

# Innovations in financial markets and their impacts on market quality

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# Certificate of original authorship

I, Duc Man Nguyen, declare that this thesis is submitted in fulfilment of the requirements for the award of Doctor of Philosophy in Finance in the Business School at the University of Technology Sydney.

This thesis is wholly my own work unless otherwise referenced or acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of the requirements for a degree at any other academic institution except as fully acknowledged within the text.

This research is supported by the Australian Government Research Training Program.

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# Working papers and presentations

Chapters 2–4 of this thesis have been concurrently developed as working papers and presented at various academic conferences. The list of working papers and conference presentations is as follows.

1. Nguyen, D.M., Putnins, T., 2021. The decline in US listed stocks: Is the tick size to blame? Unpublished working paper. University of Technology Sydney.
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  - 2018 FMA European Conference (Accepted).
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  - 2018 Australasian Finance and Banking Conference.
  - 2019 SIRCA: Young Researcher Workshop.
  - 2019 FMA Asia/Pacific Conference.
  - 2019 FMA Doctoral Student Consortium.
  - 2019 Asian Finance Association Conference.
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## List of Abbreviations

2SLS	Two-stage least squares
AMEX	American Stock Exchange
CRSP	Center for Research in Security Prices
ETF	Exchange-traded fund
GDP	Gross domestic product
IV	Idiosyncratic volatility
NYSE	New York Stock Exchange
OLS	Ordinary least squares
p.a.	Per annum
REITs	Real estate investment trust
S&P	Standard and Poor's
SEC	Securities and Exchange Commission
SIC	Standard Industrial Classification
US	United States of America
VAR	Vector auto-regression

# Abstract

Financial markets are continually evolving. While many developments and innovations can bring substantial benefits to society, some have unintended consequences and are detrimental to the overall market quality. This thesis comprises three studies of recent issues in US financial markets: the declining number of listed stocks, the growth of exchange-traded funds (ETFs), and their impacts on market quality. The findings advance understandings of financial market developments and their effects.

The number of publicly listed companies in the United States (US) has been declining since the 1990s, prompting policymakers to question why US stock markets are becoming less attractive for capital raising. The first study in this thesis investigates the conjecture made by policymakers that microstructure changes in stock markets (a reduction in the minimum price increment, known as the “tick size”) have severe impacts on the market liquidity of small companies. However, the empirical results show that there is no evidence of the microstructure changes being harmful. Liquidity has improved for firms in all size groups, small stock valuations have not been adversely affected, and company managers have not sought to restore the previous relative tick sizes through stock splits. Furthermore, evidence from initial public offering (IPO) prices suggests that new issuers are not concerned about reduced tick sizes. The findings have important policy implications in that increasing the tick size, as proposed by US policymakers, is unlikely to stimulate IPOs or reverse the decline in the number of listed companies.

In contrast to the declining number of listed stocks, the number of ETFs traded on financial markets has grown remarkably and now accounts for a substantial proportion of stock market capitalization and trading activity. The other two studies in this thesis scrutinize the impacts of this ETF growth on market quality. The second study examines whether ETFs harm informational efficiency by free-riding on the price discovery of active investors. The results show that in contrast to fears raised by opponents of ETFs, the growth of ETFs diminishes the profitability of a broad set of asset pricing anomalies, which is consistent with the increasing informational efficiency of ETFs. Much of this effect occurs because ETFs’ stock-lending activities reduce short-selling constraints and thereby allow for a more efficient incorporation of information, reducing mispricing. While anomaly returns have been driven

to almost zero in stocks widely held by ETFs, anomalies persist in stocks with low ETF ownership. This study exploits discontinuities in index inclusion to isolate the causal impact of ETFs.

The third study examines a concern raised by policymakers about the impacts of ETFs, namely price pressure. As ETFs become large, do they cause distortions or “dislocations” of prices when they have to rebalance their portfolios or when they receive large in/outflows? The results show that ETF portfolio rebalancing events do not result in significant distortions of stock prices, in contrast to policymakers’ concerns and previously shown index inclusion effects. This study shows that the way ETFs rebalance their portfolios has contributed to the disappearance of the index premium in recent years. However, unexpected investments flow into and out of ETFs, causing temporary price distortions in the underlying stocks held by the ETFs, and these price effects take approximately 40 days to revert.

Overall, this thesis contributes to academic and industry understandings of recent financial market developments.