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Ergün, H.O., Yalaman, A., Manahov, V. et al. (1 more author) (2021) Stock market manipulation in an emerging market of Turkey: How do market participants select stocks for manipulation? Applied Economics Letters, 28 (5). pp. 354-358. ISSN 1350-4851

https://doi.org/10.1080/13504851.2020.1753874

Stock Market Manipulation in an Emerging Market of Turkey: How Do Market Participants Select Stocks for Manipulation?

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Abstract

We obtained a unique dataset that covers all trade-based manipulation events identified by the Capital Market Board (CMB) for the period between 2005 and 2013 in order to investigate stock market manipulation and its implications on market quality. Moreover, we examine how manipulators decide which stocks to select for manipulation in an emerging market. We observe that the manipulators select illiquid, underperforming, and less volatile stocks to manipulate in an emerging market. We also demonstrate that stock liquidity, return, and volatility increase throughout the manipulation period and decrease in the post-manipulation period, leading to a deterioration of market quality.

Key Words: Stock Price Manipulation, Market Efficiency, Emerging Markets
JEL Codes: G14, G18, K22

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1. Introduction

According to the Capital Market Board (CMB), stock market manipulation is defined as the "intention to influence the price and the value of the capital market instruments or affect investment decisions". Such manipulation can occur in different ways, from insiders taking actions that influence stock prices to the distribution of false information online (Aggarwal and Wu, 2006). Stock market manipulation damages public confidence in capital markets through distorting the fair pricing of financial instruments by creating artificial prices (Imisiker and Tas, 2013). Moreover, manipulation prevents the stock market from being complete and transparent, which negatively affects the confidence of investors.

Stock market manipulation can be seen as an extremely important issue in emerging stock markets, due to shortcomings in the information environment and relatively weak regulatory protection (Laksomya et al., 2018). While Lee et al. (1999) argue that price manipulation is likely to be easier in emerging markets, where regulatory scrutiny is less stringent. Therefore, understanding the structure of emerging stock market manipulations is very important for market participants and policy makers.

A number of studies have examined the price manipulations in emerging markets and in Turkey in particular (see Imisiker and Tas, 2013: Öğüt et al., 2009). However, to the best of our knowledge this is the first study to investigate both how market participants select which stocks to manipulate and the consequences of such manipulation within emerging stock market settings.

Less than a handful of studies have examined stock price manipulation in other emerging markets, but such studies do not provide an answer as to how stock market participants choose which stocks to manipulate (Laksomya et al., 2018; Huang and Cheng, 2015).

Our research has both academic and practical importance. From an academic perspective, it provides the opportunity to investigate how stock market participants select stocks for manipulation in an emerging market. Our study also provides the chance to examine the implications of price manipulation on stock market properties. From a practical perspective, regulators can use our study to identify financial instruments that are more prone to manipulation and allocate appropriate resources to closely monitor those securities. Alternatively, they may introduce different trading rules for those securities in order to prevent them from being manipulated. Consequently, this will enhance the regulators' ability to mitigate or prevent manipulation in stock markets.

We show that stock liquidity, return, and volatility rise throughout the manipulation period and fall post-manipulation. It is clear that manipulators really mislead the liquidity, price, and volatility in emerging markets, which can reduce market efficiency by restoring the effectiveness of arbitrage activities in the market. In addition, the manipulators pick illiquid, underperforming, and less volatile stock to manipulate in emerging markets.

2. Data and Descriptive Statistics

All trade-based manipulation events and the duration of the manipulation period are identified by the Capital Markets Board (CMB) in Turkey and published in their weekly bulletins (all manipulation cases are based on 47/A-2 provision of the law numbered 2499, Article 107/1). We use the weekly bulletins to identify all manipulated stocks in this study and determine the number of days manipulation took place. We investigate 468 weekly bulletins between January 2005 and December 2013 and identify 170 manipulation events for

99 different companies. The duration of all individual manipulation cases are available upon request.

The length of the manipulation period is defined as the number of days between the start and the end of the manipulation. While the longest manipulation period is 330 days, the shortest manipulation period is one day, with a mean of 39 days for the 170 manipulation events. For the benchmark, the study additionally uses data of 99 non-manipulated stocks[1]. These non-manipulated stocks have been studied over the same time period as that of the manipulated stock and were randomly selected from the Borsa Istanbul National Market. The return is calculated by logarithmic difference of closing price and the liquidity is the average daily turnover; finally, our estimate of volatility is the standard deviation of daily stock returns, and the statistics reported are cross-sectional. The data has been derived from the Thomson Reuters Datastream.

3. Empirical Findings

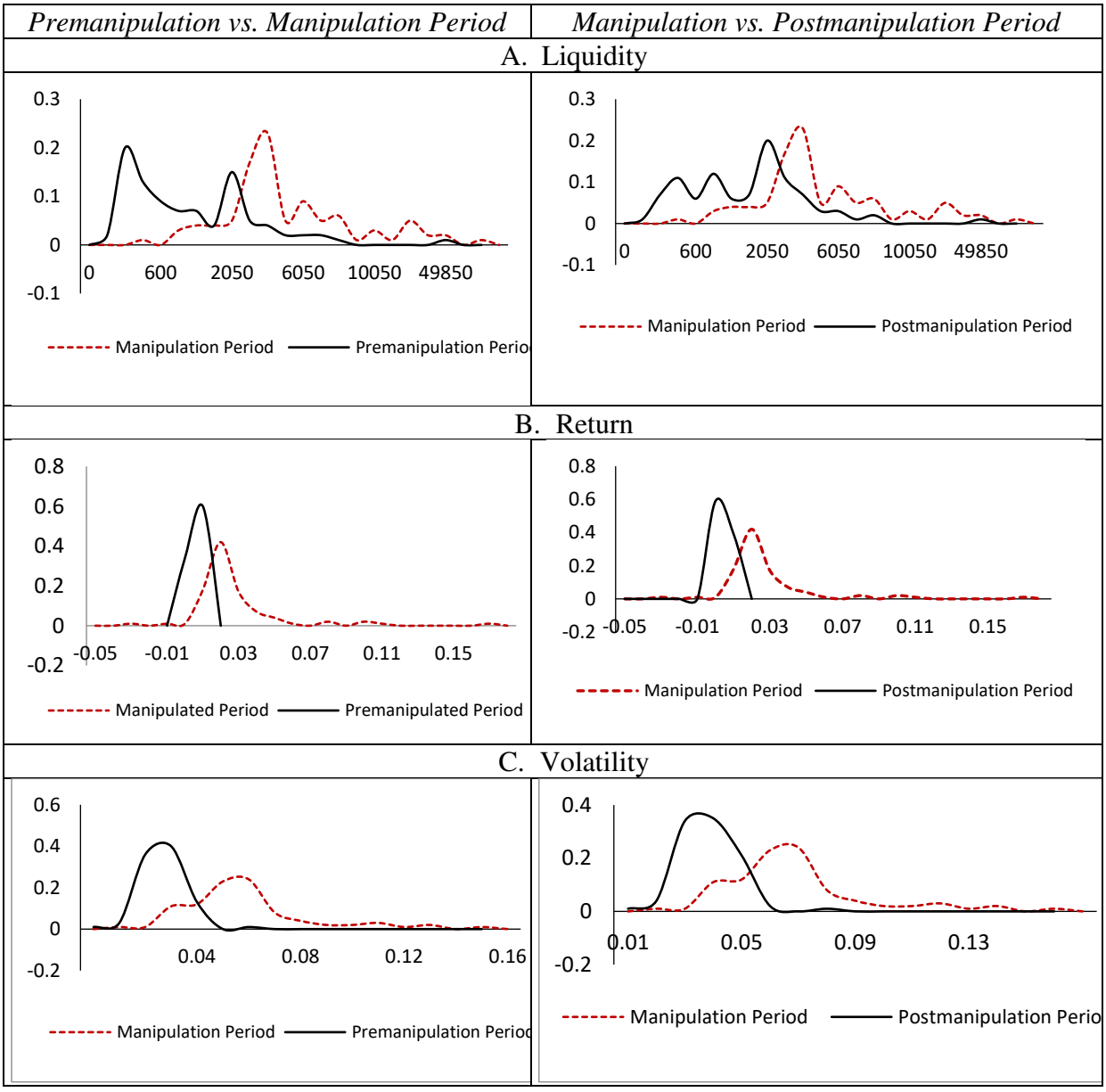
We first examine stock market manipulation and its implications for stock market efficiency. Therefore, our initial step is to investigate whether stock returns, volatility, and liquidity have changed during the manipulation period. We compare the distributions of the liquidity, return, and volatility level of manipulated stock with non-manipulated stocks over the sub-sample period.

The black solid line in Figure 1 represents the pre-manipulation and post-manipulation periods, while the red dash line represents the manipulation period, respectively. Figure 1 shows that the mass of distribution for liquidity, return, and volatility of stocks has shifted to become right-skewed during a manipulation period, rather than a non-manipulation period. This indicates that liquidity, return, and volatility levels of stock are higher during the manipulation period than the non-manipulation period. The Kolmogorov-Smirnov test statistics support that there is a statistical difference between two distributions in all cases (for brevity we could not report the KS results, but they are available on request). We conclude that stock liquidity, return, and volatility rise throughout the manipulation period. It is clear that manipulators really mislead the liquidity, price, and volatility in emerging markets,

[1] We implement a benchmark pool of 99 non-manipulated stocks. According to the CMB all 99 benchmark stocks did not encounter manipulation during our sample period.

which can reduce market efficiency. These empirical findings are consistent with the pioneering papers of Allen and Gale (1992) Amihud et. al. (1997) and Agarwal and Wu (2006).

Figure 1
Comparison of Distributions



x axis for each patterns represents probability density

Moreover, we examine how manipulators select which stocks to manipulate in an emerging market. It is very difficult to manipulate a highly liquid stock through trade-based manipulation without incurring huge costs and taking on huge risk. Does, therefore, illiquidity in a stock imply a higher likelihood of its being manipulated? To answer this

question, we estimate the following model, where we cross-sectionally regress the liquidity on an intercept and a dummy variable for manipulation:

$$Liquidity=\beta_0+\beta_1*I\{Manipulated\}+u \quad (1)$$

where β_0 is constant, I{Manipulated}is a dummy variable for manipulation which equals one for the manipulated stock and zero for the benchmark, β_1 is coefficient on the dummy variable, and u is error term. The sample periods range from January 2005 to December 2013.

Panel A of Table 2 reports the regression results for the pre-manipulation period, the manipulation period, and the post-manipulation period.

Table 2
Regression Results

	Premanipulation	*Manipulation*	*Postmanipulation*
	A. Liquidity		
β_0	7.6626 [-5.9078]***	7.6626 [63.1112]***	7.6626 [-3.7717]***
β_1	-1.0359 [-5.9078]***	0.3311 [1.9338]*	-0.6270 [-3.7717]***
R^2	%15.65	%1.91	%6.89
Heteros. Test (Prob>chi2)	0.3149	0.2075	0.6528
	B. Return		
β_0	0.0001 [1.8955]**	0.0001 [1.8957]**	0.0001 [1.8958]**
β_1	0.00037 [1.5992]	0.01225 [0.0000]***	-0.00091 [-3.4769]***
R^2	%1,36	%10,65	%5,82
Heteros. Test (Prob>chi2)	0.0000***	0.0125**	0.0000***
	A. Volatility		
β_0	0.02662 [42.9781]***	0.02662 [42.9793]***	0.02662 [42.9828] ***
β_1	0.0047 [4.3770]***	0.0264 [10.1233]***	0.00711 [6.1708]***
R^2	%9,30	%35,37	%16,42
Heteros. Test (Prob>chi2)	0.0392**	0.0000***	0.0113**
Robust standard errors are reported. t statistics in parentheses. *p < 0.10, **p < 0.05, ***p < 0.01			

The coefficient on the dummy variable is statistically significant and negative for both the pre-manipulation and the post-manipulation period, but is significant and positive for the manipulation period. It is clear that liquidity is significantly higher for the manipulated stocks than for the non-manipulated stocks.

However, we would like to know how the manipulated stocks perform relative to other stocks during the manipulation period. To investigate this we also examine whether manipulators prefer stocks that have underperformed or outperformed their market benchmarks. We study the return performance of manipulated stocks over the related subsamples. We then estimate the following model, where we cross-sectionally regress the average daily return on an intercept and a dummy variable for manipulation:

$$\text{Return}=\beta_0+\beta_1*I\{\text{Manipulated}\}+u \quad (2)$$

We observe that for the manipulated stocks, the average daily returns are not different from the non-manipulated stocks during the pre-manipulation period (see Panel B of Table 2). During the manipulation period, however, average daily returns are 1.22% higher than for the non-manipulated stocks, and this difference is statistically significant. During the post-manipulation period, average daily returns are statistically significant and average daily returns of manipulated stocks are 0.09% lower than for the benchmarks. It is, therefore, evident that stock price manipulators prefer underperforming stocks. We see that manipulation increases the price, which subsequently dropped below the pre-manipulation level (Comerton-Forde, and Putniņš, 2008; Aggarwal and Wu, 2006)

We next investigate the volatility of manipulated stocks by estimating the following model, where we cross-sectionally regress the volatility on an intercept and a dummy variable for manipulation:

$$\text{Volatility}=\beta_0+\beta_1*I\{\text{Manipulated}\}+u \quad (3)$$

Panel C of Table 2 shows that the coefficients are statistically significant for all sub-periods. This indicates that manipulation is more likely to happen in volatile stocks, and manipulated stocks often experience dramatic price movements during the manipulation period. Overall, these results suggest that the manipulators pick stocks of low volatility, and after the manipulation period, manipulated stocks exhibit volatility. In other words, volatility remains higher for manipulated stocks in the post-manipulation period. We noted that during the manipulation period, volatility, liquidity, and returns are all high. These results are consistent with the pioneering papers of Allen & Gale (1992) and Agarwal & Wu (2006).

4. Conclusion

In this study, we obtained a unique dataset that covers all trade-based manipulation events determined from the weekly bulletins of the Capital Markets Board for the period between January 2005 and December 2013. The aim of our research is to examine stock market manipulation and its implications on stock market quality and investigate how manipulators select which stocks to manipulate in an emerging market. Our empirical findings demonstrate that manipulation activity is leading to an increase of stock liquidity, return, and volatility throughout the manipulation period and a decrease in the post-manipulation period. As a result we observe that market quality deteriorates. We believe that the manipulation activity identified in this study is likely to be prevalent among other emerging markets.

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