167.55	0.000***	0.000***
PERSV	68.00	212.13	-144.13	0.000***	0.000***
RTAIL	71.87	208.14	-136.27	0.000***	0.000***
RUBBR	35.39	236.85	-201.46	0.000***	0.000***
SHIPS	127.00	170.00	-43.00	0.12	0.094*
SMOKE	114.00	143.00	-29.00	0.616	0.686
SODA	71.32	197.26	-125.95	0.000***	0.000***
STEEL	96.13	179.56	-83.43	0.000***	0.000***
TELCM	46.02	238.81	-192.80	0.000***	0.000***
TOYS	60.19	214.14	-153.95	0.000***	0.000***
TRANS	100.74	181.24	-80.50	0.000***	0.000***
TXTLS	73.50	194.69	-121.19	0.002***	0.007***
WHLSL	72.20	201.56	-129.36	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

<i>Panel C-After crisis</i>					
Industries	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
AERO	216.79	60.68	156.11	0.000***	0.000***
AGRIC	84.80	192.50	-107.70	0.003***	0.015**
AUTOS	186.34	93.53	92.81	0.000***	0.000***
BEER	165.22	99.44	65.78	0.063*	0.058*
BLDMT	177.63	96.93	80.71	0.000***	0.000***
BOOKS	147.00	131.83	15.17	0.326	0.365
BOXES	190.00	77.88	112.13	0.004***	0.058*
BUSSV	156.03	117.63	38.40	0.000***	0.000***
CHEM	175.31	107.53	67.78	0.000***	0.000***
CHIPS	157.73	119.37	38.36	0.000***	0.000***
CLTHS	189.82	84.43	105.38	0.000***	0.000***
CNSTR	120.44	161.07	-40.63	0.004***	0.004***
COAL	114.00	172.64	-58.64	0.057*	0.203
COMPS	152.28	125.58	26.71	0.018**	0.019**
DRUGS	136.56	144.20	-7.64	0.342	0.402
ELCEQ	165.53	108.86	56.67	0.000***	0.000***
FABPR	174.88	94.25	80.63	0.068*	0.078*
FOOD	171.84	101.08	70.76	0.000***	0.000***
FUN	147.30	134.89	12.42	0.504	0.574
GOLD	189.25	96.88	92.38	0.01**	0.021**
GUNS	124.90	157.40	-32.50	0.357	0.256
HLTH	151.76	124.54	27.21	0.045**	0.047**
HSHLD	174.65	98.08	76.56	0.000***	0.000***
LABEQ	182.56	90.02	92.54	0.000***	0.000***
MACH	194.09	84.35	109.75	0.000***	0.000***
MEALS	212.38	67.56	144.82	0.000***	0.000***
MEDEQ	149.30	127.17	22.13	0.025**	0.038**
MINES	147.94	138.65	9.29	0.737	0.758
OIL	134.34	147.48	-13.14	0.204	0.199
OTHER	190.44	81.73	108.71	0.002***	0.003***
PAPER	199.89	80.58	119.31	0.000***	0.000***
PERSV	143.98	134.66	9.32	0.53	0.646
RTAIL	170.02	109.12	60.90	0.000***	0.000***
RUBBR	159.75	121.92	37.83	0.317	0.351
SHIPS	205.56	76.11	129.45	0.000***	0.005***
SMOKE	209.43	58.00	151.43	0.000***	0.011**
SODA	184.00	88.94	95.06	0.000***	0.002***
STEEL	152.27	128.27	24.00	0.15	0.178
TELCM	178.95	95.37	83.57	0.000***	0.000***
TOYS	172.38	104.88	67.50	0.006***	0.006***
TRANS	173.33	105.27	68.07	0.000***	0.000***
TXTLS	180.58	97.92	82.67	0.004***	0.013**
WHLSL	180.20	91.14	89.07	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

**Table 5 - Distribution of number of firms by trading triggers by market capitalization deciles by period with trading triggers based upon 50-day moving averages of adjusted close prices**

*Panel A- Before crisis*

Market cap deciles	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
0	78.49	118.97	-40.48	0.000***	0.000***
1	66.26	81.83	-15.58	0.000***	0.000***
2	62.37	67.39	-5.02	0.044**	0.089*
3	69.06	66.76	2.30	0.355	0.751
4	76.66	63.42	13.24	0.000***	0.000***
5	82.44	67.14	15.30	0.000***	0.000***
6	91.81	71.82	19.99	0.000***	0.000***
7	109.30	79.86	29.44	0.000***	0.000***
8	129.69	95.45	34.24	0.000***	0.000***
9	175.53	117.58	57.95	0.000***	0.000***

*Panel B- Crisis*

Market cap deciles	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
0	52.87	125.43	-72.56	0.000***	0.000***
1	44.69	85.40	-40.71	0.000***	0.000***
2	43.36	75.00	-31.64	0.000***	0.000***
3	45.33	73.22	-27.89	0.000***	0.000***
4	51.58	72.40	-20.81	0.000***	0.000***
5	58.01	74.80	-16.79	0.000***	0.000***
6	64.85	79.62	-14.77	0.000***	0.000***
7	77.33	91.81	-14.49	0.000***	0.003***
8	98.34	115.77	-17.44	0.000***	0.000***
9	127.10	148.76	-21.66	0.000***	0.000***

*Panel C-After crisis*

Market cap deciles	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
0	86.30	91.70	-5.40	0.185	0.183
1	74.12	65.61	8.50	0.006***	0.094*
2	72.91	58.22	14.69	0.000***	0.000***
3	76.75	56.37	20.38	0.000***	0.000***
4	82.51	55.66	26.84	0.000***	0.000***
5	90.92	58.12	32.80	0.000***	0.000***
6	104.70	59.11	45.59	0.000***	0.000***
7	123.41	64.81	58.60	0.000***	0.000***
8	158.45	72.09	86.35	0.000***	0.000***
9	211.81	90.77	121.04	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

**Table 6 - Distribution of number of firms by trading triggers by market capitalization deciles by period with trading triggers based upon 200-day moving averages of adjusted close prices**

<i>Panel A-Before crisis</i>					
Market cap deciles	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
0	81.91	104.27	-22.35	0.000***	0.000***
1	72.51	72.19	0.32	0.934	0.815
2	60.63	64.42	-3.79	0.259	0.404
3	67.87	63.76	4.11	0.234	0.152
4	74.46	61.87	12.59	0.000***	0.002***
5	78.50	63.29	15.21	0.000***	0.000***
6	86.97	59.46	27.51	0.000***	0.000***
7	102.81	65.03	37.77	0.000***	0.000***
8	119.67	76.70	42.98	0.000***	0.000***
9	154.62	81.74	72.88	0.000***	0.000***
<i>Panel B-Crisis</i>					
Market cap deciles	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
0	29.59	115.65	-86.07	0.000***	0.000***
1	29.82	83.09	-53.27	0.000***	0.000***
2	28.08	73.33	-45.25	0.000***	0.000***
3	31.78	71.60	-39.83	0.000***	0.000***
4	35.21	70.95	-35.74	0.000***	0.000***
5	40.85	72.75	-31.90	0.000***	0.000***
6	47.37	79.06	-31.69	0.000***	0.000***
7	52.02	89.57	-37.55	0.000***	0.000***
8	64.96	106.22	-41.27	0.000***	0.000***
9	70.34	143.23	-72.89	0.000***	0.000***
<i>Panel C-After crisis</i>					
Market cap deciles	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
0	81.10	95.45	-14.34	0.014**	0.011**
1	68.16	72.72	-4.57	0.272	0.067*
2	68.48	63.13	5.35	0.164	0.533
3	74.21	63.44	10.77	0.004***	0.215
4	76.76	59.07	17.70	0.000***	0.000***
5	84.01	60.29	23.72	0.000***	0.000***
6	92.82	57.65	35.17	0.000***	0.000***
7	112.64	54.76	57.88	0.000***	0.000***
8	128.93	67.11	61.81	0.000***	0.000***
9	157.34	79.44	77.91	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

**Table 7 - Comparison of buy-and-hold returns surrounding the financial crisis - Trading triggers based upon 50-day moving averages of adjusted close prices – Whole Sample**

<i>Trading signal</i>	<i>Mean</i>	<i>Median</i>	<i>Pr &gt;  t </i>
Buy before crisis	0.016%	0.000%	<.0001***
Sell before crisis	-0.063%	0.000%	<.0001***
Buy - Sell before crisis	0.079%	0.000%	
p-values from t-test / Wilcoxon test	<.0001***	<.0001***	
Buy in crisis	-0.174%	-0.073%	<.0001***
Sell in crisis	0.138%	0.097%	<.0001***
Buy - Sell in crisis	-0.312%	-0.170%	
p-values from t-test / Wilcoxon test	<.0001***	<.0001***	
Buy in after crisis	0.085%	0.000%	<.0001***
Sell in after crisis	-0.308%	-0.023%	<.0001***
Buy - Sell in after crisis	0.393%	0.023%	
p-values from t-test / Wilcoxon test	<.0001***	<.0001***	
Buy before crisis vs. Buy in crisis	0.190%	0.073%	
p-values from t-test / Wilcoxon test	<.0001***	<.0001***	
Sell before crisis vs. Sell in crisis	-0.201%	-0.097%	
p-values from t-test / Wilcoxon test	<.0001***	<.0001***	
Buy before crisis vs. Buy after crisis	-0.069%	0.000%	
p-values from t-test / Wilcoxon test	<.0001***	<.0001***	
Sell before crisis vs. Sell after crisis	0.245%	0.023%	
p-values from t-test / Wilcoxon test	<.0001***	<.0001***	
Buy during crisis vs. Buy after crisis	-0.259%	-0.073%	
p-values from t-test / Wilcoxon test	<.0001***	<.0001***	
Sell during crisis vs. Sell after crisis	0.446%	0.120%	
p-values from t-test / Wilcoxon test	<.0001***	<.0001***	

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

**Table 8 - Comparison of buy-and-hold returns surrounding the financial crisis - Trading triggers based upon 50-day moving averages of adjusted close prices – By industries**

*Panel A-Before crisis*

Industries	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
AERO	0.061%	-0.059%	0.120%	0.025**	0.123
AGRIC	-0.078%	-0.194%	0.116%	0.134	0.418
AUTOS	0.038%	0.025%	0.012%	0.726	0.101
BEER	0.014%	-0.271%	0.285%	0.000***	0.000***
BLDMT	0.023%	-0.097%	0.120%	0.000***	0.351
BOOKS	-0.004%	-0.062%	0.058%	0.082*	0.439
BOXES	-0.016%	-0.106%	0.090%	0.209	0.25
BUSSV	-0.001%	-0.080%	0.079%	0.000***	0.005***
CHEM	0.002%	-0.067%	0.069%	0.023**	0.706
CHIPS	0.016%	-0.048%	0.064%	0.000***	0.000***
CLTHS	0.068%	-0.117%	0.186%	0.000***	0.01**
CNSTR	0.057%	-0.026%	0.083%	0.022**	0.298
COAL	0.078%	0.063%	0.016%	0.856	0.992
COMPS	0.024%	-0.074%	0.097%	0.000***	0.512
DRUGS	0.010%	-0.017%	0.026%	0.146	0.000***
ELCEQ	-0.042%	-0.050%	0.008%	0.788	0.000***
FABPR	0.046%	-0.075%	0.121%	0.174	0.541
FOOD	-0.024%	-0.128%	0.104%	0.002***	0.204
FUN	0.074%	0.018%	0.056%	0.099*	0.226
GOLD	0.058%	-0.345%	0.403%	0.000***	0.037**
GUNS	0.058%	0.036%	0.022%	0.788	0.396
HLTH	-0.021%	-0.089%	0.069%	0.016**	0.249
HSHLD	0.008%	-0.048%	0.056%	0.112	0.713
LABEQ	-0.027%	-0.150%	0.123%	0.000***	0.449
MACH	0.064%	-0.098%	0.161%	0.000***	0.000***
MEALS	0.041%	-0.107%	0.149%	0.000***	0.019**
MEDEQ	-0.022%	-0.032%	0.011%	0.65	0.000***
MINES	0.112%	0.031%	0.081%	0.359	0.951
OIL	0.047%	-0.106%	0.153%	0.000***	0.000***
OTHER	0.293%	0.032%	0.261%	0.392	0.72
PAPER	0.033%	-0.080%	0.113%	0.001***	0.032**
PERSV	-0.013%	-0.080%	0.068%	0.059*	0.754
RTAIL	0.042%	-0.054%	0.095%	0.000***	0.521
RUBBR	0.031%	0.003%	0.028%	0.667	0.438
SHIPS	0.116%	-0.060%	0.176%	0.04**	0.13
SMOKE	0.123%	-0.120%	0.243%	0.034**	0.231
SODA	0.029%	-0.108%	0.137%	0.000***	0.007***
STEEL	0.148%	-0.096%	0.244%	0.000***	0.000***
TELCM	0.002%	-0.034%	0.036%	0.103	0.016**
TOYS	-0.020%	-0.005%	-0.015%	0.758	0.048**
TRANS	0.027%	-0.084%	0.111%	0.000***	0.011**
TXTLS	0.003%	-0.030%	0.033%	0.664	0.142
WHLSL	-0.002%	-0.050%	0.049%	0.025**	0.111

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

<i>Panel B-Crisis</i>						
Industries	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test	
AERO	-0.164%	0.038%	-0.202%	0.01***	0.000***	
AGRIC	-0.084%	-0.016%	-0.068%	0.644	0.324	
AUTOS	-0.181%	0.321%	-0.502%	0.000***	0.000***	
BEER	-0.236%	0.202%	-0.437%	0.000***	0.000***	
BLDMT	-0.126%	0.095%	-0.221%	0.000***	0.000***	
BOOKS	-0.397%	0.248%	-0.646%	0.000***	0.000***	
BOXES	-0.122%	-0.012%	-0.110%	0.342	0.247	
BUSSV	-0.191%	0.115%	-0.306%	0.000***	0.000***	
CHEM	-0.158%	0.115%	-0.273%	0.000***	0.000***	
CHIPS	-0.191%	0.162%	-0.353%	0.000***	0.000***	
CLTHS	-0.279%	0.120%	-0.399%	0.000***	0.000***	
CNSTR	-0.245%	0.164%	-0.408%	0.000***	0.000***	
COAL	0.303%	0.373%	-0.069%	0.66	0.291	
COMPS	-0.168%	0.107%	-0.275%	0.000***	0.000***	
DRUGS	-0.250%	0.114%	-0.364%	0.000***	0.000***	
ELCEQ	-0.117%	0.056%	-0.174%	0.000***	0.000***	
FABPR	-0.045%	0.072%	-0.117%	0.372	0.232	
FOOD	-0.174%	0.003%	-0.177%	0.000***	0.000***	
FUN	-0.218%	0.256%	-0.474%	0.000***	0.000***	
GOLD	-0.126%	0.049%	-0.175%	0.224	0.024**	
GUNS	-0.096%	0.033%	-0.129%	0.325	0.056*	
HLTH	-0.145%	0.046%	-0.191%	0.000***	0.000***	
HSHLD	-0.198%	0.138%	-0.336%	0.000***	0.000***	
LABEQ	-0.182%	0.110%	-0.292%	0.000***	0.000***	
MACH	-0.063%	0.110%	-0.174%	0.000***	0.000***	
MEALS	-0.232%	0.173%	-0.405%	0.000***	0.000***	
MEDEQ	-0.171%	0.129%	-0.300%	0.000***	0.000***	
MINES	-0.121%	0.273%	-0.394%	0.003***	0.000***	
OIL	0.040%	0.270%	-0.230%	0.000***	0.000***	
OTHER	-0.354%	0.280%	-0.634%	0.004***	0.000***	
PAPER	-0.275%	0.143%	-0.419%	0.000***	0.000***	
PERSV	-0.149%	0.050%	-0.200%	0.000***	0.000***	
RTAIL	-0.229%	0.156%	-0.385%	0.000***	0.000***	
RUBBR	-0.255%	0.198%	-0.452%	0.000***	0.000***	
SHIPS	-0.045%	0.049%	-0.095%	0.39	0.158	
SMOKE	-0.047%	-0.143%	0.096%	0.459	0.608	
SODA	-0.154%	0.057%	-0.211%	0.002***	0.000***	
STEEL	-0.065%	0.147%	-0.212%	0.000***	0.000***	
TELCM	-0.261%	0.210%	-0.471%	0.000***	0.000***	
TOYS	-0.326%	0.139%	-0.465%	0.000***	0.000***	
TRANS	-0.169%	0.119%	-0.288%	0.000***	0.000***	
TXTLS	-0.296%	0.098%	-0.394%	0.000***	0.000***	
WHLSL	-0.183%	0.108%	-0.292%	0.000***	0.000***	

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.



<i>Panel C-After crisis</i>					
Industries	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
AERO	0.120%	-0.352%	0.473%	0.000***	0.000***
AGRIC	-0.087%	-0.215%	0.128%	0.22	0.792
AUTOS	0.224%	-0.430%	0.654%	0.000***	0.000***
BEER	0.023%	-0.457%	0.480%	0.000***	0.000***
BLDMT	0.100%	-0.332%	0.432%	0.000***	0.000***
BOOKS	0.049%	-0.368%	0.417%	0.000***	0.000***
BOXES	0.092%	-0.537%	0.630%	0.000***	0.000***
BUSSV	0.056%	-0.322%	0.378%	0.000***	0.000***
CHEM	0.147%	-0.236%	0.384%	0.000***	0.000***
CHIPS	0.074%	-0.346%	0.420%	0.000***	0.000***
CLTHS	0.154%	-0.414%	0.568%	0.000***	0.000***
CNSTR	-0.005%	-0.237%	0.232%	0.000***	0.27
COAL	0.117%	-0.164%	0.281%	0.023**	0.076*
COMPS	0.099%	-0.311%	0.410%	0.000***	0.000***
DRUGS	-0.024%	-0.197%	0.173%	0.000***	0.389
ELCEQ	0.070%	-0.312%	0.382%	0.000***	0.000***
FABPR	0.164%	-0.606%	0.770%	0.000***	0.000***
FOOD	0.017%	-0.311%	0.328%	0.000***	0.000***
FUN	0.113%	-0.267%	0.381%	0.000***	0.000***
GOLD	0.242%	-0.424%	0.666%	0.000***	0.000***
GUNS	-0.088%	-0.147%	0.059%	0.55	0.808
HLTH	0.092%	-0.257%	0.350%	0.000***	0.000***
HSHLD	0.158%	-0.338%	0.496%	0.000***	0.000***
LABEQ	0.056%	-0.439%	0.495%	0.000***	0.000***
MACH	0.123%	-0.457%	0.580%	0.000***	0.000***
MEALS	0.117%	-0.319%	0.436%	0.000***	0.000***
MEDEQ	0.032%	-0.251%	0.283%	0.000***	0.000***
MINES	0.176%	-0.355%	0.531%	0.000***	0.002***
OIL	0.107%	-0.304%	0.411%	0.000***	0.000***
OTHER	0.066%	-0.175%	0.241%	0.000***	0.007***
PAPER	0.179%	-0.451%	0.629%	0.000***	0.000***
PERSV	0.081%	-0.227%	0.307%	0.000***	0.000***
RTAIL	0.159%	-0.255%	0.413%	0.000***	0.000***
RUBBR	0.215%	-0.198%	0.413%	0.000***	0.002***
SHIPS	0.152%	-0.428%	0.581%	0.000***	0.000***
SMOKE	0.120%	-0.349%	0.469%	0.000***	0.000***
SODA	0.070%	-0.265%	0.335%	0.000***	0.002***
STEEL	0.111%	-0.390%	0.501%	0.000***	0.000***
TELCM	0.129%	-0.310%	0.439%	0.000***	0.000***
TOYS	-0.002%	-0.385%	0.383%	0.000***	0.006***
TRANS	0.075%	-0.280%	0.355%	0.000***	0.000***
TXTLS	0.072%	-0.570%	0.642%	0.000***	0.000***
WHLSL	0.098%	-0.401%	0.500%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

*Panel D-Before crisis vs. crisis*

Industries	BUY signal	pval from t-test	pval from Wilcoxon test	SELL signal	pval from t-test	pval from Wilcoxon test
AERO	0.225%	0.000***	0.000***	-0.098%	0.207	0.11
AGRIC	0.007%	0.948	0.72	-0.178%	0.17	0.096*
AUTOS	0.218%	0.000***	0.000***	-0.296%	0.000***	0.000***
BEER	0.250%	0.003***	0.035**	-0.473%	0.000***	0.000***
BLDMT	0.149%	0.000***	0.000***	-0.192%	0.000***	0.000***
BOOKS	0.393%	0.000***	0.000***	-0.311%	0.000***	0.000***
BOXES	0.106%	0.172	0.258	-0.095%	0.4	0.23
BUSSV	0.190%	0.000***	0.000***	-0.195%	0.000***	0.000***
CHEM	0.160%	0.000***	0.000***	-0.182%	0.000***	0.000***
CHIPS	0.207%	0.000***	0.000***	-0.211%	0.000***	0.000***
CLTHS	0.347%	0.000***	0.000***	-0.238%	0.000***	0.000***
CNSTR	0.301%	0.000***	0.000***	-0.190%	0.000***	0.000***
COAL	-0.225%	0.013**	0.019**	-0.310%	0.044**	0.007***
COMPS	0.192%	0.000***	0.000***	-0.180%	0.000***	0.000***
DRUGS	0.259%	0.000***	0.000***	-0.131%	0.000***	0.000***
ELCEQ	0.075%	0.048**	0.015**	-0.107%	0.015**	0.000***
FABPR	0.090%	0.338	0.446	-0.147%	0.247	0.246
FOOD	0.150%	0.000***	0.000***	-0.131%	0.003***	0.000***
FUN	0.292%	0.000***	0.000***	-0.238%	0.000***	0.000***
GOLD	0.184%	0.11	0.084*	-0.394%	0.008***	0.008***
GUNS	0.154%	0.102	0.339	0.003%	0.982	0.49
HLTH	0.124%	0.000***	0.000***	-0.135%	0.000***	0.000***
HSHLD	0.206%	0.000***	0.000***	-0.186%	0.000***	0.000***
LABEQ	0.155%	0.000***	0.000***	-0.260%	0.000***	0.000***
MACH	0.127%	0.000***	0.000***	-0.208%	0.000***	0.000***
MEALS	0.273%	0.000***	0.000***	-0.281%	0.000***	0.000***
MEDEQ	0.149%	0.000***	0.000***	-0.162%	0.000***	0.000***
MINES	0.233%	0.033**	0.029**	-0.242%	0.038**	0.000***
OIL	0.007%	0.757	0.51	-0.376%	0.000***	0.000***
OTHER	0.647%	0.011**	0.004***	-0.248%	0.37	0.671
PAPER	0.308%	0.000***	0.000***	-0.223%	0.000***	0.000***
PERSV	0.137%	0.000***	0.000***	-0.131%	0.009***	0.000***
RTAIL	0.270%	0.000***	0.000***	-0.209%	0.000***	0.000***
RUBBR	0.285%	0.002***	0.000***	-0.195%	0.026**	0.013**
SHIPS	0.162%	0.042**	0.081*	-0.109%	0.34	0.198
SMOKE	0.170%	0.121	0.016**	0.023%	0.861	0.928
SODA	0.183%	0.000***	0.025**	-0.165%	0.008***	0.000***
STEEL	0.213%	0.000***	0.000***	-0.244%	0.000***	0.000***
TELCM	0.263%	0.000***	0.000***	-0.243%	0.000***	0.000***
TOYS	0.306%	0.000***	0.000***	-0.144%	0.03**	0.000***
TRANS	0.195%	0.000***	0.000***	-0.203%	0.000***	0.000***
TXTLS	0.300%	0.001***	0.000***	-0.127%	0.181	0.112
WHLSL	0.181%	0.000***	0.000***	-0.159%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

*Panel E-Before crisis vs. After crisis*

Industries	BUY signal	pval from t-test	pval from Wilcoxon test	SELL signal	pval from t-test	pval from Wilcoxon test
AERO	-0.060%	0.198	0.477	0.293%	0.000***	0.000***
AGRIC	0.009%	0.92	0.719	0.021%	0.821	0.355
AUTOS	-0.186%	0.000***	0.000***	0.456%	0.000***	0.000***
BEER	-0.009%	0.907	0.927	0.186%	0.07*	0.556
BLDMT	-0.077%	0.029**	0.069*	0.235%	0.000***	0.000***
BOOKS	-0.053%	0.242	0.714	0.305%	0.000***	0.000***
BOXES	-0.109%	0.129	0.416	0.431%	0.000***	0.002***
BUSSV	-0.056%	0.000***	0.000***	0.242%	0.000***	0.000***
CHEM	-0.145%	0.000***	0.000***	0.169%	0.000***	0.001***
CHIPS	-0.059%	0.002***	0.003***	0.297%	0.000***	0.000***
CLTHS	-0.086%	0.027**	0.101	0.296%	0.000***	0.000***
CNSTR	0.062%	0.162	0.015**	0.211%	0.000***	0.002***
COAL	-0.039%	0.656	0.587	0.226%	0.062*	0.235
COMPS	-0.075%	0.002***	0.002***	0.237%	0.000***	0.000***
DRUGS	0.034%	0.106	0.044**	0.181%	0.000***	0.000***
ELCEQ	-0.112%	0.000***	0.001***	0.261%	0.000***	0.000***
FABPR	-0.118%	0.193	0.121	0.531%	0.000***	0.000***
FOOD	-0.041%	0.216	0.023**	0.183%	0.000***	0.000***
FUN	-0.040%	0.298	0.595	0.286%	0.000***	0.000***
GOLD	-0.184%	0.072*	0.089*	0.079%	0.573	0.392
GUNS	0.146%	0.076*	0.073*	0.183%	0.062*	0.068*
HLTH	-0.113%	0.000***	0.000***	0.168%	0.000***	0.000***
HSHLD	-0.150%	0.000***	0.000***	0.290%	0.000***	0.000***
LABEQ	-0.083%	0.007***	0.001***	0.289%	0.000***	0.000***
MACH	-0.059%	0.013**	0.023**	0.360%	0.000***	0.000***
MEALS	-0.075%	0.009***	0.208	0.212%	0.000***	0.000***
MEDEQ	-0.053%	0.024**	0.017**	0.219%	0.000***	0.000***
MINES	-0.065%	0.43	0.487	0.386%	0.000***	0.007***
OIL	-0.059%	0.014**	0.265	0.198%	0.000***	0.000***
OTHER	0.227%	0.309	0.387	0.207%	0.337	0.581
PAPER	-0.146%	0.000***	0.018**	0.371%	0.000***	0.000***
PERSV	-0.093%	0.01**	0.053*	0.146%	0.002***	0.005***
RTAIL	-0.117%	0.000***	0.000***	0.201%	0.000***	0.000***
RUBBR	-0.184%	0.018**	0.062*	0.201%	0.034**	0.027**
SHIPS	-0.036%	0.639	0.798	0.368%	0.002***	0.005***
SMOKE	0.003%	0.971	0.381	0.229%	0.114	0.042**
SODA	-0.041%	0.368	0.471	0.157%	0.021**	0.646
STEEL	0.036%	0.375	0.198	0.294%	0.000***	0.000***
TELCM	-0.127%	0.000***	0.000***	0.276%	0.000***	0.000***
TOYS	-0.017%	0.762	0.779	0.380%	0.000***	0.000***
TRANS	-0.048%	0.081*	0.488	0.196%	0.000***	0.000***
TXTLS	-0.068%	0.418	0.561	0.540%	0.000***	0.000***
WHLSL	-0.100%	0.000***	0.000***	0.351%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

*Panel F- During crisis vs. After crisis*

Industries	BUY signal	pval from t-test	pval from Wilcoxon test	SELL signal	pval from t-test	pval from Wilcoxon test
AERO	-0.284%	0.000***	0.000***	0.391%	0.000***	0.000***
AGRIC	0.002%	0.984	0.994	0.199%	0.144	0.265
AUTOS	-0.404%	0.000***	0.000***	0.752%	0.000***	0.000***
BEER	-0.259%	0.008***	0.041**	0.658%	0.000***	0.000***
BLDMT	-0.226%	0.000***	0.000***	0.427%	0.000***	0.000***
BOOKS	-0.446%	0.000***	0.000***	0.616%	0.000***	0.000***
BOXES	-0.215%	0.014**	0.067*	0.526%	0.000***	0.000***
BUSSV	-0.247%	0.000***	0.000***	0.437%	0.000***	0.000***
CHEM	-0.305%	0.000***	0.000***	0.351%	0.000***	0.000***
CHIPS	-0.265%	0.000***	0.000***	0.508%	0.000***	0.000***
CLTHS	-0.433%	0.000***	0.000***	0.534%	0.000***	0.000***
CNSTR	-0.239%	0.000***	0.006***	0.401%	0.000***	0.000***
COAL	0.186%	0.064*	0.078*	0.536%	0.002***	0.000***
COMPS	-0.267%	0.000***	0.000***	0.418%	0.000***	0.000***
DRUGS	-0.226%	0.000***	0.000***	0.312%	0.000***	0.000***
ELCEQ	-0.188%	0.000***	0.000***	0.368%	0.000***	0.000***
FABPR	-0.209%	0.042**	0.032**	0.678%	0.000***	0.000***
FOOD	-0.191%	0.000***	0.000***	0.314%	0.000***	0.000***
FUN	-0.331%	0.000***	0.000***	0.523%	0.000***	0.000***
GOLD	-0.368%	0.001***	0.000***	0.473%	0.002***	0.000***
GUNS	-0.008%	0.941	0.604	0.180%	0.158	0.032**
HLTH	-0.237%	0.000***	0.000***	0.303%	0.000***	0.000***
HSHLD	-0.356%	0.000***	0.000***	0.476%	0.000***	0.000***
LABEQ	-0.239%	0.000***	0.000***	0.549%	0.000***	0.000***
MACH	-0.186%	0.000***	0.000***	0.568%	0.000***	0.000***
MEALS	-0.349%	0.000***	0.000***	0.493%	0.000***	0.000***
MEDEQ	-0.203%	0.000***	0.000***	0.381%	0.000***	0.000***
MINES	-0.297%	0.009***	0.069*	0.628%	0.000***	0.000***
OIL	-0.067%	0.012**	0.538	0.574%	0.000***	0.000***
OTHER	-0.420%	0.001***	0.000***	0.455%	0.013**	0.006***
PAPER	-0.454%	0.000***	0.000***	0.594%	0.000***	0.000***
PERSV	-0.230%	0.000***	0.000***	0.277%	0.000***	0.000***
RTAIL	-0.387%	0.000***	0.000***	0.411%	0.000***	0.000***
RUBBR	-0.469%	0.000***	0.000***	0.396%	0.000***	0.000***
SHIPS	-0.198%	0.024**	0.061*	0.478%	0.000***	0.000***
SMOKE	-0.167%	0.1	0.000***	0.206%	0.149	0.033**
SODA	-0.224%	0.000***	0.004***	0.322%	0.000***	0.000***
STEEL	-0.177%	0.000***	0.000***	0.537%	0.000***	0.000***
TELCM	-0.390%	0.000***	0.000***	0.520%	0.000***	0.000***
TOYS	-0.324%	0.000***	0.000***	0.524%	0.000***	0.000***
TRANS	-0.244%	0.000***	0.000***	0.399%	0.000***	0.000***
TXTLS	-0.368%	0.000***	0.000***	0.668%	0.000***	0.000***
WHLSL	-0.281%	0.000***	0.000***	0.510%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

**Table 9 - Comparison of buy-and-hold returns surrounding the financial crisis - Trading triggers based upon 50-day moving averages of adjusted close prices – By market capitalization deciles**

*Panel A- Before crisis*

Market cap deciles	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
0	-0.319%	-0.051%	-0.268%	0.000***	0.000***
1	-0.088%	-0.046%	-0.042%	0.019**	0.000***
2	0.005%	-0.043%	0.048%	0.005***	0.000***
3	0.070%	-0.038%	0.108%	0.000***	0.033**
4	0.073%	-0.090%	0.163%	0.000***	0.000***
5	0.055%	-0.093%	0.148%	0.000***	0.000***
6	0.076%	-0.094%	0.170%	0.000***	0.000***
7	0.059%	-0.083%	0.142%	0.000***	0.000***
8	0.068%	-0.063%	0.131%	0.000***	0.000***
9	0.073%	-0.085%	0.158%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

*Panel B-Crisis*

Market cap deciles	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
0	-0.671%	0.182%	-0.853%	0.000***	0.000***
1	-0.351%	0.210%	-0.561%	0.000***	0.000***
2	-0.256%	0.230%	-0.486%	0.000***	0.000***
3	-0.203%	0.159%	-0.362%	0.000***	0.000***
4	-0.172%	0.127%	-0.299%	0.000***	0.000***
5	-0.138%	0.116%	-0.254%	0.000***	0.000***
6	-0.103%	0.144%	-0.246%	0.000***	0.000***
7	-0.094%	0.127%	-0.221%	0.000***	0.000***
8	-0.038%	0.146%	-0.185%	0.000***	0.000***
9	-0.063%	0.103%	-0.166%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

*Panel C-After Crisis*

Market cap deciles	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
0	-0.290%	-0.415%	0.125%	0.000***	0.000***
1	0.001%	-0.307%	0.308%	0.000***	0.064*
2	0.125%	-0.234%	0.359%	0.000***	0.000***
3	0.154%	-0.260%	0.415%	0.000***	0.000***
4	0.112%	-0.344%	0.456%	0.000***	0.000***
5	0.138%	-0.279%	0.417%	0.000***	0.000***
6	0.132%	-0.264%	0.396%	0.000***	0.000***
7	0.164%	-0.258%	0.421%	0.000***	0.000***
8	0.140%	-0.245%	0.384%	0.000***	0.000***
9	0.117%	-0.245%	0.362%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

*Panel D- Before crisis vs. crisis*

Market cap deciles	BUY signal	pval from t-test	pval from Wilcoxon test	SELL signal	pval from t-test	pval from Wilcoxon test
0	0.351%	0.000***	0.000***	-0.234%	0.000***	0.000***

1	0.263%	0.000***	0.000***	-0.255%	0.000***	0.000***
2	0.261%	0.000***	0.000***	-0.273%	0.000***	0.000***
3	0.272%	0.000***	0.000***	-0.197%	0.000***	0.000***
4	0.245%	0.000***	0.000***	-0.217%	0.000***	0.000***
5	0.193%	0.000***	0.000***	-0.209%	0.000***	0.000***
6	0.179%	0.000***	0.000***	-0.237%	0.000***	0.000***
7	0.153%	0.000***	0.000***	-0.210%	0.000***	0.000***
8	0.106%	0.000***	0.000***	-0.210%	0.000***	0.000***
9	0.135%	0.000***	0.000***	-0.188%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

**Panel E- Before crisis vs. After crisis**

Market cap deciles	BUY signal	pval from t-test	pval from Wilcoxon test	SELL signal	pval from t-test	pval from Wilcoxon test
0	-0.029%	0.304	0.757	0.363%	0.000***	0.000***
1	-0.089%	0.000***	0.288	0.261%	0.000***	0.000***
2	-0.120%	0.000***	0.002***	0.191%	0.000***	0.000***
3	-0.085%	0.000***	0.027**	0.222%	0.000***	0.000***
4	-0.039%	0.015**	0.623	0.253%	0.000***	0.000***
5	-0.083%	0.000***	0.000***	0.186%	0.000***	0.000***
6	-0.056%	0.000***	0.005***	0.170%	0.000***	0.000***
7	-0.105%	0.000***	0.000***	0.174%	0.000***	0.000***
8	-0.072%	0.000***	0.000***	0.182%	0.000***	0.000***
9	-0.044%	0.000***	0.000***	0.160%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

**Panel F- During crisis vs. After crisis**

Market cap deciles	BUY signal	pval from t-test	pval from Wilcoxon test	SELL signal	pval from t-test	pval from Wilcoxon test
0	-0.381%	0.000***	0.000***	0.597%	0.000***	0.000***
1	-0.352%	0.000***	0.000***	0.517%	0.000***	0.000***
2	-0.381%	0.000***	0.000***	0.464%	0.000***	0.000***
3	-0.357%	0.000***	0.000***	0.419%	0.000***	0.000***
4	-0.284%	0.000***	0.000***	0.470%	0.000***	0.000***
5	-0.276%	0.000***	0.000***	0.395%	0.000***	0.000***
6	-0.235%	0.000***	0.000***	0.407%	0.000***	0.000***
7	-0.257%	0.000***	0.000***	0.385%	0.000***	0.000***
8	-0.178%	0.000***	0.000***	0.391%	0.000***	0.000***
9	-0.180%	0.000***	0.000***	0.348%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

**Table 10 - Regressions of buy-and-hold returns for trading triggers based upon 50-day moving averages of adjusted close prices – Full Sample**

Variable	Parameter	Standardized	t Value	Pr >  t
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	<i>Estimate</i>	<i>Estimate</i>		
Intercept	0.000	0.000	0.82	0.4123
MKTRF	-0.225	-0.121	-206.91	<.0001
UMD	0.021	0.010	15.80	<.0001
HML	0.100	0.030	46.56	<.0001
SMB	-0.007	-0.002	-3.26	0.0011
CRISIS	-0.0002	-0.003	-4.82	<.0001
BEFORE CRISIS	-0.0001	-0.001	-1.32	0.1853
ind_code1 (AGRIC)	-0.001	-0.002	-2.53	0.0113
ind_code2 (FOOD)	-0.001	-0.003	-2.88	0.004
ind_code3 (SODA)	0.000	-0.001	-1.07	0.2831
ind_code4 (BEER)	-0.001	-0.001	-1.77	0.0762
ind_code5 (SMOKE)	0.000	-0.001	-0.88	0.3773
ind_code6 (TOYS)	-0.001	-0.001	-1.77	0.0772
ind_code7 (FUN)	0.000	0.001	1.36	0.1723
ind_code8 (BOOKS)	0.000	-0.001	-0.85	0.393
ind_code9 (HSHLD)	0.000	0.000	-0.07	0.9432
ind_code10 (CLTHS)	0.000	-0.001	-0.78	0.4347
ind_code11 (HLTH)	0.000	-0.002	-1.64	0.102
ind_code12 (MEDEQ)	0.000	-0.002	-1.19	0.2352
ind_code13 (DRUGS)	0.000	-0.003	-1.67	0.0951
ind_code14 (CHEM)	0.000	0.000	-0.17	0.8688
ind_code15 (RUBBR)	0.000	0.001	1.00	0.3151
ind_code16 (TXTLS)	-0.001	-0.001	-1.64	0.1011
ind_code17 (BLDMT)	0.000	-0.001	-0.88	0.38
ind_code18 (CNSTR)	0.000	-0.001	-0.97	0.3336
ind_code19 (STEEL)	0.000	0.000	0.35	0.724
ind_code20 (FABPR)	0.000	0.000	-0.42	0.673
ind_code21 (MACH)	0.000	-0.001	-0.48	0.6312
ind_code22 (ELCEQ)	0.000	-0.002	-1.80	0.072
ind_code23 (AUTOS)	0.001	0.002	2.26	0.0239
ind_code24 (AERO)	0.000	-0.001	-0.84	0.3999
ind_code25 (SHIPS)	0.000	0.000	0.07	0.9467
ind_code26 (GUNS)	0.000	-0.001	-0.82	0.4121
ind_code27 (GOLD)	0.000	0.000	-0.46	0.645
ind_code28 (MINES)	0.000	0.001	1.33	0.1844
ind_code29 (COAL)	0.001	0.002	3.59	0.0003
ind_code30 (OIL)	0.000	0.002	1.27	0.2039
ind_code32 (TELCM)	0.000	0.000	0.06	0.9507
ind_code33 (PERSV)	0.000	-0.001	-1.45	0.1477
ind_code34 (BUSSV)	0.000	-0.004	-1.71	0.0867
ind_code35 (COMPS)	0.000	-0.001	-1.01	0.3137
ind_code36 (CHIPS)	0.000	-0.001	-0.77	0.443
ind_code37 (LABEQ)	-0.001	-0.003	-2.38	0.0172
ind_code38 (PAPER)	0.000	0.000	-0.36	0.7201
ind_code39 (BOXES)	-0.001	-0.001	-1.98	0.0478
ind_code40 (TRANS)	0.000	-0.001	-0.99	0.3203
ind_code41 (WHLSL)	0.000	-0.002	-1.19	0.2334
ind_code42 (RTAIL)	0.000	0.000	0.25	0.8014
ind_code43 (MEALS)	0.000	0.000	-0.10	0.9179
Number of observations		4,036,675		
F statistic		1117.74		
Adj R^2		0.0131		

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

**Table 11 - Regressions of buy-and-hold returns for trading triggers based upon 50-day moving averages of adjusted close prices – By market capitalization deciles**

<i>MktCap Decile</i>	<i>BEFORE CRISIS</i>	<i>Pval</i>	<i>CRISIS</i>	<i>Pval</i>	<i>R-squared</i>	<i>N</i>
0	0.002	0.000***	0.001	0.000***	0.004	81,148
1	0.000	0.054*	0.001	0.000***	0.007	369,047
2	0.000	0.025**	0.000	0.187	0.011	361,088
3	0.000	0.108	-0.001	0.000***	0.016	384,378
4	0.000	0.906	-0.001	0.000***	0.017	398,629
5	0.000	0.000***	-0.001	0.000***	0.018	416,701
6	0.000	0.000***	0.000	0.000***	0.019	409,258
7	-0.001	0.000***	-0.001	0.000***	0.023	405,769
8	-0.001	0.000***	0.000	0.000***	0.032	391,852
9	0.000	0.000***	-0.001	0.000***	0.036	372,324

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.



**Table 12 - Comparison of buy-and-hold returns surrounding the financial crisis - Trading triggers based upon 200-day moving averages of adjusted close prices – Whole Sample**

<i>Trading signal</i>	<i>Mean</i>	<i>Median</i>	<i>Pr &gt;  t </i>
Buy before crisis	0.028%	0.000%	<.0001***
Sell before crisis	-0.085%	0.000%	<.0001***
Buy - Sell before crisis	0.113%	0.000%	
p-values from t-test / Wilcoxon test	<.0001***	0.001	
Buy in crisis	-0.312%	-0.200%	<.0001***
Sell in crisis	0.179%	0.146%	<.0001***
Buy - Sell in crisis	-0.491%	-0.346%	
p-values from t-test / Wilcoxon test	<.0001***	<.0001***	
Buy in after crisis	0.040%	0.000%	<.0001***
Sell in after crisis	-0.147%	0.000%	<.0001***
Buy - Sell in after crisis	0.187%	0.000%	
p-values from t-test / Wilcoxon test	<.0001***	<.0001***	
Buy before crisis vs. Buy in crisis	0.340%	0.200%	
p-values from t-test / Wilcoxon test	<.0001***	<.0001***	
Sell before crisis vs. Sell in crisis	-0.264%	-0.146%	
p-values from t-test / Wilcoxon test	<.0001***	<.0001***	
Buy before crisis vs. Buy after crisis	-0.011%	0.000%	
p-values from t-test / Wilcoxon test	0.033	<.0001***	
Sell before crisis vs. Sell after crisis	0.062%	0.000%	
p-values from t-test / Wilcoxon test	<.0001***	<.0001***	
Buy during crisis vs. Buy after crisis	-0.352%	-0.200%	
p-values from t-test / Wilcoxon test	<.0001***	<.0001***	
Sell during crisis vs. Sell after crisis	0.326%	0.146%	
p-values from t-test / Wilcoxon test	<.0001***	<.0001***	

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

**Table 13 - Comparison of buy-and-hold returns surrounding the financial crisis - Trading triggers based upon 200-day moving averages of adjusted close prices – By industries**

*Panel A-Before crisis*

Industries	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
AERO	0.092%	-0.143%	0.235%	0.013**	0.031**
AGRIC	0.019%	-0.153%	0.172%	0.218	0.276
AUTOS	0.012%	-0.074%	0.086%	0.034**	0.364
BEER	0.082%	-0.365%	0.447%	0.000***	0.000***
BLDMT	0.015%	-0.115%	0.130%	0.002***	0.137
BOOKS	0.017%	-0.053%	0.070%	0.091*	0.983
BOXES	0.055%	-0.225%	0.281%	0.001***	0.044**
BUSSV	0.013%	-0.085%	0.098%	0.000***	0.885
CHEM	0.082%	-0.072%	0.154%	0.000***	0.000***
CHIPS	0.022%	-0.063%	0.085%	0.000***	0.041**
CLTHS	0.114%	-0.149%	0.263%	0.000***	0.000***
CNSTR	0.002%	-0.032%	0.034%	0.44	0.006***
COAL	-0.090%	0.055%	-0.145%	0.181	0.07*
COMPS	0.022%	-0.123%	0.145%	0.000***	0.331
DRUGS	-0.018%	-0.029%	0.011%	0.61	0.000***
ELCEQ	-0.006%	-0.085%	0.079%	0.032**	0.305
FABPR	0.043%	-0.049%	0.092%	0.389	0.665
FOOD	0.003%	-0.154%	0.157%	0.000***	0.054*
FUN	0.061%	-0.089%	0.150%	0.000***	0.223
GOLD	0.064%	-0.474%	0.538%	0.000***	0.005***
GUNS	0.040%	-0.150%	0.190%	0.1	0.818
HLTH	-0.005%	-0.080%	0.075%	0.032**	0.513
HSHLD	0.035%	-0.073%	0.108%	0.013**	0.191
LABEQ	-0.006%	-0.182%	0.176%	0.000***	0.043**
MACH	0.057%	-0.177%	0.234%	0.000***	0.000***
MEALS	0.036%	-0.190%	0.226%	0.000***	0.000***
MEDEQ	-0.004%	-0.020%	0.015%	0.586	0.000***
MINES	0.085%	-0.234%	0.319%	0.005***	0.052*
OIL	-0.025%	-0.129%	0.105%	0.000***	0.023**
OTHER	0.048%	-0.178%	0.226%		
PAPER	0.035%	-0.074%	0.109%	0.000***	0.000***
PERSV	0.063%	-0.091%	0.153%	0.009***	0.258
RTAIL	0.103%	-0.150%	0.253%	0.000***	0.001***
RUBBR	0.032%	-0.085%	0.117%	0.003***	0.131
SHIPS	0.159%	-0.252%	0.412%	0.257	0.415
SMOKE	0.046%	-0.117%	0.163%	0.006***	0.047**
SODA	0.159%	-0.086%	0.245%	0.003***	0.017**
STEEL	0.066%	-0.026%	0.091%	0.000***	0.000***
TELCM	-0.007%	-0.149%	0.142%	0.001***	0.923
TOYS	0.048%	-0.128%	0.175%	0.015**	0.473
TRANS	0.058%	-0.008%	0.066%	0.000***	0.001***
TXTLS	0.029%	-0.063%	0.092%	0.472	0.333
WHLSL	-0.002%	-0.050%	0.049%	0.000***	0.516

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

**Panel B- Crisis**

Industries	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
AERO	-0.359%	0.103%	-0.462%	0.000***	0.000***
AGRIC	-0.227%	-0.109%	-0.118%	0.555	0.321
AUTOS	-0.385%	0.359%	-0.744%	0.000***	0.000***
BEER	-0.240%	0.360%	-0.600%	0.000***	0.000***
BLDMT	-0.315%	0.076%	-0.392%	0.000***	0.000***
BOOKS	-0.514%	0.321%	-0.835%	0.000***	0.000***
BOXES	-0.246%	0.082%	-0.328%	0.031**	0.014**
BUSSV	-0.380%	0.155%	-0.535%	0.000***	0.000***
CHEM	-0.276%	0.165%	-0.441%	0.000***	0.000***
CHIPS	-0.398%	0.236%	-0.634%	0.000***	0.000***
CLTHS	-0.534%	0.067%	-0.601%	0.000***	0.000***
CNSTR	-0.373%	0.024%	-0.397%	0.000***	0.000***
COAL	0.031%	0.220%	-0.189%	0.455	0.244
COMPS	-0.351%	0.177%	-0.528%	0.000***	0.000***
DRUGS	-0.304%	0.180%	-0.484%	0.000***	0.000***
ELCEQ	-0.276%	0.140%	-0.416%	0.000***	0.000***
FABPR	-0.304%	0.168%	-0.472%	0.005***	0.003***
FOOD	-0.204%	0.070%	-0.274%	0.000***	0.000***
FUN	-0.415%	0.270%	-0.685%	0.000***	0.000***
GOLD	-0.300%	0.170%	-0.470%	0.023**	0.003***
GUNS	-0.417%	0.102%	-0.519%	0.004***	0.001***
HLTH	-0.267%	0.096%	-0.363%	0.000***	0.000***
HSHLD	-0.264%	0.177%	-0.440%	0.000***	0.000***
LABEQ	-0.329%	0.223%	-0.552%	0.000***	0.000***
MACH	-0.247%	0.163%	-0.411%	0.000***	0.000***
MEALS	-0.451%	0.242%	-0.693%	0.000***	0.000***
MEDEQ	-0.279%	0.159%	-0.438%	0.000***	0.000***
MINES	-0.366%	0.207%	-0.573%	0.007***	0.000***
OIL	-0.178%	0.228%	-0.406%	0.000***	0.000***
OTHER	-0.229%	-0.006%	-0.223%	0.803	0.895
PAPER	-0.441%	0.155%	-0.595%	0.000***	0.000***
PERSV	-0.223%	0.107%	-0.329%	0.000***	0.000***
RTAIL	-0.313%	0.145%	-0.459%	0.000***	0.000***
RUBBR	-0.488%	0.229%	-0.718%	0.001***	0.000***
SHIPS	-0.174%	0.032%	-0.206%	0.184	0.063*
SMOKE	0.025%	-0.156%	0.181%	0.418	0.478
SODA	-0.265%	0.054%	-0.319%	0.000***	0.000***
STEEL	-0.234%	0.196%	-0.429%	0.000***	0.000***
TELCM	-0.410%	0.310%	-0.720%	0.000***	0.000***
TOYS	-0.488%	0.201%	-0.690%	0.000***	0.000***
TRANS	-0.224%	0.139%	-0.363%	0.000***	0.000***
TXTLS	-0.299%	0.175%	-0.473%	0.005***	0.000***
WHLSL	-0.372%	0.125%	-0.496%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

<i>Panel C-After crisis</i>					
Industries	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
AERO	0.077%	-0.335%	0.412%	0.000***	0.000***
AGRIC	-0.185%	-0.036%	-0.149%	0.157	0.086*
AUTOS	0.140%	-0.214%	0.354%	0.000***	0.000***
BEER	0.047%	-0.399%	0.445%	0.000***	0.000***
BLDMT	0.013%	-0.318%	0.331%	0.000***	0.000***
BOOKS	-0.048%	-0.159%	0.111%	0.067*	0.757
BOXES	0.018%	-0.335%	0.353%	0.002***	0.003***
BUSSV	0.019%	-0.152%	0.171%	0.000***	0.000***
CHEM	0.073%	-0.128%	0.202%	0.000***	0.000***
CHIPS	0.044%	-0.120%	0.163%	0.000***	0.000***
CLTHS	0.038%	-0.269%	0.307%	0.000***	0.000***
CNSTR	-0.152%	-0.136%	-0.016%	0.783	0.046**
COAL	0.011%	-0.088%	0.100%	0.423	0.345
COMPS	0.044%	-0.162%	0.206%	0.000***	0.000***
DRUGS	-0.046%	-0.061%	0.015%	0.573	0.000***
ELCEQ	0.061%	-0.115%	0.176%	0.000***	0.048**
FABPR	0.202%	-0.208%	0.410%	0.002***	0.007***
FOOD	0.038%	-0.168%	0.206%	0.000***	0.000***
FUN	0.045%	-0.094%	0.139%	0.008***	0.271
GOLD	0.255%	-0.228%	0.483%	0.000***	0.001***
GUNS	-0.009%	0.069%	-0.078%	0.426	0.223
HLTH	0.002%	-0.135%	0.137%	0.000***	0.013**
HSHLD	0.051%	-0.197%	0.247%	0.000***	0.000***
LABEQ	0.063%	-0.171%	0.234%	0.000***	0.000***
MACH	0.075%	-0.310%	0.385%	0.000***	0.000***
MEALS	0.113%	-0.271%	0.384%	0.000***	0.000***
MEDEQ	-0.018%	-0.126%	0.108%	0.000***	0.15
MINES	0.101%	-0.192%	0.293%	0.006***	0.21
OIL	0.079%	-0.092%	0.171%	0.000***	0.003***
OTHER	0.143%	-0.160%	0.303%	0.003***	0.038**
PAPER	0.072%	-0.276%	0.348%	0.000***	0.000***
PERSV	0.002%	-0.097%	0.100%	0.039**	0.081*
RTAIL	0.055%	-0.144%	0.199%	0.000***	0.000***
RUBBR	0.007%	-0.133%	0.139%	0.173	0.142
SHIPS	0.144%	-0.194%	0.338%	0.002***	0.002***
SMOKE	0.136%	-0.316%	0.453%	0.000***	0.000***
SODA	0.052%	-0.137%	0.189%	0.016**	0.159
STEEL	0.016%	-0.205%	0.221%	0.000***	0.000***
TELCM	0.073%	-0.149%	0.222%	0.000***	0.000***
TOYS	0.008%	-0.158%	0.166%	0.056*	0.319
TRANS	0.065%	-0.120%	0.184%	0.000***	0.000***
TXTLS	0.072%	-0.256%	0.328%	0.004***	0.039**
WHLSL	0.046%	-0.261%	0.307%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

*Panel D- Before crisis vs. crisis*

Industries	BUY signal	pval from t- test	pval from Wilcoxon test	SELL signal	pval from t- test	pval from Wilcoxon test
AERO	0.451%	0.000***	0.000***	-0.247%	0.026**	0.009***
AGRIC	0.245%	0.114	0.044**	-0.044%	0.814	0.527
AUTOS	0.397%	0.000***	0.000***	-0.433%	0.000***	0.000***
BEER	0.322%	0.002***	0.009***	-0.725%	0.000***	0.000***
BLDMT	0.330%	0.000***	0.000***	-0.191%	0.001***	0.000***
BOOKS	0.531%	0.000***	0.000***	-0.374%	0.000***	0.000***
BOXES	0.301%	0.005***	0.002***	-0.308%	0.026**	0.034**
BUSSV	0.394%	0.000***	0.000***	-0.239%	0.000***	0.000***
CHEM	0.358%	0.000***	0.000***	-0.237%	0.000***	0.000***
CHIPS	0.420%	0.000***	0.000***	-0.299%	0.000***	0.000***
CLTHS	0.648%	0.000***	0.000***	-0.217%	0.001***	0.000***
CNSTR	0.375%	0.000***	0.000***	-0.056%	0.426	0.044**
COAL	-0.121%	0.365	0.078*	-0.165%	0.493	0.136
COMPS	0.373%	0.000***	0.000***	-0.299%	0.000***	0.000***
DRUGS	0.286%	0.000***	0.000***	-0.209%	0.000***	0.000***
ELCEQ	0.270%	0.000***	0.000***	-0.225%	0.000***	0.000***
FABPR	0.346%	0.011**	0.038**	-0.217%	0.14	0.077*
FOOD	0.208%	0.000***	0.000***	-0.223%	0.000***	0.000***
FUN	0.476%	0.000***	0.000***	-0.359%	0.000***	0.000***
GOLD	0.364%	0.025**	0.023**	-0.645%	0.001***	0.000***
GUNS	0.457%	0.004***	0.000***	-0.252%	0.082*	0.126
HLTH	0.262%	0.000***	0.000***	-0.176%	0.000***	0.000***
HSHLD	0.299%	0.000***	0.000***	-0.250%	0.000***	0.000***
LABEQ	0.323%	0.000***	0.000***	-0.405%	0.000***	0.000***
MACH	0.304%	0.000***	0.000***	-0.340%	0.000***	0.000***
MEALS	0.487%	0.000***	0.000***	-0.432%	0.000***	0.000***
MEDEQ	0.275%	0.000***	0.000***	-0.178%	0.000***	0.000***
MINES	0.451%	0.016**	0.017**	-0.441%	0.003***	0.000***
OIL	0.154%	0.000***	0.000***	-0.357%	0.000***	0.000***
PAPER	0.476%	0.000***	0.000***	-0.228%	0.000***	0.000***
PERSV	0.285%	0.000***	0.000***	-0.197%	0.000***	0.000***
RTAIL	0.416%	0.000***	0.000***	-0.296%	0.000***	0.000***
RUBBR	0.520%	0.004***	0.000***	-0.315%	0.000***	0.000***
SHIPS	0.333%	0.077*	0.096*	-0.284%	0.419	0.2
SMOKE	0.021%	0.503	0.019**	0.039%	0.592	0.506
SODA	0.425%	0.000***	0.002***	-0.139%	0.021**	0.007***
STEEL	0.299%	0.000***	0.000***	-0.221%	0.000***	0.000***
TELCM	0.403%	0.000***	0.000***	-0.459%	0.000***	0.000***
TOYS	0.536%	0.000***	0.000***	-0.329%	0.000***	0.000***
TRANS	0.281%	0.000***	0.000***	-0.147%	0.000***	0.000***
TXTLS	0.328%	0.015**	0.009***	-0.238%	0.133	0.017**
WHLSL	0.370%	0.000***	0.000***	-0.175%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

*Panel E - Before crisis vs. After crisis*

Industries	BUY signal	pval from t-test	pval from Wilcoxon test	SELL signal	pval from t-test	pval from Wilcoxon test
AERO	0.015%	0.752	0.808	0.191%	0.096*	0.043**
AGRIC	0.203%	0.032**	0.021**	-0.118%	0.423	0.386
AUTOS	-0.129%	0.003***	0.002***	0.140%	0.021**	0.03**
BEER	0.035%	0.718	0.705	0.034%	0.807	0.809
BLDMT	0.002%	0.964	0.484	0.203%	0.000***	0.000***
BOOKS	0.065%	0.205	0.099*	0.106%	0.045**	0.211
BOXES	0.038%	0.614	0.631	0.110%	0.373	0.132
BUSSV	-0.006%	0.674	0.027**	0.067%	0.000***	0.000***
CHEM	0.009%	0.785	0.943	0.056%	0.275	0.327
CHIPS	-0.022%	0.307	0.027**	0.057%	0.027**	0.002***
CLTHS	0.076%	0.06*	0.222	0.120%	0.084*	0.082*
CNSTR	0.154%	0.005***	0.018**	0.104%	0.032**	0.024**
COAL	-0.101%	0.382	0.165	0.144%	0.221	0.199
COMPS	-0.022%	0.455	0.131	0.040%	0.25	0.246
DRUGS	0.028%	0.23	0.989	0.032%	0.207	0.157
ELCEQ	-0.067%	0.062*	0.026**	0.030%	0.543	0.384
FABPR	-0.160%	0.125	0.23	0.159%	0.238	0.164
FOOD	-0.035%	0.321	0.029**	0.015%	0.763	0.483
FUN	0.016%	0.697	0.703	0.005%	0.932	0.592
GOLD	-0.191%	0.101	0.034**	-0.246%	0.147	0.178
GUNS	0.048%	0.579	0.701	-0.219%	0.076*	0.313
HLTH	-0.006%	0.847	0.215	0.055%	0.18	0.107
HSHLD	-0.015%	0.693	0.659	0.123%	0.03**	0.037**
LABEQ	-0.069%	0.036**	0.007***	-0.011%	0.833	0.938
MACH	-0.018%	0.472	0.383	0.133%	0.000***	0.001***
MEALS	-0.077%	0.007***	0.007***	0.082%	0.13	0.12
MEDEQ	0.014%	0.61	0.882	0.107%	0.001***	0.000***
MINES	-0.017%	0.862	0.437	-0.042%	0.729	0.492
OIL	-0.103%	0.000***	0.004***	-0.037%	0.236	0.049**
PAPER	-0.037%	0.534	0.912	0.202%	0.145	0.264
PERSV	0.060%	0.418	0.499	0.007%	0.63	0.286
RTAIL	0.048%	0.698	0.159	-0.006%	0.059*	0.018**
RUBBR	0.025%	0.208	0.244	0.047%	0.871	0.361
SHIPS	0.015%	0.204	0.189	-0.058%	0.365	0.289
SMOKE	-0.090%	0.82	0.943	0.200%	0.703	0.382
SODA	0.108%	0.919	0.62	0.052%	0.798	0.493
STEEL	0.050%	0.001***	0.000***	0.179%	0.07*	0.047**
TELCM	-0.080%	0.793	0.266	0.000%	0.002***	0.000***
TOYS	0.040%	0.803	0.691	0.030%	0.919	0.847
TRANS	-0.007%	0.563	0.668	0.112%	0.858	0.859
TXTLS	-0.043%	0.873	0.372	0.193%	0.03**	0.087*
WHLSL	-0.048%	0.478	0.152	0.211%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

*Panel F - During crisis vs. After crisis*

Industries	BUY signal	pval from t-test	pval from Wilcoxon test	SELL signal	pval from t-test	pval from Wilcoxon test
AERO	-0.437%	0.000***	0.000***	0.438%	0.000***	0.000***
AGRIC	-0.042%	0.802	0.784	-0.073%	0.624	0.944
AUTOS	-0.526%	0.000***	0.000***	0.573%	0.000***	0.000***
BEER	-0.287%	0.019**	0.05*	0.759%	0.000***	0.000***
BLDMT	-0.329%	0.000***	0.000***	0.394%	0.000***	0.000***
BOOKS	-0.466%	0.000***	0.000***	0.480%	0.000***	0.000***
BOXES	-0.263%	0.017**	0.01**	0.417%	0.008***	0.005***
BUSSV	-0.399%	0.000***	0.000***	0.306%	0.000***	0.000***
CHEM	-0.349%	0.000***	0.000***	0.294%	0.000***	0.000***
CHIPS	-0.442%	0.000***	0.000***	0.355%	0.000***	0.000***
CLTHS	-0.572%	0.000***	0.000***	0.337%	0.000***	0.000***
CNSTR	-0.221%	0.01***	0.011**	0.159%	0.031**	0.000***
COAL	0.020%	0.886	0.5	0.309%	0.208	0.037**
COMPS	-0.395%	0.000***	0.000***	0.339%	0.000***	0.000***
DRUGS	-0.258%	0.000***	0.000***	0.241%	0.000***	0.000***
ELCEQ	-0.337%	0.000***	0.000***	0.255%	0.000***	0.000***
FABPR	-0.506%	0.000***	0.004***	0.376%	0.019**	0.008***
FOOD	-0.242%	0.000***	0.000***	0.238%	0.000***	0.000***
FUN	-0.460%	0.000***	0.000***	0.363%	0.000***	0.000***
GOLD	-0.555%	0.000***	0.000***	0.398%	0.043**	0.013**
GUNS	-0.408%	0.012**	0.002***	0.033%	0.793	0.493
HLTH	-0.269%	0.000***	0.000***	0.231%	0.000***	0.000***
HSHLD	-0.314%	0.000***	0.000***	0.373%	0.000***	0.000***
LABEQ	-0.392%	0.000***	0.000***	0.394%	0.000***	0.000***
MACH	-0.322%	0.000***	0.000***	0.474%	0.000***	0.000***
MEALS	-0.563%	0.000***	0.000***	0.513%	0.000***	0.000***
MEDEQ	-0.261%	0.000***	0.000***	0.285%	0.000***	0.000***
MINES	-0.467%	0.015**	0.023**	0.399%	0.004***	0.000***
OIL	-0.257%	0.000***	0.000***	0.320%	0.000***	0.000***
PAPER	-0.513%	0.000***	0.000***	0.431%	0.000***	0.000***
PERSV	-0.225%	0.000***	0.000***	0.204%	0.000***	0.000***
RTAIL	-0.368%	0.000***	0.000***	0.289%	0.000***	0.000***
RUBBR	-0.495%	0.02**	0.000***	0.362%	0.002***	0.000***
SHIPS	-0.318%	0.008***	0.008***	0.226%	0.121	0.033**
SMOKE	-0.111%	0.559	0.003***	0.160%	0.361	0.113
SODA	-0.317%	0.000***	0.001***	0.191%	0.032**	0.072*
STEEL	-0.249%	0.000***	0.011**	0.400%	0.000***	0.000***
TELCM	-0.483%	0.000***	0.000***	0.459%	0.000***	0.000***
TOYS	-0.496%	0.000***	0.000***	0.359%	0.000***	0.000***
TRANS	-0.288%	0.000***	0.000***	0.259%	0.000***	0.000***
TXTLS	-0.371%	0.014**	0.003***	0.431%	0.001***	0.000***
WHLSL	-0.418%	0.000***	0.000***	0.386%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

**Table 14 - Comparison of buy-and-hold returns surrounding the financial crisis - Trading triggers based upon 200-day moving averages of adjusted close prices – By market capitalization deciles**

***Panel A-Before crisis***

Market cap deciles	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
0	-0.156%	-0.009%	-0.148%	0.000***	0.000***
1	-0.015%	-0.033%	0.018%	0.411	0.000***
2	0.017%	-0.058%	0.075%	0.000***	0.000***
3	0.068%	-0.056%	0.124%	0.000***	0.724
4	0.062%	-0.140%	0.202%	0.000***	0.000***
5	0.039%	-0.131%	0.171%	0.000***	0.000***
6	0.058%	-0.133%	0.191%	0.000***	0.000***
7	0.043%	-0.132%	0.175%	0.000***	0.000***
8	0.044%	-0.120%	0.164%	0.000***	0.000***
9	0.071%	-0.128%	0.200%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

***Panel B-Crisis***

Market cap deciles	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
0	-0.695%	0.314%	-1.009%	0.000***	0.000***
1	-0.486%	0.316%	-0.803%	0.000***	0.000***
2	-0.432%	0.307%	-0.739%	0.000***	0.000***
3	-0.368%	0.227%	-0.595%	0.000***	0.000***
4	-0.333%	0.148%	-0.481%	0.000***	0.000***
5	-0.323%	0.107%	-0.430%	0.000***	0.000***
6	-0.267%	0.127%	-0.394%	0.000***	0.000***
7	-0.261%	0.120%	-0.381%	0.000***	0.000***
8	-0.191%	0.140%	-0.331%	0.000***	0.000***
9	-0.221%	0.104%	-0.325%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

***Panel C- After Crisis***

Market cap deciles	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
0	-0.206%	-0.062%	-0.144%	0.000***	0.000***
1	-0.099%	-0.095%	-0.004%	0.874	0.000***
2	0.023%	-0.075%	0.098%	0.000***	0.038**
3	0.027%	-0.131%	0.158%	0.000***	0.022**
4	0.036%	-0.164%	0.201%	0.000***	0.000***
5	0.058%	-0.162%	0.221%	0.000***	0.000***
6	0.066%	-0.152%	0.218%	0.000***	0.000***
7	0.070%	-0.206%	0.276%	0.000***	0.000***
8	0.075%	-0.169%	0.244%	0.000***	0.000***
9	0.066%	-0.163%	0.229%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.



**Panel D- Before crisis vs. crisis**

Market cap deciles	BUY signal	pval from t-test	pval from Wilcoxon test	SELL signal	pval from t-test	pval from Wilcoxon test
0	0.539%	0.000***	0.000***	-0.323%	0.000***	0.000***
1	0.472%	0.000***	0.000***	-0.349%	0.000***	0.000***
2	0.449%	0.000***	0.000***	-0.365%	0.000***	0.000***
3	0.436%	0.000***	0.000***	-0.283%	0.000***	0.000***
4	0.395%	0.000***	0.000***	-0.287%	0.000***	0.000***
5	0.362%	0.000***	0.000***	-0.239%	0.000***	0.000***
6	0.325%	0.000***	0.000***	-0.261%	0.000***	0.000***
7	0.305%	0.000***	0.000***	-0.252%	0.000***	0.000***
8	0.235%	0.000***	0.000***	-0.260%	0.000***	0.000***
9	0.292%	0.000***	0.000***	-0.232%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

**Panel E- Before crisis vs. After crisis**

Market cap deciles	BUY signal	pval from t-test	pval from Wilcoxon test	SELL signal	pval from t-test	pval from Wilcoxon test
0	0.050%	0.136	0.205	0.054%	0.055*	0.08*
1	0.085%	0.001***	0.002***	0.062%	0.012**	0.022**
2	-0.006%	0.802	0.678	0.017%	0.467	0.692
3	0.041%	0.042**	0.034**	0.075%	0.000***	0.002***
4	0.026%	0.18	0.22	0.024%	0.274	0.474
5	-0.019%	0.243	0.181	0.031%	0.136	0.083*
6	-0.008%	0.597	0.157	0.019%	0.358	0.128
7	-0.027%	0.043**	0.000***	0.074%	0.000***	0.000***
8	-0.031%	0.008***	0.000***	0.049%	0.008***	0.000***
9	0.005%	0.631	0.335	0.034%	0.045**	0.001***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

**Panel F-During crisis vs. After crisis**

Market cap deciles	BUY signal	pval from t-test	pval from Wilcoxon test	SELL signal	pval from t-test	pval from Wilcoxon test
0	-0.488%	0.000***	0.000***	0.376%	0.000***	0.000***
1	-0.387%	0.000***	0.000***	0.411%	0.000***	0.000***
2	-0.455%	0.000***	0.000***	0.382%	0.000***	0.000***
3	-0.395%	0.000***	0.000***	0.358%	0.000***	0.000***
4	-0.369%	0.000***	0.000***	0.312%	0.000***	0.000***
5	-0.381%	0.000***	0.000***	0.270%	0.000***	0.000***
6	-0.333%	0.000***	0.000***	0.280%	0.000***	0.000***
7	-0.332%	0.000***	0.000***	0.325%	0.000***	0.000***
8	-0.266%	0.000***	0.000***	0.309%	0.000***	0.000***
9	-0.287%	0.000***	0.000***	0.266%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

**Table 15 - Regressions of buy-and-hold returns for trading triggers based upon 200-day moving averages of adjusted close prices – Full Sample**

<i>Variable</i>	<i>Parameter Estimate</i>	<i>Standardized Estimate</i>	<i>t Value</i>	<i>Pr &gt;  t </i>
Intercept	0.001	0.000	1.55	0.1211
MKTRF	-0.205	-0.120	-166.15	<.0001
UMD	0.223	0.106	134.68	<.0001
HML	0.147	0.046	58.21	<.0001
SMB	-0.090	-0.024	-36.81	<.0001
CRISIS	-0.001	-0.008	-10.52	<.0001
BEFORE CRISIS	0.000	0.000	0.28	0.7795
ind_code1 (AGRIC)	-0.002	-0.002	-2.46	0.0141
ind_code2 (FOOD)	-0.001	-0.004	-2.23	0.0254
ind_code3 (SODA)	-0.001	-0.002	-1.74	0.0824
ind_code4 (BEER)	0.000	-0.001	-0.65	0.5146
ind_code5 (SMOKE)	-0.001	-0.001	-1.08	0.2782
ind_code6 (TOYS)	-0.001	-0.003	-1.84	0.0657
ind_code7 (FUN)	0.000	-0.001	-0.64	0.5196
ind_code8 (BOOKS)	-0.001	-0.002	-0.96	0.3378
ind_code9 (HSHLD)	-0.001	-0.003	-1.47	0.1425
ind_code10 (CLTHS)	-0.001	-0.004	-2.15	0.0317
ind_code11 (HLTH)	-0.001	-0.005	-2.11	0.0346
ind_code12 (MEDEQ)	-0.001	-0.006	-1.80	0.0717
ind_code13 (DRUGS)	-0.001	-0.007	-1.66	0.0979
ind_code14 (CHEM)	-0.001	-0.003	-1.25	0.2112
ind_code15 (RUBBR)	0.000	-0.001	-0.64	0.5232
ind_code16 (TXTLS)	-0.001	-0.001	-1.00	0.319
ind_code17 (BLDMT)	-0.001	-0.005	-2.59	0.0097
ind_code18 (CNSTR)	-0.002	-0.006	-2.95	0.0032
ind_code19 (STEEL)	-0.001	-0.002	-1.14	0.2538
ind_code20 (FABPR)	-0.001	-0.001	-0.77	0.4405
ind_code21 (MACH)	-0.001	-0.005	-1.81	0.07
ind_code22 (ELCEQ)	-0.001	-0.004	-1.81	0.0702
ind_code23 (AUTOS)	0.000	0.000	-0.17	0.8644
ind_code24 (AERO)	-0.001	-0.002	-1.32	0.1877
ind_code25 (SHIPS)	-0.001	-0.001	-1.29	0.1983
ind_code26 (GUNS)	-0.001	-0.001	-1.03	0.3037
ind_code27 (GOLD)	-0.001	-0.001	-1.00	0.3159
ind_code28 (MINES)	-0.001	-0.001	-1.26	0.2072
ind_code29 (COAL)	-0.001	-0.001	-1.05	0.2949
ind_code30 (OIL)	-0.001	-0.006	-1.74	0.081
ind_code32 (TELCM)	0.000	-0.001	-0.17	0.8638
ind_code33 (PERSV)	-0.001	-0.003	-1.72	0.0863
ind_code34 (BUSSV)	-0.001	-0.010	-1.92	0.0549
ind_code35 (COMPS)	-0.001	-0.005	-1.82	0.0685
ind_code36 (CHIPS)	-0.001	-0.005	-1.21	0.227
ind_code37 (LABEQ)	-0.001	-0.004	-1.59	0.112
ind_code38 (PAPER)	-0.001	-0.003	-1.44	0.1495
ind_code39 (BOXES)	-0.001	-0.002	-2.12	0.0341
ind_code40 (TRANS)	-0.001	-0.004	-1.61	0.1076
ind_code41 (WHLSL)	-0.001	-0.006	-2.02	0.0437
ind_code42 (RTAIL)	-0.001	-0.005	-1.50	0.1325
ind_code43 (MEALS)	0.000	-0.002	-0.87	0.3839

**Table 16 - Regressions of buy-and-hold returns for trading triggers based upon 200-day moving averages of adjusted close prices – By market capitalization deciles**

<i>MktCap Decile</i>	<i>BEFORE CRISIS</i>	<i>Pval</i>	<i>CRISIS</i>	<i>Pval</i>	<i>R- squared</i>	<i>N</i>
0	0.000	0.159	0.002	0.000***	0.009	212,808
1	0.001	0.004***	0.001	0.000***	0.017	221,948
2	0.000	0.607	0.001	0.000***	0.024	220,690
3	0.000	0.095*	-0.001	0.002***	0.036	237,345
4	0.000	0.679	-0.001	0.000***	0.038	244,214
5	0.000	0.333	-0.001	0.000***	0.033	260,930
6	0.000	0.475	-0.001	0.000***	0.033	258,129
7	0.000	0.433	-0.001	0.000***	0.041	261,386
8	0.000	0.065*	-0.001	0.000***	0.054	257,514
9	0.000	0.934	-0.002	0.000***	0.063	250,800

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

**Table 17 - Profitability from the trading strategy based upon 50-day moving averages of bid and ask prices**

<i>Trading signal</i>	<i>Mean</i>	<i>Median</i>	<i>Pr &gt;  t </i>
Buy before crisis	-0.471%	-0.340%	<.0001***
Sell before crisis	-0.840%	-0.504%	<.0001***
Buy - Sell before crisis	0.369%	0.164%	
p-values from t-test / Wilcoxon test	<.0001***	<.0001***	
Buy in crisis	-0.799%	-0.491%	<.0001***
Sell in crisis	-1.336%	-0.638%	<.0001***
Buy - Sell in crisis	0.537%	0.147%	
p-values from t-test / Wilcoxon test	<.0001***	<.0001***	
Buy in after crisis	-0.634%	-0.369%	<.0001***
Sell in after crisis	-1.329%	-0.800%	<.0001***
Buy - Sell in after crisis	0.696%	0.431%	
p-values from t-test / Wilcoxon test	<.0001***	<.0001***	
Buy before crisis vs. Buy in crisis	0.328%	0.151%	
p-values from t-test / Wilcoxon test	<.0001***	<.0001***	
Sell before crisis vs. Sell in crisis	0.495%	0.134%	
p-values from t-test / Wilcoxon test	<.0001***	<.0001***	
Buy before crisis vs. Buy after crisis	0.163%	0.029%	
p-values from t-test / Wilcoxon test	<.0001***	<.0001***	
Sell before crisis vs. Sell after crisis	0.489%	0.296%	
p-values from t-test / Wilcoxon test	<.0001***	<.0001***	
Buy during crisis vs. Buy after crisis	-0.165%	-0.122%	
p-values from t-test / Wilcoxon test	<.0001***	<.0001***	
Sell during crisis vs. Sell after crisis	-0.006%	0.162%	
p-values from t-test / Wilcoxon test	0.4435	<.0001***	

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

**Table 18 - Comparison of buy-and-hold returns surrounding the financial crisis - Trading triggers based upon 50-day moving averages of bid and ask prices – By industries**

*Panel A- Before crisis*

Industries	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
AERO	-0.717%	-1.120%	0.403%	0.000***	0.000***
AGRIC	-0.815%	-1.092%	0.276%	0.000***	0.017**
AUTOS	-0.295%	-0.537%	0.242%	0.000***	0.000***
BEER	-0.871%	-1.304%	0.433%	0.000***	0.000***
BLDMT	-0.362%	-0.652%	0.290%	0.000***	0.000***
BOOKS	-0.509%	-0.835%	0.326%	0.000***	0.000***
BOXES	-0.704%	-0.811%	0.107%	0.175	0.214
BUSSV	-0.533%	-0.996%	0.463%	0.000***	0.000***
CHEM	-0.485%	-0.785%	0.300%	0.000***	0.000***
CHIPS	-0.481%	-0.795%	0.315%	0.000***	0.000***
CLTHS	-0.383%	-0.755%	0.371%	0.000***	0.000***
CNSTR	-0.247%	-0.447%	0.199%	0.000***	0.007***
COAL	-0.116%	-0.243%	0.127%	0.136	0.124
COMPS	-0.487%	-0.928%	0.441%	0.000***	0.000***
DRUGS	-0.522%	-0.867%	0.345%	0.000***	0.000***
ELCEQ	-0.577%	-0.857%	0.280%	0.000***	0.000***
FABPR	-0.566%	-1.049%	0.483%	0.000***	0.000***
FOOD	-0.641%	-1.007%	0.366%	0.000***	0.000***
FUN	-0.265%	-0.484%	0.219%	0.000***	0.000***
GOLD	-0.481%	-1.223%	0.742%	0.000***	0.000***
GUNS	-0.250%	-0.428%	0.178%	0.034**	0.311
HLTH	-0.479%	-0.884%	0.405%	0.000***	0.000***
HSHLD	-0.514%	-0.792%	0.278%	0.000***	0.000***
LABEQ	-0.588%	-0.985%	0.397%	0.000***	0.000***
MACH	-0.392%	-0.754%	0.362%	0.000***	0.000***
MEALS	-0.496%	-0.899%	0.403%	0.000***	0.000***
MEDEQ	-0.587%	-0.988%	0.401%	0.000***	0.000***
MINES	-0.118%	-0.521%	0.404%	0.000***	0.000***
OIL	-0.281%	-0.591%	0.311%	0.000***	0.000***
OTHER	-0.101%	-0.237%	0.135%	0.653	0.783
PAPER	-0.386%	-0.584%	0.198%	0.000***	0.000***
PERSV	-0.569%	-1.040%	0.471%	0.000***	0.000***
RTAIL	-0.339%	-0.579%	0.241%	0.000***	0.000***
RUBBR	-0.760%	-1.213%	0.453%	0.000***	0.000***
SHIPS	-0.153%	-0.401%	0.249%	0.004***	0.004***
SMOKE	-0.031%	-0.369%	0.339%	0.003***	0.022**
SODA	-0.247%	-0.420%	0.173%	0.000***	0.002***
STEEL	-0.089%	-0.591%	0.502%	0.000***	0.000***
TELCM	-0.433%	-0.923%	0.490%	0.000***	0.000***
TOYS	-0.814%	-1.135%	0.320%	0.000***	0.000***
TRANS	-0.308%	-0.609%	0.301%	0.000***	0.000***
TXTLS	-0.699%	-0.955%	0.255%	0.001***	0.039**
WHLSL	-0.602%	-0.989%	0.387%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

<i>Panel B-Crisis</i>					
Industries	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
AERO	-0.830%	-1.296%	0.466%	0.000***	0.032**
AGRIC	-0.881%	-1.433%	0.552%	0.000***	0.066*
AUTOS	-0.584%	-0.830%	0.246%	0.000***	0.099*
BEER	-1.794%	-1.741%	-0.052%	0.726	0.589
BLDMT	-0.718%	-0.977%	0.259%	0.000***	0.345
BOOKS	-1.175%	-1.132%	-0.044%	0.559	0.000***
BOXES	-0.702%	-2.032%	1.331%	0.000***	0.000***
BUSSV	-0.840%	-1.485%	0.645%	0.000***	0.000***
CHEM	-0.645%	-1.296%	0.651%	0.000***	0.000***
CHIPS	-0.903%	-1.500%	0.596%	0.000***	0.000***
CLTHS	-0.868%	-1.142%	0.274%	0.000***	0.655
CNSTR	-0.819%	-1.129%	0.311%	0.000***	0.865
COAL	0.020%	-0.431%	0.451%	0.004***	0.343
COMPS	-0.800%	-1.143%	0.343%	0.000***	0.434
DRUGS	-1.092%	-1.748%	0.657%	0.000***	0.000***
ELCEQ	-0.750%	-1.561%	0.811%	0.000***	0.000***
FABPR	-0.637%	-0.984%	0.347%	0.014**	0.109
FOOD	-0.883%	-1.638%	0.755%	0.000***	0.000***
FUN	-0.864%	-1.165%	0.301%	0.000***	0.158
GOLD	-1.784%	-1.721%	-0.063%	0.744	0.702
GUNS	-0.583%	-1.245%	0.663%	0.000***	0.002***
HLTH	-0.857%	-1.365%	0.508%	0.000***	0.000***
HSHLD	-0.931%	-1.465%	0.534%	0.000***	0.000***
LABEQ	-0.803%	-1.480%	0.677%	0.000***	0.000***
MACH	-0.523%	-0.878%	0.355%	0.000***	0.000***
MEALS	-0.796%	-1.174%	0.379%	0.000***	0.196
MEDEQ	-0.851%	-1.556%	0.706%	0.000***	0.000***
MINES	-0.778%	-1.616%	0.838%	0.000***	0.001***
OIL	-0.403%	-0.867%	0.464%	0.000***	0.000***
OTHER	-1.804%	-3.406%	1.602%	0.000***	0.000***
PAPER	-0.848%	-0.955%	0.107%	0.126	0.007***
PERSV	-0.656%	-1.183%	0.527%	0.000***	0.000***
RTAIL	-0.684%	-0.898%	0.215%	0.000***	0.000***
RUBBR	-1.054%	-1.159%	0.105%	0.352	0.039**
SHIPS	-0.331%	-0.439%	0.107%	0.331	0.88
SMOKE	-0.339%	-0.512%	0.173%	0.188	0.847
SODA	-0.549%	-0.863%	0.313%	0.000***	0.068*
STEEL	-0.376%	-0.760%	0.384%	0.000***	0.046**
TELCM	-0.830%	-1.375%	0.545%	0.000***	0.000***
TOYS	-1.159%	-2.082%	0.923%	0.000***	0.000***
TRANS	-0.649%	-1.023%	0.374%	0.000***	0.046**
TXTLS	-0.997%	-1.369%	0.372%	0.002***	0.945
WHLSL	-0.915%	-1.630%	0.715%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

<i>Panel C-After crisis</i>					
Industries	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
AERO	-0.228%	-0.713%	0.485%	0.000***	0.000***
AGRIC	-0.986%	-1.062%	0.076%	0.512	0.356
AUTOS	-0.357%	-1.345%	0.989%	0.000***	0.000***
BEER	-1.188%	-2.149%	0.961%	0.000***	0.000***
BLDMT	-0.454%	-1.133%	0.679%	0.000***	0.000***
BOOKS	-0.708%	-1.398%	0.690%	0.000***	0.000***
BOXES	-0.734%	-1.444%	0.710%	0.000***	0.000***
BUSSV	-0.745%	-1.474%	0.730%	0.000***	0.000***
CHEM	-0.463%	-1.406%	0.943%	0.000***	0.000***
CHIPS	-0.844%	-1.589%	0.745%	0.000***	0.000***
CLTHS	-0.439%	-1.151%	0.712%	0.000***	0.000***
CNSTR	-0.502%	-1.010%	0.508%	0.000***	0.000***
COAL	-0.113%	-0.844%	0.731%	0.000***	0.000***
COMPS	-0.618%	-1.410%	0.793%	0.000***	0.000***
DRUGS	-0.914%	-1.329%	0.415%	0.000***	0.000***
ELCEQ	-0.817%	-1.360%	0.544%	0.000***	0.000***
FABPR	-0.760%	-1.732%	0.973%	0.000***	0.000***
FOOD	-0.673%	-1.485%	0.812%	0.000***	0.000***
FUN	-0.667%	-1.417%	0.750%	0.000***	0.000***
GOLD	-0.151%	-0.855%	0.704%	0.000***	0.000***
GUNS	-0.515%	-0.589%	0.074%	0.465	0.337
HLTH	-0.542%	-1.072%	0.530%	0.000***	0.000***
HSHLD	-0.632%	-1.297%	0.665%	0.000***	0.000***
LABEQ	-0.834%	-1.661%	0.827%	0.000***	0.000***
MACH	-0.416%	-1.352%	0.936%	0.000***	0.000***
MEALS	-0.601%	-1.484%	0.883%	0.000***	0.000***
MEDEQ	-0.812%	-1.470%	0.658%	0.000***	0.000***
MINES	-0.631%	-1.220%	0.589%	0.000***	0.000***
OIL	-0.378%	-1.058%	0.679%	0.000***	0.000***
OTHER	-0.683%	-1.233%	0.550%	0.000***	0.000***
PAPER	-0.301%	-1.210%	0.909%	0.000***	0.000***
PERSV	-0.487%	-1.100%	0.613%	0.000***	0.000***
RTAIL	-0.365%	-0.940%	0.575%	0.000***	0.000***
RUBBR	-0.669%	-1.205%	0.536%	0.000***	0.000***
SHIPS	-0.087%	-0.645%	0.558%	0.000***	0.000***
SMOKE	0.012%	-0.620%	0.632%	0.000***	0.000***
SODA	-0.502%	-1.151%	0.650%	0.000***	0.000***
STEEL	-0.348%	-0.956%	0.608%	0.000***	0.000***
TELCM	-0.622%	-1.464%	0.843%	0.000***	0.000***
TOYS	-1.080%	-1.983%	0.904%	0.000***	0.000***
TRANS	-0.453%	-1.116%	0.663%	0.000***	0.000***
TXTLS	-0.938%	-1.812%	0.874%	0.000***	0.000***
WHLSL	-0.691%	-1.377%	0.686%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

*Panel D- Before crisis vs. crisis*

Industries	BUY signal	pval from t- test	pval from Wilcoxon test	SELL signal	pval from t- test	pval from Wilcoxon test
AERO	0.114%	0.079*	0.013**	0.176%	0.048**	0.134
AGRIC	0.066%	0.566	0.801	0.341%	0.017**	0.868
AUTOS	0.290%	0.000***	0.000***	0.294%	0.000***	0.85
BEER	0.923%	0.000***	0.005***	0.437%	0.000***	0.98
BLDMT	0.357%	0.000***	0.000***	0.326%	0.000***	0.502
BOOKS	0.666%	0.000***	0.000***	0.297%	0.000***	0.000***
BOXES	-0.002%	0.981	0.214	1.221%	0.000***	0.000***
BUSSV	0.307%	0.000***	0.000***	0.489%	0.000***	0.000***
CHEM	0.161%	0.000***	0.002***	0.511%	0.000***	0.000***
CHIPS	0.422%	0.000***	0.000***	0.704%	0.000***	0.000***
CLTHS	0.484%	0.000***	0.000***	0.387%	0.000***	0.305
CNSTR	0.571%	0.000***	0.000***	0.683%	0.000***	0.000***
COAL	-0.136%	0.13	0.17	0.188%	0.225	0.326
COMPS	0.313%	0.000***	0.000***	0.216%	0.000***	0.000***
DRUGS	0.570%	0.000***	0.000***	0.882%	0.000***	0.000***
ELCEQ	0.173%	0.000***	0.000***	0.704%	0.000***	0.000***
FABPR	0.071%	0.477	0.612	-0.065%	0.638	0.029**
FOOD	0.242%	0.000***	0.321	0.631%	0.000***	0.000***
FUN	0.599%	0.000***	0.000***	0.681%	0.000***	0.000***
GOLD	1.304%	0.000***	0.000***	0.499%	0.004***	0.786
GUNS	0.333%	0.000***	0.068*	0.817%	0.000***	0.000***
HLTH	0.377%	0.000***	0.000***	0.480%	0.000***	0.000***
HSULD	0.417%	0.000***	0.000***	0.673%	0.000***	0.000***
LABEQ	0.215%	0.000***	0.000***	0.495%	0.000***	0.000***
MACH	0.131%	0.000***	0.003***	0.124%	0.000***	0.029**
MEALS	0.300%	0.000***	0.000***	0.275%	0.000***	0.000***
MEDEQ	0.264%	0.000***	0.000***	0.568%	0.000***	0.000***
MINES	0.660%	0.000***	0.000***	1.095%	0.000***	0.000***
OIL	0.122%	0.000***	0.000***	0.276%	0.000***	0.231
OTHER	1.703%	0.000***	0.000***	3.170%	0.000***	0.000***
PAPER	0.462%	0.000***	0.000***	0.371%	0.000***	0.642
PERSV	0.087%	0.035**	0.077*	0.144%	0.011**	0.019**
RTAIL	0.345%	0.000***	0.000***	0.319%	0.000***	0.565
RUBBR	0.294%	0.002***	0.000***	-0.054%	0.566	0.15
SHIPS	0.179%	0.025**	0.031**	0.037%	0.748	0.683
SMOKE	0.309%	0.004***	0.000***	0.143%	0.296	0.541
SODA	0.302%	0.000***	0.000***	0.442%	0.000***	0.005***
STEEL	0.287%	0.000***	0.000***	0.169%	0.008***	0.304
TELCM	0.397%	0.000***	0.000***	0.452%	0.000***	0.763
TOYS	0.345%	0.000***	0.001***	0.947%	0.000***	0.000***
TRANS	0.341%	0.000***	0.000***	0.414%	0.000***	0.023**
TXTLS	0.298%	0.002***	0.004***	0.414%	0.000***	0.505
WHLST	0.313%	0.000***	0.000***	0.640%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.



*Panel E- Before crisis vs. After crisis*

Industries	BUY signal	pval from t- test	pval from Wilcoxon test	SELL signal	pval from t- test	pval from Wilcoxon test
AERO	-0.489%	0.000***	0.000***	-0.407%	0.000***	0.000***
AGRIC	0.171%	0.083*	0.575	-0.030%	0.772	0.000***
AUTOS	0.062%	0.14	0.91	0.809%	0.000***	0.000***
BEER	0.318%	0.000***	0.04**	0.845%	0.000***	0.000***
BLDMT	0.093%	0.013**	0.345	0.482%	0.000***	0.000***
BOOKS	0.199%	0.000***	0.000***	0.563%	0.000***	0.000***
BOXES	0.030%	0.715	0.014**	0.633%	0.000***	0.001***
BUSSV	0.212%	0.000***	0.000***	0.478%	0.000***	0.000***
CHEM	-0.022%	0.519	0.000***	0.621%	0.000***	0.000***
CHIPS	0.363%	0.000***	0.000***	0.793%	0.000***	0.000***
CLTHS	0.056%	0.168	0.428	0.397%	0.000***	0.000***
CNSTR	0.255%	0.000***	0.000***	0.563%	0.000***	0.000***
COAL	-0.003%	0.971	0.568	0.601%	0.000***	0.000***
COMPS	0.131%	0.000***	0.105	0.483%	0.000***	0.000***
DRUGS	0.392%	0.000***	0.000***	0.463%	0.000***	0.000***
ELCEQ	0.240%	0.000***	0.000***	0.503%	0.000***	0.000***
FABPR	0.194%	0.051*	0.669	0.683%	0.000***	0.002***
FOOD	0.032%	0.376	0.000***	0.478%	0.000***	0.000***
FUN	0.402%	0.000***	0.000***	0.933%	0.000***	0.000***
GOLD	-0.330%	0.001***	0.002***	-0.368%	0.012**	0.094*
GUNS	0.265%	0.002***	0.052*	0.161%	0.109	0.106
HLTH	0.063%	0.036**	0.749	0.188%	0.000***	0.000***
HSHLD	0.118%	0.003***	0.32	0.505%	0.000***	0.000***
LABEQ	0.245%	0.000***	0.001***	0.676%	0.000***	0.000***
MACH	0.024%	0.335	0.008***	0.598%	0.000***	0.000***
MEALS	0.105%	0.000***	0.638	0.585%	0.000***	0.000***
MEDEQ	0.225%	0.000***	0.000***	0.482%	0.000***	0.000***
MINES	0.514%	0.000***	0.000***	0.699%	0.000***	0.000***
OIL	0.098%	0.000***	0.002***	0.466%	0.000***	0.000***
OTHER	0.582%	0.008***	0.102	0.996%	0.000***	0.009***
PAPER	-0.086%	0.034**	0.007***	0.626%	0.000***	0.000***
PERSV	-0.082%	0.032**	0.000***	0.060%	0.253	0.605
RTAIL	0.027%	0.177	0.008***	0.361%	0.000***	0.000***
RUBBR	-0.091%	0.265	0.211	-0.007%	0.943	0.402
SHIPS	-0.065%	0.393	0.571	0.244%	0.043**	0.199
SMOKE	-0.043%	0.572	0.109	0.251%	0.082*	0.089*
SODA	0.255%	0.000***	0.006***	0.731%	0.000***	0.000***
STEEL	0.259%	0.000***	0.000***	0.365%	0.000***	0.000***
TELCM	0.189%	0.000***	0.012**	0.541%	0.000***	0.000***
TOYS	0.265%	0.000***	0.000***	0.849%	0.000***	0.000***
TRANS	0.145%	0.000***	0.005***	0.507%	0.000***	0.000***
TXTLS	0.239%	0.006***	0.21	0.857%	0.000***	0.000***
WHLST	0.089%	0.000***	0.289	0.388%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

*Panel F- During crisis vs. After crisis*

Industries	BUY		pval from Wilcoxon test	SELL		pval from t- test	pval from Wilcoxon test
	signal	pval from t-test		signal	test		
AERO	-0.603%	0.000***	0.000***	-0.583%	0.000***	0.038**	
AGRIC	0.105%	0.421	0.959	-0.372%	0.014**	0.019**	
AUTOS	-0.228%	0.000***	0.000***	0.515%	0.000***	0.000***	
BEER	-0.606%	0.000***	0.331	0.407%	0.002***	0.000***	
BLDMT	-0.264%	0.000***	0.000***	0.156%	0.016**	0.000***	
BOOKS	-0.467%	0.000***	0.000***	0.266%	0.000***	0.000***	
BOXES	0.032%	0.751	0.413	-0.588%	0.000***	0.453	
BUSSV	-0.095%	0.000***	0.000***	-0.010%	0.629	0.000***	
CHEM	-0.183%	0.000***	0.000***	0.110%	0.057*	0.000***	
CHIPS	-0.059%	0.013**	0.000***	0.089%	0.003***	0.000***	
CLTHS	-0.428%	0.000***	0.000***	0.009%	0.896	0.000***	
CNSTR	-0.317%	0.000***	0.000***	-0.120%	0.077*	0.026**	
COAL	0.133%	0.182	0.392	0.413%	0.017**	0.000***	
COMPS	-0.182%	0.000***	0.000***	0.267%	0.000***	0.000***	
DRUGS	-0.178%	0.000***	0.000***	-0.419%	0.000***	0.000***	
ELCEQ	0.067%	0.122	0.486	-0.201%	0.000***	0.001***	
FABPR	0.122%	0.281	0.925	0.748%	0.000***	0.000***	
FOOD	-0.210%	0.000***	0.000***	-0.153%	0.013**	0.527	
FUN	-0.197%	0.000***	0.004***	0.252%	0.000***	0.000***	
GOLD	-1.633%	0.000***	0.000***	-0.867%	0.000***	0.048**	
GUNS	-0.068%	0.538	0.92	-0.657%	0.000***	0.01**	
HLTH	-0.314%	0.000***	0.000***	-0.292%	0.000***	0.8	
HSHLD	-0.299%	0.000***	0.000***	-0.168%	0.007***	0.489	
LABEQ	0.030%	0.424	0.241	0.181%	0.000***	0.000***	
MACH	-0.107%	0.000***	0.000***	0.474%	0.000***	0.000***	
MEALS	-0.195%	0.000***	0.000***	0.310%	0.000***	0.000***	
MEDEQ	-0.038%	0.194	0.153	-0.086%	0.025**	0.000***	
MINES	-0.147%	0.206	0.952	-0.396%	0.001***	0.816	
OIL	-0.025%	0.356	0.712	0.191%	0.000***	0.000***	
OTHER	-1.121%	0.000***	0.000***	-2.173%	0.000***	0.000***	
PAPER	-0.548%	0.000***	0.000***	0.255%	0.000***	0.000***	
PERSV	-0.170%	0.000***	0.000***	-0.084%	0.177	0.13	
RTAIL	-0.318%	0.000***	0.000***	0.042%	0.197	0.000***	
RUBBR	-0.385%	0.000***	0.000***	0.046%	0.686	0.072*	
SHIPS	-0.244%	0.005***	0.01***	0.207%	0.117	0.091*	
SMOKE	-0.352%	0.000***	0.000***	0.108%	0.454	0.21	
SODA	-0.048%	0.439	0.287	0.289%	0.002***	0.000***	
STEEL	-0.028%	0.57	0.155	0.197%	0.006***	0.000***	
TELCM	-0.208%	0.000***	0.000***	0.089%	0.04**	0.000***	
TOYS	-0.079%	0.305	0.926	-0.099%	0.313	0.003***	
TRANS	-0.196%	0.000***	0.000***	0.093%	0.057*	0.000***	
TXTLS	-0.059%	0.57	0.169	0.443%	0.001***	0.000***	
WHLSL	-0.224%	0.000***	0.000***	-0.252%	0.000***	0.092*	

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

**Table 19 - Comparison of buy-and-hold returns surrounding the financial crisis - Trading triggers based upon 50-day moving averages of bid and ask prices – By market capitalization deciles**

***Panel A- Before crisis***

Market cap deciles	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
0	-2.263%	-2.558%	0.295%	0.000***	0.000***
1	-1.292%	-1.434%	0.142%	0.000***	0.049**
2	-0.781%	-0.890%	0.110%	0.000***	0.000***
3	-0.429%	-0.551%	0.123%	0.000***	0.305
4	-0.239%	-0.400%	0.161%	0.000***	0.000***
5	-0.169%	-0.331%	0.162%	0.000***	0.000***
6	-0.094%	-0.265%	0.171%	0.000***	0.000***
7	-0.067%	-0.219%	0.152%	0.000***	0.000***
8	-0.028%	-0.168%	0.140%	0.000***	0.000***
9	0.010%	-0.152%	0.162%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

***Panel B- Crisis***

Market cap deciles	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
0	-3.625%	-4.922%	1.298%	0.000***	0.000***
1	-1.997%	-2.527%	0.530%	0.000***	0.036**
2	-1.286%	-1.502%	0.216%	0.000***	0.000***
3	-0.910%	-0.832%	-0.078%	0.002***	0.000***
4	-0.567%	-0.440%	-0.127%	0.000***	0.000***
5	-0.424%	-0.292%	-0.132%	0.000***	0.000***
6	-0.293%	-0.148%	-0.145%	0.000***	0.000***
7	-0.249%	-0.106%	-0.143%	0.000***	0.000***
8	-0.171%	-0.068%	-0.103%	0.000***	0.000***
9	-0.154%	-0.051%	-0.103%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

***Panel C - After Crisis***

Market cap deciles	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
0	-3.917%	-4.217%	0.299%	0.000***	0.016**
1	-2.118%	-2.417%	0.299%	0.000***	0.068*
2	-1.124%	-1.357%	0.233%	0.000***	0.575
3	-0.431%	-0.799%	0.368%	0.000***	0.000***
4	-0.255%	-0.709%	0.454%	0.000***	0.000***
5	-0.092%	-0.500%	0.408%	0.000***	0.000***
6	-0.024%	-0.415%	0.391%	0.000***	0.000***
7	0.047%	-0.372%	0.418%	0.000***	0.000***
8	0.051%	-0.331%	0.382%	0.000***	0.000***
9	0.062%	-0.299%	0.361%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

<i>Panel D - Before crisis vs. crisis</i>							
Market cap deciles	BUY signal	pval from t-test	pval from Wilcoxon test	SELL signal	pval from t-test	pval from Wilcoxon test	
0	1.362%	0.000***	0.000***	2.364%	0.000***	0.000***	
1	0.705%	0.000***	0.000***	1.093%	0.000***	0.000***	
2	0.506%	0.000***	0.000***	0.611%	0.000***	0.000***	
3	0.482%	0.000***	0.000***	0.281%	0.000***	0.006***	
4	0.328%	0.000***	0.000***	0.040%	0.053*	0.000***	
5	0.256%	0.000***	0.000***	-0.039%	0.045**	0.000***	
6	0.199%	0.000***	0.000***	-0.117%	0.000***	0.000***	
7	0.183%	0.000***	0.000***	-0.112%	0.000***	0.000***	
8	0.143%	0.000***	0.000***	-0.100%	0.000***	0.000***	
9	0.164%	0.000***	0.000***	-0.101%	0.000***	0.000***	

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

<i>Panel E- Before crisis vs. After crisis</i>							
Market cap deciles	BUY signal	pval from t-test	pval from Wilcoxon test	SELL signal	pval from t-test	pval from Wilcoxon test	
0	1.655%	0.000***	0.000***	1.659%	0.000***	0.000***	
1	0.826%	0.000***	0.000***	0.983%	0.000***	0.000***	
2	0.344%	0.000***	0.000***	0.467%	0.000***	0.000***	
3	0.003%	0.88	0.46	0.248%	0.000***	0.000***	
4	0.016%	0.309	0.091*	0.310%	0.000***	0.000***	
5	-0.077%	0.000***	0.000***	0.169%	0.000***	0.000***	
6	-0.070%	0.000***	0.000***	0.150%	0.000***	0.000***	
7	-0.114%	0.000***	0.000***	0.153%	0.000***	0.000***	
8	-0.079%	0.000***	0.000***	0.164%	0.000***	0.000***	
9	-0.053%	0.000***	0.000***	0.147%	0.000***	0.000***	

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

<i>Panel F-During crisis vs. After crisis</i>							
Market cap deciles	BUY signal	pval from t-test	pval from Wilcoxon test	SELL signal	pval from t-test	pval from Wilcoxon test	
0	0.293%	0.000***	0.000***	-0.706%	0.000***	0.08*	
1	0.121%	0.000***	0.000***	-0.110%	0.000***	0.000***	
2	-0.162%	0.000***	0.145	-0.145%	0.000***	0.002***	
3	-0.479%	0.000***	0.000***	-0.033%	0.181	0.000***	
4	-0.312%	0.000***	0.000***	0.270%	0.000***	0.000***	
5	-0.333%	0.000***	0.000***	0.207%	0.000***	0.000***	
6	-0.269%	0.000***	0.000***	0.267%	0.000***	0.000***	
7	-0.296%	0.000***	0.000***	0.265%	0.000***	0.000***	
8	-0.221%	0.000***	0.000***	0.263%	0.000***	0.000***	
9	-0.216%	0.000***	0.000***	0.248%	0.000***	0.000***	

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

**Table 20 - Regressions of buy-and-hold returns for trading triggers based upon 50-day moving averages of bid and ask prices – Full Sample**

<i>Variable</i>	<i>Parameter Estimate</i>	<i>Standardized Estimate</i>	<i>t Value</i>	<i>Pr &gt;  t </i>
Intercept	-0.010	0.000	-35.62	<.0001
MKTRF	-0.209	-0.104	-177.02	<.0001
UMD	0.047	0.021	32.98	<.0001
HML	0.109	0.030	46.89	<.0001
SMB	-0.012	-0.003	-5.41	<.0001
CRISIS	-0.003	-0.040	-68.26	<.0001
BEFORE CRISIS	0.002	0.023	39.72	<.0001
ind_code1 (AGRIC)	0.000	0.000	0.19	0.8472
ind_code2 (FOOD)	0.000	0.001	0.94	0.3471
ind_code3 (SODA)	0.004	0.008	11.09	<.0001
ind_code4 (BEER)	-0.004	-0.005	-8.42	<.0001
ind_code5 (SMOKE)	0.008	0.008	14.20	<.0001
ind_code6 (TOYS)	-0.003	-0.007	-8.96	<.0001
ind_code7 (FUN)	0.002	0.008	8.01	<.0001
ind_code8 (BOOKS)	0.001	0.004	4.43	<.0001
ind_code9 (HSHLD)	0.001	0.005	4.57	<.0001
ind_code10 (CLTHS)	0.003	0.008	9.17	<.0001
ind_code11 (HLTH)	0.002	0.007	5.78	<.0001
ind_code12 (MEDEQ)	0.000	0.000	-0.14	0.8854
ind_code13 (DRUGS)	-0.001	-0.006	-3.07	0.0021
ind_code14 (CHEM)	0.002	0.008	7.46	<.0001
ind_code15 (RUBBR)	0.000	0.000	-0.09	0.9244
ind_code16 (TXTLS)	0.000	0.000	-0.75	0.4521
ind_code17 (BLDMT)	0.004	0.011	11.73	<.0001
ind_code18 (CNSTR)	0.003	0.010	10.63	<.0001
ind_code19 (STEEL)	0.005	0.016	17.05	<.0001
ind_code20 (FABPR)	0.002	0.002	3.85	0.0001
ind_code21 (MACH)	0.004	0.018	12.96	<.0001
ind_code22 (ELCEQ)	0.001	0.002	1.83	0.0668
ind_code23 (AUTOS)	0.004	0.013	13.32	<.0001
ind_code24 (AERO)	0.003	0.005	7.13	<.0001
ind_code25 (SHIPS)	0.007	0.009	15.43	<.0001
ind_code26 (GUNS)	0.004	0.006	8.91	<.0001
ind_code27 (GOLD)	0.001	0.001	2.08	0.0377
ind_code28 (MINES)	0.002	0.003	3.88	0.0001
ind_code29 (COAL)	0.008	0.012	18.01	<.0001
ind_code30 (OIL)	0.005	0.025	15.90	<.0001
ind_code32 (TELCM)	0.001	0.005	3.78	0.0002
ind_code33 (PERSV)	0.002	0.008	8.02	<.0001
ind_code34 (BUSSV)	0.000	0.004	1.61	0.1080
ind_code35 (COMPS)	0.002	0.008	5.53	<.0001
ind_code36 (CHIPS)	0.000	0.002	1.28	0.2012
ind_code37 (LABEQ)	0.000	0.000	0.22	0.8231
ind_code38 (PAPER)	0.004	0.011	12.83	<.0001
ind_code39 (BOXES)	0.000	0.000	0.37	0.7119
ind_code40 (TRANS)	0.004	0.015	12.36	<.0001
ind_code41 (WHLSL)	0.000	0.002	1.19	0.2359
ind_code42 (RTAIL)	0.004	0.025	15.12	<.0001
ind_code43 (MEALS)	0.002	0.008	7.04	<.0001
Observations		4,036,675		
F statistic		1281.53		
Adj R^2		0.015		

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

**Table 21 - Regressions of buy-and-hold returns for trading triggers based upon 50-day moving averages of bid and ask prices – By market capitalization deciles**

<i>MktCap Decile</i>	<i>BEFORE CRISIS</i>	<i>Pval</i>	<i>CRISIS</i>	<i>Pval</i>	<i>R- squared</i>	<i>N</i>
0	0.015	0.000***	-0.015	0.000***	0.018	381,148
1	0.008	0.000***	-0.007	0.000***	0.010	369,047
2	0.003	0.000***	-0.005	0.000***	0.012	361,088
3	0.000	0.028**	-0.004	0.000***	0.016	384,378
4	0.001	0.000***	-0.002	0.000***	0.017	398,629
5	-0.001	0.000***	-0.002	0.000***	0.018	416,701
6	-0.001	0.000***	-0.001	0.000***	0.019	409,258
7	-0.001	0.000***	-0.001	0.000***	0.022	405,769
8	-0.001	0.000***	-0.001	0.000***	0.031	391,852
9	-0.001	0.000***	-0.001	0.000***	0.035	372,324

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

**Table 22 - Profitability from the trading strategy based upon 200-day moving averages of bid and ask prices**

<i>Trading signal</i>	<i>Mean</i>	<i>Median</i>	<i>Pr &gt;  t </i>
Buy before crisis	-0.373%	-0.296%	<.0001***
Sell before crisis	-0.731%	-0.450%	<.0001***
Buy - Sell before crisis	0.358%	0.155%	
p-values from t-test / Wilcoxon test	<.0001***	0.001	
Buy in crisis	-0.916%	-0.643%	<.0001***
Sell in crisis	-1.326%	-0.633%	<.0001***
Buy - Sell in crisis	0.410%	-0.010%	
p-values from t-test / Wilcoxon test	<.0001***	0.012	
Buy in after crisis	-0.411%	-0.271%	<.0001***
Sell in after crisis	-0.940%	-0.625%	<.0001***
Buy - Sell in after crisis	0.530%	0.354%	
p-values from t-test / Wilcoxon test	<.0001***	<.0001***	
Buy before crisis vs. Buy in crisis	0.543%	0.347%	
p-values from t-test / Wilcoxon test	<.0001***	<.0001***	
Sell before crisis vs. Sell in crisis	0.595%	0.183%	
p-values from t-test / Wilcoxon test	<.0001***	<.0001***	
Buy before crisis vs. Buy after crisis	0.037%	-0.025%	
p-values from t-test / Wilcoxon test	<.0001***	0.0376	
Sell before crisis vs. Sell after crisis	0.209%	0.175%	
p-values from t-test / Wilcoxon test	<.0001***	<.0001***	
Buy during crisis vs. Buy after crisis	-0.506%	-0.372%	
p-values from t-test / Wilcoxon test	<.0001***	<.0001***	
Sell during crisis vs. Sell after crisis	-0.386%	-0.008%	
p-values from t-test / Wilcoxon test	<.0001***	0.255	

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

**Table 23 - Comparison of buy-and-hold returns surrounding the financial crisis - Trading triggers based upon 200-day moving averages of bid and ask prices – By industries**

<i>Panel A- Before crisis</i>						
Industries	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test	
AERO	-0.393%	-1.156%	0.763%	0.000***	0.000***	0.000***
AGRIC	-0.326%	-1.175%	0.849%	0.000***	0.000***	0.000***
AUTOS	-0.284%	-0.466%	0.182%	0.000***	0.000***	0.000***
BEER	-0.534%	-1.042%	0.508%	0.000***	0.000***	0.000***
BLDMT	-0.334%	-0.567%	0.233%	0.000***	0.000***	0.000***
BOOKS	-0.415%	-0.615%	0.200%	0.000***		0.052*
BOXES	-0.657%	-0.847%	0.191%	0.039**		0.218
BUSSV	-0.433%	-0.844%	0.411%	0.000***	0.000***	0.000***
CHEM	-0.312%	-0.753%	0.441%	0.000***	0.000***	0.000***
CHIPS	-0.425%	-0.735%	0.310%	0.000***	0.000***	0.000***
CLTHS	-0.239%	-0.466%	0.227%	0.000***		0.022**
CNSTR	-0.255%	-0.387%	0.132%	0.003***		0.92
COAL	-0.299%	-0.207%	-0.092%	0.401		0.238
COMPS	-0.449%	-0.834%	0.386%	0.000***	0.000***	0.000***
DRUGS	-0.514%	-0.729%	0.215%	0.000***	0.000***	0.000***
ELCEQ	-0.467%	-0.851%	0.384%	0.000***	0.000***	0.000***
FABPR	-0.467%	-0.792%	0.325%	0.003***	0.003***	0.003***
FOOD	-0.407%	-0.726%	0.319%	0.000***	0.000***	0.000***
FUN	-0.183%	-0.482%	0.298%	0.000***	0.000***	0.000***
GOLD	-0.403%	-0.824%	0.421%	0.006***		0.044**
GUNS	-0.246%	-0.763%	0.517%	0.000***	0.000***	0.000***
HLTH	-0.417%	-0.747%	0.330%	0.000***	0.000***	0.000***
HSHLD	-0.297%	-0.827%	0.530%	0.000***	0.000***	0.000***
LABEQ	-0.510%	-0.761%	0.251%	0.000***	0.000***	0.000***
MACH	-0.326%	-0.732%	0.406%	0.000***	0.000***	0.000***
MEALS	-0.367%	-0.762%	0.395%	0.000***	0.000***	0.000***
MEDEQ	-0.434%	-0.779%	0.345%	0.000***	0.000***	0.000***
MINES	-0.104%	-0.534%	0.429%	0.000***	0.000***	0.002***
OIL	-0.291%	-0.479%	0.189%	0.000***	0.000***	0.000***
PAPER	-0.191%	-0.509%	0.317%	0.000***	0.000***	0.000***
PERSV	-0.335%	-0.625%	0.290%	0.000***	0.000***	0.000***
RTAIL	-0.245%	-0.505%	0.261%	0.000***	0.000***	0.000***
RUBBR	-0.473%	-1.001%	0.529%	0.000***	0.000***	0.000***
SHIPS	-0.202%	-0.412%	0.211%	0.045**		0.03**
SMOKE	0.000%	-0.545%	0.545%	0.000***	0.000***	0.000***
SODA	-0.092%	-0.426%	0.334%	0.000***	0.000***	0.000***
STEEL	-0.010%	-0.997%	0.987%	0.000***	0.000***	0.000***
TELCM	-0.304%	-0.865%	0.561%	0.000***	0.000***	0.000***
TOYS	-0.661%	-1.051%	0.390%	0.000***	0.000***	0.000***
TRANS	-0.223%	-0.631%	0.408%	0.000***	0.000***	0.000***
TXTLS	-0.732%	-0.796%	0.064%	0.495		0.487
WHLSL	-0.416%	-0.854%	0.438%	0.000***	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.



<i>Panel B – Crisis</i>					
Industries	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
AERO	-1.256%	-1.183%	-0.073%	0.617	0.000***
AGRIC	-1.059%	-0.927%	-0.132%	0.525	0.072*
AUTOS	-0.739%	-0.720%	-0.018%	0.851	0.002***
BEER	-0.782%	-1.916%	1.134%	0.000***	0.002***
BLDMT	-1.058%	-0.821%	-0.237%	0.003***	0.000***
BOOKS	-1.525%	-0.595%	-0.930%	0.000***	0.000***
BOXES	-0.615%	-2.494%	1.878%	0.000***	0.000***
BUSSV	-1.035%	-1.418%	0.383%	0.000***	0.231
CHEM	-0.791%	-1.215%	0.424%	0.000***	0.189
CHIPS	-1.166%	-1.637%	0.471%	0.000***	0.845
CLTHS	-0.958%	-1.168%	0.210%	0.022**	0.391
CNSTR	-0.776%	-1.023%	0.247%	0.014**	0.982
COAL	-0.264%	-0.857%	0.593%	0.02**	0.347
COMPS	-1.109%	-1.217%	0.108%	0.065*	0.000***
DRUGS	-1.229%	-1.854%	0.625%	0.000***	0.000***
ELCEQ	-0.818%	-1.569%	0.751%	0.000***	0.000***
FABPR	-0.948%	-1.024%	0.076%	0.682	0.222
FOOD	-0.668%	-1.583%	0.916%	0.000***	0.000***
FUN	-0.949%	-1.040%	0.091%	0.334	0.009***
GOLD	-0.787%	-1.252%	0.465%	0.03**	0.962
GUNS	-0.875%	-1.195%	0.320%	0.113	0.492
HLTH	-1.027%	-1.277%	0.251%	0.000***	0.602
HSHLD	-0.981%	-1.226%	0.245%	0.001***	0.793
LABEQ	-1.030%	-1.565%	0.535%	0.000***	0.102
MACH	-0.622%	-0.960%	0.338%	0.000***	0.027**
MEALS	-0.899%	-1.004%	0.105%	0.16	0.000***
MEDEQ	-0.915%	-1.680%	0.766%	0.000***	0.000***
MINES	-0.651%	-0.975%	0.324%	0.127	0.981
OIL	-0.672%	-0.924%	0.252%	0.000***	0.219
OTHER	-1.387%	-2.050%	0.663%	0.484	0.54
PAPER	-1.129%	-0.893%	-0.236%	0.033**	0.000***
PERSV	-0.710%	-0.889%	0.178%	0.021**	0.144
RTAIL	-0.740%	-0.903%	0.163%	0.000***	0.000***
RUBBR	-1.311%	-0.959%	-0.352%	0.114	0.000***
SHIPS	-0.455%	-0.600%	0.145%	0.349	0.797
SMOKE	-0.473%	-0.470%	-0.002%	0.992	0.18
SODA	-0.798%	-0.686%	-0.112%	0.251	0.001***
STEEL	-0.588%	-0.637%	0.050%	0.583	0.031**
TELCM	-0.908%	-1.356%	0.449%	0.000***	0.103
TOYS	-1.183%	-2.163%	0.980%	0.000***	0.012**
TRANS	-0.518%	-1.004%	0.486%	0.000***	0.036**
TXTLS	-1.379%	-1.111%	-0.268%	0.129	0.000***
WHLSL	-1.110%	-1.703%	0.593%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

<i>Panel C - After crisis</i>					
Industries	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
AERO	-0.144%	-0.632%	0.488%	0.000***	0.000***
AGRIC	-0.464%	-0.446%	-0.019%	0.859	0.621
AUTOS	-0.192%	-1.074%	0.881%	0.000***	0.000***
BEER	-0.749%	-2.061%	1.311%	0.000***	0.000***
BLDMT	-0.261%	-0.677%	0.417%	0.000***	0.000***
BOOKS	-0.434%	-0.878%	0.444%	0.000***	0.000***
BOXES	-0.508%	-0.781%	0.273%	0.029**	0.017**
BUSSV	-0.489%	-1.024%	0.535%	0.000***	0.000***
CHEM	-0.283%	-1.045%	0.762%	0.000***	0.000***
CHIPS	-0.486%	-1.192%	0.706%	0.000***	0.000***
CLTHS	-0.260%	-0.937%	0.677%	0.000***	0.000***
CNSTR	-0.508%	-0.620%	0.111%	0.057*	0.757
COAL	-0.129%	-0.664%	0.535%	0.000***	0.000***
COMPS	-0.458%	-1.008%	0.550%	0.000***	0.000***
DRUGS	-0.559%	-1.002%	0.443%	0.000***	0.000***
ELCEQ	-0.589%	-0.995%	0.407%	0.000***	0.000***
FABPR	-0.402%	-1.120%	0.718%	0.000***	0.000***
FOOD	-0.393%	-1.049%	0.656%	0.000***	0.000***
FUN	-0.337%	-0.927%	0.590%	0.000***	0.000***
GOLD	0.014%	-0.622%	0.636%	0.000***	0.000***
GUNS	-0.184%	-0.389%	0.205%	0.038**	0.06*
HLTH	-0.378%	-0.800%	0.422%	0.000***	0.000***
HSHLD	-0.495%	-0.795%	0.300%	0.000***	0.000***
LABEQ	-0.610%	-1.161%	0.551%	0.000***	0.000***
MACH	-0.310%	-1.039%	0.729%	0.000***	0.000***
MEALS	-0.340%	-0.982%	0.642%	0.000***	0.000***
MEDEQ	-0.626%	-1.111%	0.484%	0.000***	0.000***
MINES	-0.364%	-1.015%	0.651%	0.000***	0.000***
OIL	-0.229%	-0.724%	0.496%	0.000***	0.000***
OTHER	-0.475%	-1.462%	0.987%	0.000***	0.000***
PAPER	-0.182%	-0.517%	0.336%	0.000***	0.000***
PERSV	-0.292%	-0.679%	0.387%	0.000***	0.000***
RTAIL	-0.320%	-0.616%	0.296%	0.000***	0.000***
RUBBR	-0.678%	-0.570%	-0.107%	0.301	0.52
SHIPS	-0.032%	-0.445%	0.414%	0.000***	0.000***
SMOKE	-0.016%	-0.484%	0.467%	0.000***	0.000***
SODA	-0.562%	-0.679%	0.117%	0.16	0.954
STEEL	-0.253%	-0.574%	0.321%	0.000***	0.000***
TELCM	-0.349%	-1.071%	0.722%	0.000***	0.000***
TOYS	-0.834%	-1.143%	0.309%	0.000***	0.002***
TRANS	-0.266%	-0.821%	0.554%	0.000***	0.000***
TXTLS	-0.547%	-1.099%	0.552%	0.000***	0.000***
WHLSL	-0.380%	-1.048%	0.668%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

*Panel D - Before crisis vs. crisis*

Industries	BUY signal	pval from t- test	pval from Wilcoxon test	SELL signal	pval from t- test	pval from Wilcoxon test
AERO	0.862%	0.000***	0.000***	0.027%	0.822	0.000***
AGRIC	0.733%	0.000***	0.000***	-0.247%	0.186	0.009***
AUTOS	0.455%	0.000***	0.000***	0.254%	0.000***	0.516
BEER	0.248%	0.024**	0.043**	0.874%	0.000***	0.454
BLDMT	0.724%	0.000***	0.000***	0.254%	0.000***	0.875
BOOKS	1.110%	0.000***	0.000***	-0.019%	0.753	0.000***
BOXES	-0.041%	0.711	0.915	1.646%	0.000***	0.000***
BUSSV	0.602%	0.000***	0.000***	0.574%	0.000***	0.000***
CHEM	0.479%	0.000***	0.000***	0.462%	0.000***	0.407
CHIPS	0.741%	0.000***	0.000***	0.902%	0.000***	0.000***
CLTHS	0.719%	0.000***	0.000***	0.702%	0.000***	0.000***
CNSTR	0.521%	0.000***	0.000***	0.636%	0.000***	0.000***
COAL	-0.034%	0.798	0.334	0.650%	0.007***	0.428
COMPS	0.661%	0.000***	0.000***	0.383%	0.000***	0.2
DRUGS	0.715%	0.000***	0.000***	1.126%	0.000***	0.000***
ELCEQ	0.351%	0.000***	0.000***	0.718%	0.000***	0.000***
FABPR	0.481%	0.000***	0.008***	0.232%	0.14	0.196
FOOD	0.261%	0.000***	0.017**	0.857%	0.000***	0.000***
FUN	0.766%	0.000***	0.000***	0.559%	0.000***	0.01**
GOLD	0.385%	0.018**	0.005***	0.429%	0.039**	0.717
GUNS	0.629%	0.000***	0.000***	0.432%	0.006***	0.916
HLTH	0.610%	0.000***	0.000***	0.530%	0.000***	0.000***
HSHLD	0.684%	0.000***	0.000***	0.399%	0.000***	0.102
LABEQ	0.520%	0.000***	0.000***	0.804%	0.000***	0.000***
MACH	0.296%	0.000***	0.000***	0.228%	0.000***	0.362
MEALS	0.532%	0.000***	0.000***	0.242%	0.000***	0.001***
MEDEQ	0.480%	0.000***	0.000***	0.901%	0.000***	0.000***
MINES	0.547%	0.003***	0.002***	0.441%	0.004***	0.419
OIL	0.381%	0.000***	0.000***	0.445%	0.000***	0.000***
OTHER	1.196%			1.542%		
PAPER	0.793%	0.000***	0.000***	0.268%	0.000***	0.827
PERSV	0.466%	0.000***	0.000***	0.383%	0.000***	0.291
RTAIL	0.268%	0.000***	0.000***	-0.099%	0.000***	0.04**
RUBBR	1.110%	0.000***	0.000***	0.547%	0.727	0.03**
SHIPS	0.455%	0.028**	0.019**	0.055%	0.203	0.539
SMOKE	0.380%	0.015**	0.000***	0.044%	0.68	0.224
SODA	0.789%	0.000***	0.000***	-0.311%	0.001***	0.569
STEEL	0.284%	0.000***	0.000***	-0.228%	0.000***	0.000***
TELCM	0.247%	0.000***	0.000***	0.305%	0.000***	0.031**
TOYS	0.961%	0.000***	0.000***	1.532%	0.000***	0.000***
TRANS	-0.215%	0.000***	0.000***	0.208%	0.000***	0.779
TXTLS	0.962%	0.000***	0.000***	0.257%	0.016**	0.506
WHLSL	0.694%	0.000***	0.000***	1.287%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

<i>Panel E- Before crisis vs. After crisis</i>						
Industries	BUY signal	pval from t- test	pval from Wilcoxon test	SELL signal	pval from t- test	pval from Wilcoxon test
AERO	-0.250%	0.000***	0.000***	-0.524%	0.000***	0.000***
AGRIC	0.138%	0.149	0.068*	-0.729%	0.000***	0.000***
AUTOS	-0.092%	0.035**	0.004***	0.608%	0.000***	0.000***
BEER	0.216%	0.03**	0.289	1.019%	0.000***	0.000***
BLDMT	-0.074%	0.055*	0.004***	0.110%	0.059*	0.042**
BOOKS	0.020%	0.706	0.535	0.263%	0.000***	0.000***
BOXES	-0.149%	0.071*	0.004***	-0.066%	0.614	0.681
BUSSV	0.056%	0.000***	0.949	0.179%	0.000***	0.000***
CHEM	-0.029%	0.393	0.007***	0.292%	0.000***	0.000***
CHIPS	0.061%	0.005***	0.901	0.456%	0.000***	0.000***
CLTHS	0.021%	0.609	0.977	0.471%	0.000***	0.000***
CNSTR	0.253%	0.000***	0.000***	0.232%	0.000***	0.000***
COAL	-0.170%	0.144	0.043**	0.457%	0.000***	0.000***
COMPS	0.009%	0.76	0.266	0.174%	0.000***	0.000***
DRUGS	0.046%	0.052*	0.995	0.274%	0.000***	0.000***
ELCEQ	0.122%	0.000***	0.016**	0.145%	0.004***	0.003***
FABPR	-0.065%	0.552	0.354	0.328%	0.029**	0.226
FOOD	-0.014%	0.702	0.000***	0.323%	0.000***	0.000***
FUN	0.154%	0.000***	0.003***	0.446%	0.000***	0.000***
GOLD	-0.417%	0.000***	0.000***	-0.202%	0.241	0.439
GUNS	-0.062%	0.483	0.477	-0.374%	0.003***	0.016**
HLTH	-0.039%	0.247	0.014**	0.053%	0.222	0.012**
HSHLD	0.198%	0.000***	0.000***	-0.032%	0.583	0.171
LABEQ	0.100%	0.003***	0.361	0.400%	0.000***	0.000***
MACH	-0.016%	0.534	0.032**	0.307%	0.000***	0.000***
MEALS	-0.027%	0.362	0.02**	0.220%	0.000***	0.002***
MEDEQ	0.192%	0.000***	0.000***	0.331%	0.000***	0.000***
MINES	0.260%	0.006***	0.000***	0.481%	0.000***	0.000***
OIL	-0.062%	0.031**	0.063*	0.245%	0.000***	0.000***
OTHER	0.284%			0.953%		
PAPER	-0.154%	0.81	0.616	-0.108%	0.898	0.534
PERSV	0.047%	0.288	0.074*	0.173%	0.293	0.085*
RTAIL	-0.153%	0.000***	0.408	-0.386%	0.000***	0.000***
RUBBR	0.476%	0.01***	0.016**	0.158%	0.000***	0.011**
SHIPS	0.031%	0.053*	0.05**	-0.100%	0.789	0.769
SMOKE	-0.076%	0.871	0.676	0.057%	0.713	0.636
SODA	0.553%	0.000***	0.000***	-0.318%	0.003***	0.378
STEEL	-0.052%	0.000***	0.000***	-0.291%	0.000***	0.000***
TELCM	-0.312%	0.087*	0.401	0.020%	0.000***	0.000***
TOYS	0.612%	0.007***	0.037**	0.512%	0.293	0.18
TRANS	-0.466%	0.142	0.57	0.024%	0.000***	0.000***
TXTLS	0.131%	0.051*	0.001***	0.245%	0.011**	0.058*
WHLSL	-0.037%	0.13	0.000***	0.631%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

*Panel F- During crisis vs. After crisis*

Industries	BUY signal	pval from t- test	pval from Wilcoxon test	SELL signal	pval from t- test	pval from Wilcoxon test
AERO	-1.112%	0.000***	0.000***	-0.551%	0.000***	0.632
AGRIC	-0.595%	0.000***	0.000***	-0.482%	0.002***	0.05**
AUTOS	-0.546%	0.000***	0.000***	0.354%	0.000***	0.000***
BEER	-0.033%	0.799	0.415	0.145%	0.381	0.000***
BLDMT	-0.797%	0.000***	0.000***	-0.144%	0.044**	0.095*
BOOKS	-1.091%	0.000***	0.000***	0.283%	0.000***	0.000***
BOXES	-0.108%	0.347	0.06*	-1.713%	0.000***	0.000***
BUSSV	-0.546%	0.000***	0.000***	-0.395%	0.000***	0.048**
CHEM	-0.508%	0.000***	0.000***	-0.171%	0.009***	0.004***
CHIPS	-0.680%	0.000***	0.000***	-0.445%	0.000***	0.583
CLTHS	-0.698%	0.000***	0.000***	-0.231%	0.006***	0.454
CNSTR	-0.268%	0.002***	0.002***	-0.403%	0.000***	0.011**
COAL	-0.136%	0.332	0.557	-0.193%	0.431	0.247
COMPS	-0.652%	0.000***	0.000***	-0.209%	0.000***	0.000***
DRUGS	-0.669%	0.000***	0.000***	-0.852%	0.000***	0.000***
ELCEQ	-0.229%	0.000***	0.000***	-0.574%	0.000***	0.043**
FABPR	-0.546%	0.000***	0.002***	0.096%	0.596	0.026**
FOOD	-0.274%	0.000***	0.000***	-0.534%	0.000***	0.151
FUN	-0.612%	0.000***	0.000***	-0.113%	0.088*	0.000***
GOLD	-0.801%	0.000***	0.000***	-0.630%	0.002***	0.232
GUNS	-0.690%	0.000***	0.000***	-0.806%	0.000***	0.004***
HLTH	-0.649%	0.000***	0.000***	-0.477%	0.000***	0.013**
HSILD	-0.486%	0.000***	0.000***	-0.431%	0.000***	0.009***
LABEQ	-0.420%	0.000***	0.000***	-0.404%	0.000***	0.754
MACH	-0.312%	0.000***	0.000***	0.079%	0.115	0.000***
MEALS	-0.560%	0.000***	0.000***	-0.022%	0.73	0.000***
MEDEQ	-0.288%	0.000***	0.000***	-0.570%	0.000***	0.031**
MINES	-0.287%	0.133	0.183	0.040%	0.777	0.007***
OIL	-0.443%	0.000***	0.000***	-0.199%	0.000***	0.992
OTHER	-0.913%	0.000***	0.000***	-0.589%	0.529	0.325
PAPER	-0.947%	0.000***	0.000***	-0.375%	0.000***	0.669
PERSV	-0.418%	0.000***	0.000***	-0.210%	0.000***	0.909
RTAIL	-0.420%	0.000***	0.000***	-0.287%	0.000***	0.347
RUBBR	-0.634%	0.003***	0.000***	-0.389%	0.001***	0.497
SHIPS	-0.423%	0.000***	0.000***	-0.155%	0.295	0.746
SMOKE	-0.456%	0.013**	0.000***	0.013%	0.941	0.474
SODA	-0.236%	0.005***	0.000***	-0.007%	0.944	0.58
STEEL	-0.335%	0.000***	0.000***	-0.064%	0.428	0.003***
TELCM	-0.559%	0.000***	0.000***	-0.285%	0.000***	0.000***
TOYS	-0.349%	0.002***	0.002***	-1.020%	0.000***	0.000***
TRANS	-0.252%	0.000***	0.000***	-0.183%	0.002***	0.014**
TXTLS	-0.831%	0.000***	0.000***	-0.012%	0.935	0.031**
WHLSL	-0.730%	0.000***	0.000***	-0.656%	0.000***	0.003***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

**Table 24 - Comparison of buy-and-hold returns surrounding the financial crisis - Trading triggers based upon 200-day moving averages of bid and ask prices – By market capitalization deciles**

*Panel A- Before crisis*

Market cap deciles	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
0	-1.863%	-2.176%	0.314%	0.000***	0.000***
1	-1.066%	-1.213%	0.147%	0.000***	0.15
2	-0.701%	-0.748%	0.046%	0.026**	0.000***
3	-0.397%	-0.476%	0.079%	0.000***	0.002***
4	-0.235%	-0.393%	0.159%	0.000***	0.000***
5	-0.166%	-0.325%	0.160%	0.000***	0.000***
6	-0.099%	-0.277%	0.178%	0.000***	0.000***
7	-0.073%	-0.250%	0.177%	0.000***	0.000***
8	-0.049%	-0.214%	0.165%	0.000***	0.000***
9	0.010%	-0.193%	0.203%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

*Panel B – Crisis*

Market cap deciles	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
0	-4.344%	-5.577%	1.233%	0.000***	0.000***
1	-2.593%	-2.809%	0.216%	0.000***	0.000***
2	-1.710%	-1.555%	-0.155%	0.000***	0.000***
3	-1.185%	-0.812%	-0.373%	0.000***	0.000***
4	-0.835%	-0.423%	-0.411%	0.000***	0.000***
5	-0.666%	-0.292%	-0.375%	0.000***	0.000***
6	-0.486%	-0.157%	-0.329%	0.000***	0.000***
7	-0.430%	-0.113%	-0.317%	0.000***	0.000***
8	-0.327%	-0.077%	-0.250%	0.000***	0.000***
9	-0.316%	-0.047%	-0.269%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

*Panel C - After Crisis*

Market cap deciles	BUY signal	SELL signal	Difference	pval from t-test	pval from Wilcoxon test
0	-2.744%	-3.022%	0.278%	0.000***	0.000***
1	-1.733%	-1.852%	0.120%	0.000***	0.244
2	-0.898%	-1.010%	0.113%	0.000***	0.074*
3	-0.409%	-0.579%	0.170%	0.000***	0.01***
4	-0.240%	-0.472%	0.232%	0.000***	0.000***
5	-0.119%	-0.354%	0.235%	0.000***	0.000***
6	-0.065%	-0.287%	0.222%	0.000***	0.000***
7	-0.024%	-0.312%	0.287%	0.000***	0.000***
8	0.003%	-0.246%	0.249%	0.000***	0.000***
9	0.022%	-0.211%	0.233%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

**Panel D - Before crisis vs. crisis**

Market cap deciles	BUY signal	pval from t-test	pval from Wilcoxon test	SELL signal	pval from t-test	pval from Wilcoxon test
0	2.481%	0.000***	0.000***	3.401%	0.000***	0.000***
1	1.527%	0.000***	0.000***	1.596%	0.000***	0.000***
2	1.008%	0.000***	0.000***	0.807%	0.000***	0.000***
3	0.788%	0.000***	0.000***	0.336%	0.000***	0.000***
4	0.600%	0.000***	0.000***	0.030%	0.239	0.000***
5	0.501%	0.000***	0.000***	-0.034%	0.157	0.000***
6	0.387%	0.000***	0.000***	-0.120%	0.000***	0.000***
7	0.357%	0.000***	0.000***	-0.137%	0.000***	0.000***
8	0.278%	0.000***	0.000***	-0.137%	0.000***	0.000***
9	0.326%	0.000***	0.000***	-0.146%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

**Panel E - Before crisis vs. After crisis**

Market cap deciles	BUY signal	pval from t-test	pval from Wilcoxon test	SELL signal	pval from t-test	pval from Wilcoxon test
0	0.882%	0.000***	0.000***	0.846%	0.000***	0.000***
1	0.667%	0.000***	0.000***	0.640%	0.000***	0.000***
2	0.196%	0.000***	0.000***	0.263%	0.000***	0.000***
3	0.012%	0.551	0.962	0.103%	0.000***	0.000***
4	0.006%	0.764	0.944	0.079%	0.000***	0.002***
5	-0.047%	0.004***	0.000***	0.029%	0.162	0.256
6	-0.035%	0.018**	0.000***	0.010%	0.627	0.391
7	-0.049%	0.000***	0.000***	0.062%	0.002***	0.000***
8	-0.051%	0.000***	0.000***	0.032%	0.082*	0.000***
9	-0.012%	0.227	0.002***	0.018%	0.299	0.036**

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

**Panel F- During crisis vs. After crisis**

Market cap deciles	BUY signal	pval from t-test	pval from Wilcoxon test	SELL signal	pval from t-test	pval from Wilcoxon test
0	-1.600%	0.000***	0.000***	-2.555%	0.000***	0.000***
1	-0.860%	0.000***	0.000***	-0.956%	0.000***	0.000***
2	-0.812%	0.000***	0.000***	-0.545%	0.000***	0.000***
3	-0.776%	0.000***	0.000***	-0.233%	0.000***	0.279
4	-0.594%	0.000***	0.000***	0.049%	0.076*	0.000***
5	-0.547%	0.000***	0.000***	0.063%	0.015**	0.000***
6	-0.421%	0.000***	0.000***	0.130%	0.000***	0.000***
7	-0.406%	0.000***	0.000***	0.199%	0.000***	0.000***
8	-0.329%	0.000***	0.000***	0.169%	0.000***	0.000***
9	-0.339%	0.000***	0.000***	0.163%	0.000***	0.000***

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.

**Table 25 - Regressions of buy-and-hold returns from trading triggers based upon 200-day moving averages of bid and ask prices – Full Sample**

<i>Variable</i>	<i>Parameter Estimate</i>	<i>Standardized Estimate</i>	<i>t Value</i>	<i>Pr &gt;  t </i>
Intercept	-0.007	0.000	-12.09	<.0001
MKTRF	-0.201	-0.109	-151.05	<.0001
UMD	0.243	0.107	136.27	<.0001
HML	0.178	0.052	65.58	<.0001
SMB	-0.078	-0.019	-29.87	<.0001
CRISIS	-0.007	-0.086	-117.13	<.0001
BEFORE CRISIS	0.001	0.011	15.32	<.0001
ind_code1 (AGRIC)	0.002	0.003	3.31	0.0009
ind_code2 (FOOD)	0.001	0.003	1.49	0.1362
ind_code3 (SODA)	0.004	0.007	5.73	<.0001
ind_code4 (BEER)	-0.003	-0.004	-3.81	0.0001
ind_code5 (SMOKE)	0.006	0.007	7.63	<.0001
ind_code6 (TOYS)	-0.003	-0.007	-4.79	<.0001
ind_code7 (FUN)	0.002	0.008	4.03	<.0001
ind_code8 (BOOKS)	0.003	0.008	4.31	<.0001
ind_code9 (HSHLD)	0.001	0.004	2.27	0.023
ind_code10 (CLTHS)	0.003	0.008	4.26	<.0001
ind_code11 (HLTH)	0.001	0.005	1.96	0.0503
ind_code12 (MEDEQ)	-0.001	-0.003	-1.08	0.2807
ind_code13 (DRUGS)	-0.002	-0.011	-2.56	0.0106
ind_code14 (CHEM)	0.002	0.007	3.19	0.0014
ind_code15 (RUBBR)	0.001	0.002	1.86	0.0632
ind_code16 (TXTLS)	0.000	0.000	0.38	0.7046
ind_code17 (BLDMT)	0.003	0.010	5.27	<.0001
ind_code18 (CNSTR)	0.003	0.009	4.56	<.0001
ind_code19 (STEEL)	0.005	0.014	7.37	<.0001
ind_code20 (FABPR)	0.002	0.003	2.53	0.0113
ind_code21 (MACH)	0.003	0.014	4.82	<.0001
ind_code22 (ELCEQ)	0.000	0.000	-0.12	0.9058
ind_code23 (AUTOS)	0.004	0.012	6.17	<.0001
ind_code24 (AERO)	0.002	0.005	3.60	0.0003
ind_code25 (SHIPS)	0.006	0.008	7.89	<.0001
ind_code26 (GUNS)	0.003	0.004	3.79	0.0001
ind_code27 (GOLD)	0.003	0.004	3.78	0.0002
ind_code28 (MINES)	0.002	0.004	3.48	0.0005
ind_code29 (COAL)	0.005	0.008	7.03	<.0001
ind_code30 (OIL)	0.003	0.019	5.76	<.0001
ind_code32 (TELCM)	0.001	0.004	1.43	0.1538
ind_code33 (PERSV)	0.003	0.009	4.83	<.0001
ind_code34 (BUSSV)	0.000	0.002	0.29	0.7735
ind_code35 (COMPS)	0.001	0.003	0.95	0.3403
ind_code36 (CHIPS)	-0.001	-0.004	-0.85	0.3944
ind_code37 (LABEQ)	0.000	-0.002	-0.63	0.5271
ind_code38 (PAPER)	0.004	0.012	6.63	<.0001
ind_code39 (BOXES)	-0.001	-0.002	-1.84	0.0652
ind_code40 (TRANS)	0.003	0.014	5.58	<.0001
ind_code41 (WHLST)	0.000	-0.001	-0.19	0.8527
ind_code42 (RTAIL)	0.004	0.022	6.08	<.0001
ind_code43 (MEALS)	0.003	0.010	4.17	<.0001
OBSERVATIONS:	2,512,948			
F statistic	1734.77			
Adj R^2	0.0321			

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.



**Table 26 - Regressions of buy-and-hold returns for trading triggers based upon 200-day moving averages of bid and ask prices – By market capitalization deciles**

<i>MktCap Decile</i>	<i>BEFORE CRISIS</i>	<i>Pval</i>	<i>CRISIS</i>	<i>Pval</i>	<i>R- squared</i>	<i>N</i>
0	0.008	0.000***	-0.031	0.000***	0.067	212,808
1	0.006	0.000***	-0.014	0.000***	0.032	221,948
2	0.002	0.000***	-0.009	0.000***	0.030	220,690
3	0.000	0.111	-0.006	0.000***	0.037	237,345
4	0.000	0.267	-0.004	0.000***	0.038	244,214
5	0.000	0.039**	-0.003	0.000***	0.034	260,930
6	0.000	0.045**	-0.002	0.000***	0.034	258,129
7	0.000	0.037**	-0.002	0.000***	0.042	261,386
8	0.000	0.000***	-0.002	0.000***	0.054	257,514
9	0.000	0.184	-0.002	0.000***	0.062	250,800

\*, \*\* and \*\*\* indicate the significance levels of 10%, 5% and 1%, respectively.