

Investor Participation, Liquidity Provision, and Stock Price Volatility

Jiangze Bian*

Department of Banking and Finance, University of International Business and Economics, Beijing, China.

Abstract

This study focuses on explaining the intuition behind the empirical analyses in the paper. Investors could passively participate in the markets by just holding stocks without trading, or more aggressively participate in the market by directly trading stocks. Results show that the more aggressively they participate in the market, the more un-balanced they tend to supply liquidity in the stock market, which eventually drives up the stock price volatility.

Keywords: Stock price • Volatility • Investors • Trading volume

Introduction

In this note, we conduct a brief review of the main ideas, analyses and findings of the paper titled "Investor Participation and the Volatility-Volume Relation: Evidence from an Emerging Market" [1]. We also briefly evaluate how the findings in this paper can be helpful to both scholars and practitioners in the field of investments.

There is extensive literature documenting a positive relation between stock price volatility and trading volume in the financial markets. Some theoretical models assume that high trading volume reflects more information incorporated, and the new information drives the price variance [2]. Other studies conjecture that the high trading volume might be generated from noise traders who lack true information, and the wide dispersion of their beliefs drives up stock price volatility [3]. Extending these studies, this paper tries to examine the volatility-volume relationship using a new perspective. On one hand, it decomposes the trading volume into the volume generated from each trader. In a market that is populated with many retail investors, such as the Chinese stock market, more investors participating in trades naturally generate higher trading volume, which, according to the volatility-volume relation, leads to higher stock price volatilities. On the other hand, literature has also studied the effects of investor holding on the stock price volatility. One paper shows that more investors holding stocks (i.e. a larger shareholder base) could enhance liquidity provision and mitigate stock price volatility [4]. The author claims that when a stock is held by shareholders, these investors are more likely to provide liquidity to this stock than others who do not hold the stock. Based on this logic, a stock held by more investors, which is usually accompanied by a higher trading volume, should enjoy higher liquidity and lower price volatility. These two stories are somewhat conflicting with each other. This study tries to empirically document this conflicting result, and tries to explore the underlying mechanism that generates the conflicts by using the idea of investor participation. The paper claims that investors could participate in the stock market by either holding stocks or trading stocks, yet these two forms of investor participation are of different aggressiveness. We usually regard trading stocks as more aggressively participating in the stock market than holding (without trading) stocks only. The paper thus asks a question: "Why different forms of investor participation may generate different effects on stock price volatility?", and finds that, retail investors, when more aggressively

participating in the market, tend to be affected by investor sentiment and thus submit orders in a fad, mainly on one side of the limit order book. This will cause order imbalances or depth imbalances in the limit order book and drive up the stock price volatility. In the meanwhile, shareholders with no intentions to trade stocks are usually regarded as less aggressive stock market participants. They are usually less affected by investor sentiment, and tend to submit orders in a more balanced fashion in the limit order book. The papers find empirical results supporting its argument.

Literature Review

This research is possible only because the authors have access to a unique dataset, namely, the number of investors holding each stock when market opens and the number of investors trading each stock at a daily basis for each stock listed in the Shanghai Stock market in China. These two variables can be proxies for the investor stock market participation at various degrees, as described above. The number of traders for each stock is equivalent to stock trading volume, given that retail investors dominate the Chinese market and each retailer usually trades a small amount. The authors also construct measures for stock return volatility and turnover ratios as normalized stock trading volume. The empirical analyses are conducted from regressions that relate investor participation variables and stock turnover ratios to stock price volatilities.

Results of the Empirical Analyses

The analyses in this paper start with a simple correlation analysis among all the investor participation variables, namely, the turnover ratio, the number of traders for each stock and the number of shareholders, for each stock, because all variables show that investors participating in the market instead of just standing by. The authors find that the turnover ratio (normalized stock trading volume) is positively correlated with the number of traders and the number of holders for each stock, albeit at different degrees. The three investor participation variables are all positively related to stock price volatility as well. Consistent with the volume-volatility relationship.

However, putting together, each investor participation variable may have its different effect on the stock price volatility. If the authors regress price volatility of each stock on both its turnover ratio and the number of its shareholders, they obtain coefficients of completely opposite signs. An increase in turnover ratio drags up stock price volatility, whereas an increase in the number of shareholders actually lowers down volatility, both effects being statistically significant. The authors then use the number of traders for each stock to substitute for the turnover ratio, and obtain similar results. The authors try to cast their findings in the frame of investor participation research. Apparently, investors can participate in the stock market at various degrees. They may choose either to passively hold their current positions, or more actively

*Address for Correspondence: Jiangze Bian, Department of Banking and Finance, University of International Business and Economics, Beijing, China; E-mail: Jiangzebian@uibe.edu.cn

Copyright: © 2021 Bian J. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Received 04 August 2021; **Accepted** 18 August 2021; **Published** 25 August 2021

participate in trades. Although both holding stocks and trading stocks may eventually lead to higher trading volume, results from multivariate regressions suggest that, controlling for the effects of the number of traders, more investors passively holding stocks actually decreases the stock price volatility.

One possible explanation of the phenomenon above comes from a research study showing that liquidity should reflect the average risk-bearing capacity of the economy, which, from the authors' opinion, could be roughly measured by the number of shareholders for each stock [4]. The paper extends this intuition and explores its implication in the joint field of market microstructure and behavioral finance. It is well-known that retail investors are subject to investor sentiment. This means that they tend to trade in herds and their trades usually concentrate on either bid or ask side of the market. The authors conjecture that the concentrated trades are more likely to drag the execution prices away from the equilibrium prices, causing higher stock price volatility. On the other hand, if investors just passively hold stocks, they are more likely to supply liquidity on both sides of the market in a balanced fashion, resulting in transaction prices closer to the equilibrium prices and damping volatilities.

The authors find empirical supports to their conjectures. They use intraday data to compute both order imbalance and market depth imbalance for each stock at a daily frequency. They find that market depth imbalance, similar to stock price volatility, is negatively related to the number of shareholders after controlling for the positive effect from the number of traders (and turnover ratio). The authors also replace the market depth imbalance with order imbalance and find very similar results. Overall, these empirical results identify a channel through which investor participation in the stock market may cause stock price volatility to change differently: they may provide liquidity to the market in a more balance / imbalanced fashion, which may either increase or decrease market liquidity, and thus decrease or increase stock price volatility.

Discussion

The execution in this paper can be viewed as an extension, which shows that volatility is more correlated with the number of transactions than the size of trades [5]. In this paper, the number of transactions is replaced by the number of traders with distinction of retail and institutional traders. The paper shows that the way investors supply liquidity depends on the aggressiveness of their participation in the market. If investors just passively hold their positions, they tend to supply liquidity in a more balanced fashion on both sides of the market, which results in less stock price volatility. If investors more aggressively participate in the market by actively trading stocks, they usually tend to trade on one side of the market, resulting an unbalanced liquidity supply on the bid/ask sides of the market and the higher stock price volatility.

These studies provide evidence that market microstructure variables may be subject to behavioral biases. Traditionally, market microstructure is a field studied within the rational economics. Literature typically assumes that order submission decisions are based on a rational expectation framework and on forward-looking information, such as future price volatility and cash flows. In recent years, however, a few studies have started to explore, both theoretically and empirically, the possibility of connecting market microstructure phenomena

with behavioral biases [6-8]. Those studies admit that investors might not be fully rational when making order submission strategies, and this is more evident in emerging markets which are usually dominated by less experienced retail investors. This paper, together with other studies, has shed some light on how future theoretical models may incorporate behavioural biases when modelling order submission strategies.

Conclusion

This paper contributes to the literature by connecting two separate lines of research: the research on the volume-volatility relation and the research on investor participation. The connecting channel is the pattern of how investors supply liquidity in the stock market. This paper has special implications in a market populated by retail investors, such as the Chinese stock market, because retail investors are well-known to be heavily affected by investor sentiment and concentrate their trades on one side of the market. The findings in this paper also have policy implications. Specifically, the findings justify the seemingly unfounded trading restriction that investors are not allowed to sell stocks they have bought on the same day, the so called one-day selling lockup, in the Chinese stock market. This restriction discourages investors from day trading, whereas it does not intend to affect investors' intention to hold stocks. Using the analysis framework in this paper, it aims at lowering down volatility without discouraging investors' intention to provide liquidity in the market.

References

1. Bian, Jiangze, Kalok Chan and Wai Ming Fong. "Investor Participation and the Volatility-Volume Relation: Evidence from an Emerging Market." *Forthcoming 1* (2021): 1-38.
2. Tauchen, E George and Mark Pitts. "The Price Variability-Volume Relationship on Speculative Markets." *Econometrica* 51 (1983): 485-505.
3. Shalen, T Catherine. "Volume, Volatility, and the Dispersion of Beliefs." *Rev Financ Stud* 6 (1993): 405-434.
4. Johnson, C Timothy. "Volume, Liquidity, and Liquidity Risk." *J Financ Econ* 87 (2008): 388-417.
5. Jones, M Charles, Gautam Kaul, and Marc L. Lipson. "Transactions, Volume, and Volatility." *Rev Financ Stud* 7 (1994): 631-652.
6. Bian, Jiangze, Kalok Chan, Donghui Shi and Hao Zhou. "Do Behavioral Biases Affect Order Aggressiveness?" *Rev Financ* 22 (2018): 1121-1151.
7. Chiarella, Carl, Xuezhong He, Lei Shi, and Lijian Wei. "A Behavioural Model of Investor Sentiment in Limit Order Markets." *Quant Finance* 17 (2021): 71-86.
8. Kuo, Yu Wei, Tse-Chun Lin, and Jing Zhao. "Cognitive Limitation and Investment Performance: Evidence from Limit Order Clustering." *Rev Financ Stud* 28 (2015): 838-875.
9. Bian, Jiangze, Tie Su, and Jun Wang. "Non-Marketability and One-Day Selling Lockup." *Asian Finance Assoc* 1 (2020): 1-56.

How to cite this article: Bian, Jiangze. "Investor Participation, Liquidity Provision, and Stock Price Volatility" *Bus Econ J* 12 (2021): 367.