

## Final Report for the AFAANZ 2021-2022 Research Fund Annual Grant

### (1) Applicants:

Dr Gaoping Zheng, Lecturer in finance, RMIT University

Email: gaoping.zheng@rmit.edu.au

### (2) Project Title: Online Communication and Stock Market Liquidity: Evidence from a Quasi-Natural Experiment

### (3) Updated Project Summary

Online communications between listed firms and retail investors have become prevalent recently, but little is known about the effect of online communications in the stock market. Online communications with investors could increase their trust in firms, and increase liquidity (Elliott et al., 2018). However online communications could also clarify their perceptions, lower noise trading, and decrease liquidity (Peress et al., 2020). We aim to solve this puzzle by examining the change in the stock market liquidity after the staggered online communication events initiated by the China Securities Regulatory Commission. Further, we explore the channels through which online communications affect liquidity.

This project tests the effect of online communication on liquidity using the staggered online communication events initiated by local branches of the China Securities Regulatory Commission (CSRC) as the exogenous shocks to Chinese listed firms' online communications with investors. In this quasi-natural experiment, when and how to hold the online communication events are determined by the government officers in CSRC, not firm managers, and the top managers in the listed firms are required to participate. These online communication events are exogenous to the listed firms and could alleviate the endogeneity issue. This study uses a difference-in-difference framework to analyze the effect of online communications on liquidity. Given that all regions of CSRC branches have online communications, we define treatment and control firms for each region where the treated firms are those located in the region when the local branch of CSRC organized the online communication event for the first time.

As classic difference-in-differences (DID) analysis may suffer from biased estimates due to negative weights when there are heterogeneous treatment effects, we use a stacked DID framework to analyze the effect of individual investor information processing, which defines treatment and control firms event by event (e.g., Cengiz et al., 2019; Baker et al., 2022). Specifically, for the online communication event of each region, our treatment firms are those located in this region when the local branch of CSRC organized the event. Meanwhile, for each event, our control firms are those in the regions that do not have online communication events from six months before to six months after the event so that the estimated effects of different events do not overlap. Treatment firms and control firms may have different fundamentals, so for each region, a propensity score matching has been conducted to find matched control firms for our treatment firms.

Our measures of liquidity are TURNOVER and AMIHUD. TURNOVER is the natural logarithm of monthly stock turnover, which is the ratio of the number of shares traded per month to the number of shares outstanding. AMIHUD is the Amihud illiquidity measure (Amihud, 2002), which is defined as the natural logarithm of the monthly average of the ratio of the absolute daily return (%) to the daily trading volume. We use TURNOVER and AMIHUD, not bid-ask spread, to proxy for liquidity, as the majority of bid-ask spreads in the Chinese stock market equal 1 cent.

We find that stock turnover decreases by 7.4% after the online communication, while Amihud illiquidity increases by 5.5%. Therefore, improving individual investor information processing generates unintended adverse impacts on market liquidity. Our results support that online communications could clarify investors' perceptions, lower noise trading, and decrease liquidity (Peress et al., 2020).

Further, the project will explore the heterogeneity of the results to better understand the channels through which online communications affect liquidity. The effect of online communication may depend on investors' information environment. This study will use the number of analysts and media reports both pre and post the online communication events to capture the investors' information environment. We use partition regression analysis to test whether the effects of communications on liquidity is more substantial for firms with worse information environment. The extent to which online communications inform retail investors may also depend on how effective the communications between listed companies and retail investors are. This project will use a textual analysis technique to measure the ratio of the number of replies to the number of questions, the number of words per question, the number of words per reply, and the tone of the reply. The study will further use partition regression analysis to test whether the effects of online communications on liquidity are stronger when firms communicate more effectively. We are still working on the further analysis.

- (4) Funds granted: \$6,031 (AUD)
- (5) Detailed Report on Expenditure of Funds against Budget Items: We proposed to obtain \$8872 and was granted \$6031. We proposed to hire research assistant for 160 hours if we were granted the full amount. With \$6031, we hired research assistants for 108 hours to obtain the online communication record from website while hand collect and web crawling. It has costed all \$6031.
- (6) Outcomes: A, working paper of 'how does individual investor information processing affect liquidity? Evidence from quasi natural experiment'  
B, a related paper "cash conversion cycle spread in China" which related to the listed firms and their operating turnover level (i.e., cash conversion cycle) in the Chinese stock market is published at Pacific-Basin Finance Journal in 2022 and with the acknowledgement for the funding support from AFAANZ.
- (7) Future intentions
  - a. Conference submission: submit the working paper to AFAANZ annual conference 2023
  - b. Journal submissions: submit the working paper to Review of Financial Studies in 2023
  - c. Grant applications: N/A
  - d. Projects: measuring mispricing in industry portfolios
- (8) Summary of Outcomes and Benefits: We appreciate the grant, which enables us to hire a research assistant to process data for us. We are now working on both the draft and doing the further analysis of the project.