Research Report

Pump and Dump Market Manipulations: Still a Risk for Investors?

DURING PUMP AND DUMP MARKET MANIPULATIONS, DECEIVERS ADVERTISE STOCKS BY PUBLISHING VERY POSITIVE NEWS TO PROFIT FROM AN INCREASED PRICE LEVEL. MARKET SURVEILLANCE AUTHORITIES HAVE TAKEN SEVERAL COUNTERMEASURES AGAINST SUCH FRAUDULENT STOCK RECOMMENDATIONS, BUT SIMULTANEOUSLY, DECEIVERS HAVE CONSTANTLY UPDATED THEIR TACTICS. THE RESEARCH INVESTIGATES WHETHER SUCH MANIPULATIONS STILL POSE A RISK FOR INVESTORS AND IF YES, WHICH CHARACTERISTICS DRIVE THEIR SUCCESS.

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Introduction

During pump and dump market manipulations, a deceiver first buys a stock, advertises the stock by spreading very positive messages within the Internet or via other communication channels such as fax, and finally sells the stock with profit. Previous research on such stock recommendations sent via E-mail has found that pump and dump campaigns can cause dramatic losses for investors when the scammer closes the position (Böhme and Holz, 2006) and that consequently, trading on pump and dump campaigns cannot be recommended. Thereby, pump and dump campaigns are pursued by scammers that are either independent from the targeted company or carried out by company representatives. In some cases, also third parties are hired in order to promote a certain stock.

The Securities and Exchange Commission (SEC) has taken legal countermeasures against these stock recommendations by prosecuting manipulators, suspending trading or releasing warnings. From a technical perspective, spam-filters are constantly being improved to reduce the amount of spam being received. However, deceivers update their tactics and the advent of Social Media has offered new possibilities to distribute fraudulent contents (Abbasi et al., 2010). Consequently, messages that urge readers to buy specific stocks are also published on blogs or micro blogging services. In contrast to previous spam campaigns, where mostly identical E-mails have been sent to a large audience, current campaigns are pursued via different channels and by means of varying messages.

In view of these countermeasures against pump and dump campaigns on the one hand and new possibilities to publish fraudulent stock recommendations on the other hand, this research investigates whether such recommendations are still effective, i.e., whether there is still a market impact during the campaign or if investors have become more experienced, are aware of the regulator's warnings, and avoid buying the related shares. Furthermore, the novel characteristics of the current market environment are also considered in order to examine the impact caused by such fraudulent stock recommendations. While previous studies focus on identical messages sent to the public, this research takes into account the characteristics of campaigns, represented by dissimilar messages with different contents and publishers, to analyze the campaign success.

Since such pump and dump campaigns, in which messages are published that urge readers to buy the advertised stock, are very similar to classical advertisements (Arens et al., 2012), marketing research can provide a basis in order to derive aspects potentially making pump and dump campaigns effective. At first, it can be assumed that an increased number of deceptive stock recommendations
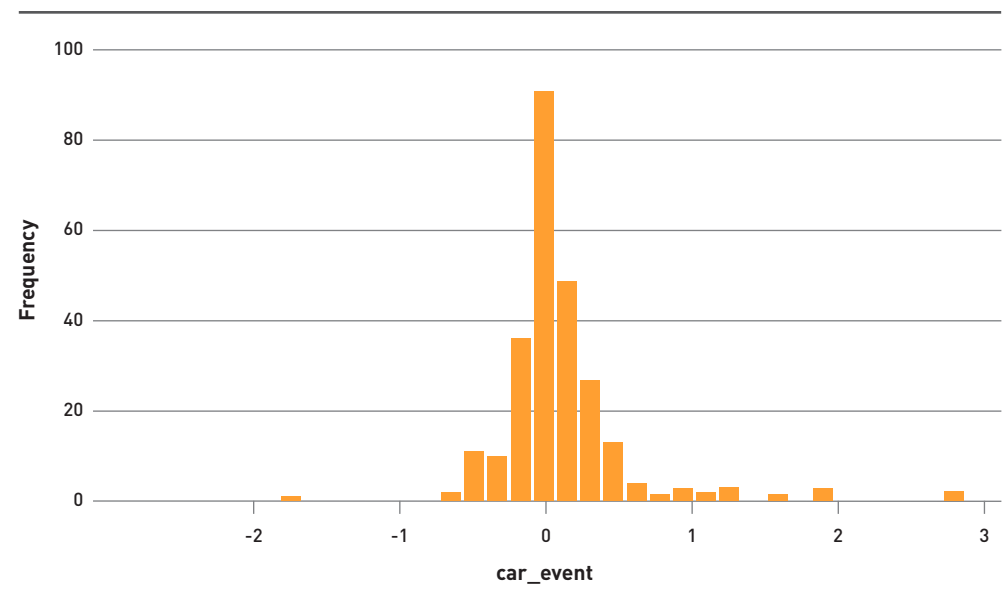

Figure 1: Distribution of cumulative abnormal returns during the campaign (car_event)

published also increases the reach of the corresponding campaign, especially when these recommendations are sent by different publishers. Consequently, it can also be assumed that the corresponding stock market return is increased (Hypothesis 1). At second, advertising success should depend on the question of whether all messages are published during one day or whether different days are covered. Thus, it can be assumed that an increased spam campaign length positively influences the stock return impact (Hypothesis 2). Finally, previous research has found that emotions play an important role to increase consumers' product attention as well as product recall (Chandy et al., 2001), so it can be assumed that positive sentiment expressed within suspicious stock recommendations positively influences the stock return impact (Hypothesis 3).

Dataset and Methodology

To investigate the success of pump and dump campaigns, a dataset covering stock recommendations that are suspicious to be part of such a campaign is acquired. To identify suspicious messages, this study follows the SEC guidelines that warn investors of pump and dump stock recommendations (SEC, 2012). For instance, a suspicious stock recommendation has to deal with stocks that are traded on low-regulated markets like Pink Sheets or OTC Bulletin Board and each message has to urge the readers to buy the stock, which is indicated by statements such as "another

winner to buy now" or "new spotlight stock". Furthermore, suspicious messages shall contain vague disclaimers matching the SEC criteria. Here, the SEC gives examples such as "XYZ Newsletter receives fees from the companies we write about in our newsletter". Therefore, the analyzed sample relies on messages matching the SEC criteria by using the "Newsletters Hub" of the website http://newsletter.hotstocked.com. This website does not publish own stock recommendations, but collects and aggregates different third party stock recommendations published via E-mail but also in the Web and in Social Media which ensures that an adequate audience is covered. The sample selection results in 1,299 suspicious stock recommendations.

For each message acquired, the corresponding daily stock closing prices from Yahoo! Finance are retrieved and the messages are grouped by advertising campaigns. A campaign covers several suspicious stock recommendations sent within a maximum timespan of one trading week. This procedure results in 252 advertising campaigns, which are on average composed of five different messages sent out by approximately two promoters during a period of approximately two days. The most comprehensive advertising campaign consists of 42 different messages and is carried out by 14 different promoters.

Based on event study methodology (Mac Kinlay, 1997), the market impact of these

stock recommendations is determined by calculating abnormal returns for the time span when the suspicious stock recommendations are published. Abnormal returns cover the proportion of the return that can be attributed to the event. These are calculated by subtracting the estimated normal return that would have occurred if the event had not taken place from the return of the security over the event window. Daily abnormal returns are calculated, if however the campaign covers more than one day, abnormal returns are cumulated.

Furthermore, the sentiment of these stock recommendations is determined in order to investigate whether this has an influence on the following market reactions. Therefore, a dictionary-based sentiment analysis approach is applied that determines sentiment by incorporating a dictionary of sentiment bearing words (Tetlock et al., 2008). To calculate the sentiment for each pump and dump campaign, the sentiment of the respective single suspicious stock recommendations is determined. The approach obtains the occurrences of positive and negative words by comparing each document with the positive and negative word lists and adapts different document-level sentiment measures that relate the number of sentiment bearing words to the total number of words. Thereafter, for each campaign, the average of these measures related to the documents contained is calculated and used within the following analysis.

Empirical Results

The results of the event study reveal that stock recommendations being suspicious to be part of pump and dump schemes published within the Web and in Social Media still cause stock market reactions. During the campaigns, an average cumulative abnormal return (car_event) of 8.7% can be measured. As can be seen from the distribution of cumulative abnormal returns during the campaigns (Figure 1), there are also cases where car_event is negative, probably caused by market participants selling the stocks already during the spam campaign. Furthermore, to also take the developments after the event window into account when the pump and dump campaign has ended, the average cumulative abnormal returns beginning from the last message published are calculated for the following 20 trading days. Figure 2 shows on average cumulative abnormal returns of -20.60% within the first five days, -30.11% within the first ten days and -47.40% within the first 20 trading days after the pump and dump campaign has ended. These values are different from zero at the 1% level of significance. Thus, a massive price decrease after the campaign has ended is found, which may be caused by manipulators or private investors selling the advertised stocks.

After having confirmed that currently published suspicious stock recommendations still have an impact on stock prices, the determinants of this stock price impact are investigated. Therefore, a regression analysis is applied, taking
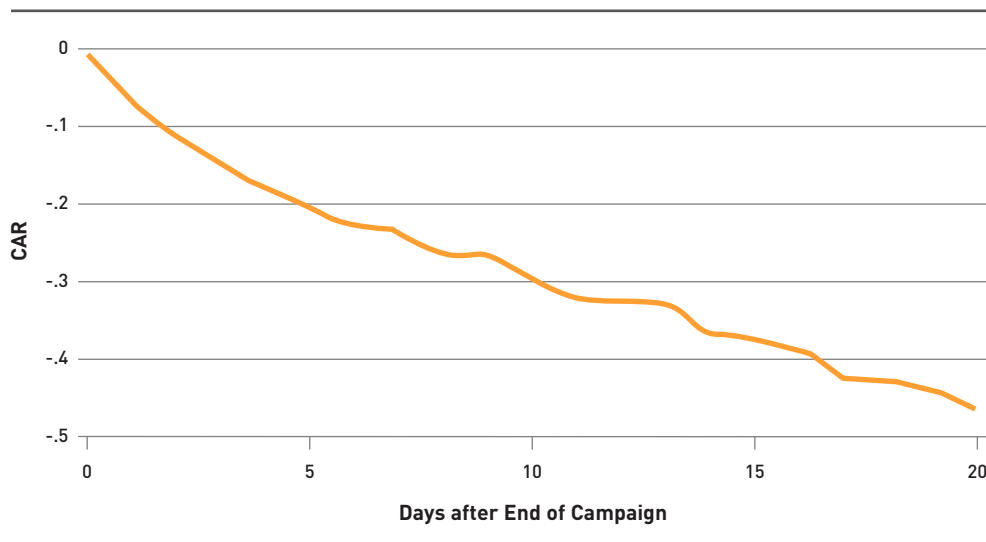
Figure 2: Time series of average cumulative abnormal returns (CAR) after the end of the campaign

into account campaign characteristics including the sentiment of the related messages to explain the cumulative abnormal return during the campaign.

The results indicate that a high number of messages sent or an increased number of promoters publishing suspicious stock recommendations have a positive influence on the contemporary capital market reactions (Hypothesis 1). Taking into account the number of days the advertising campaign lasts, no significant influence on the following capital market reaction is found, although the coefficients are positive in every case (Hypothesis 2). In case of the sentiment expressed during the advertising campaigns, results indicate that the more positive the sentiment is, the higher the cumulative abnormal returns during the event window are (Hypothesis 3).

Results also show that Social Media are actually used to distribute pump and dump market manipulations. A search for the ticker symbols of the advertised stocks in the micro blogging service Twitter revealed that 41.67% of the campaigns analyzed are also accompanied by recommendations of the related stocks in Twitter. However, the question of whether a stock is also recommended in Twitter has no significant influence on the capital market reaction.

Conclusion

The research confirms that pump and dump campaigns can still be effective and should thus still be seen as a risk for investors, although different countermeasures have been applied to prevent them from losing substantial parts of their investments.

This study has implications for market surveillance authorities, retail investors, and software vendors. Market surveillance authorities shall still be aware of such forms of market manipulation and foster activities for monitoring the Web and especially Social Media to investigate whether deceivers try manipulating the market by distributing false positive information. Market surveillance authorities and retail investors shall especially take care of messages which express a very positive sentiment or avoid negative sentiment. Finally, software vendors can incorporate the results of this study in order to detect suspicious contents. In this context, fraud detection systems might incorporate message sentiment related to a certain stock to detect suspicious behavior.

Within future research, it is worth to explore whether different presentation forms used in pump and dump messages have an influence on the following market reactions. Therefore, the layout of the corresponding website including images displayed or fonts used can be taken into account. Furthermore, it could also be analyzed whether suspicious stock recommendations are also spread and discussed by private investors in Social Media and whether this influences the effectiveness of the related campaigns.

References

Abbasi, A.; Zhang, Z.; Zimbra, D.; Chen, H.; Nunamaker, J. F.:
Detecting Fake Websites: The Contribution of Statistical Learning Theory.
In: MIS Quarterly, 34 (2010) 3, pp. 435–461.

Arens, W.; Schaefer, D.; Weigold, M.:
Advertising.
McGraw-Hill Irwin, New York, 2012.

Böhme, R.; Holz, T.:
The Effect of Stock Spam on Financial Markets.
In: Proceedings of the 5th Workshop on the Economics of Information Security, Robinson College, Univ. of Cambridge, England, 2006.

Chandy, R. K.; Tellis, G. J.; MacInnis, D. J.; Thaivanich, P.:
What to Say When: Advertising Appeals in Evolving Markets.
In: Journal of Marketing Research, 38 (2001) 4, pp. 399–414.

MacKinlay, A. C.:
Event Studies in Economics and Finance.
In: Journal of Economic Literature, 35 (1997) 1, pp. 13–39.

SEC:
Investor Alert: Social Media and Investing – Avoiding Fraud.
http://www.sec.gov/investor/alerts/socialmediaandfraud.pdf, 2012.

Tetlock, P. C.; Saar-Tsechansky, M; Macskassy, S.:
More Than Words: Quantifying Language to Measure Firms' Fundamentals.
In: The Journal of Finance, 63 (2008) 3, pp. 1437–1467.