The Impact of the Split Share Structure Reform on The Information Environment in China: Evidence from Analyst Forecast Properties, Share Price Synchronicity and the Value Relevance of Earnings.

Muhammad Yahya Ghazali

MSc University of Nottingham, United Kingdom
MBA Institute of Business Management, Pakistan
BSc (Joint Honors) Institute of Business Management, Pakistan

Thesis submitted to The University of Nottingham for the degree of Doctor of Philosophy

September 2018

Acknowledgement

This thesis would have not been possible without the support and guidance of my supervisors, Professor Elisabeth Dedman, Dr Jing Chen and Dr Ja Kim. Their encouragement, valuable suggestions and knowledge throughout these years have been phenomenal towards the successful completion of this PhD. I am extremely fortunate to have a supportive team of supervisors right from the start of this research and I am extremely grateful for their constant support and guidance.

Studying at Nottingham University Business School has been a privilege. I also had the special opportunity to teach MSc courses during this PhD and it was a source of great learning experience. I would also like to thank the Vice Chancellor of University of Nottingham for this scholarship offer.

Last but not the least I am grateful for my family's constant support and encouragement that has led to this day: my parents who I dedicate my thesis to, my wife, Faryal Ghazali for her love and care and my brother, Mohammad Yusuf Ghazali, for always being there for me.

Abstract

Over the last three decades, China has initiated several reforms in an attempt to transition itself from a socialist economy towards a more market-oriented economy. During the transition process, the Communist party promoted the development of financial markets that led to the re-establishment of the Shanghai and the Shenzhen stock exchange in 1990 and 1991. These stock markets, however, were based on the split share structure, which divides the total outstanding shares of a listed firm into tradable shares and non-tradable shares. Until 2005, around 70% of listed firm shares were non-tradable and were mainly held by the state (Liu and Tian, 2012).

This segregated ownership structure led to conflicting interest between tradable shareholders and non-tradable shareholders which adversely affected corporate governance (Hou et al., 2012, Chen et al., 2016a). The substantial ownership through non-tradable shares allowed controlling state shareholders to have control over listed firms' financial reporting. This, in turn, led to an opaque information environment as the controlling state shareholders prefer to withhold value-relevant information and hide their expropriation of firm resources (Gul et al., 2010, Jiang et al., 2010a, Peng et al., 2011, Piotroski and Wong, 2012, Chen et al., 2018). Therefore, this split share structure adversely affected the development of the stock market (Hou et al., 2012). To further develop its capital markets and reduce the state control over listed firms, the Communist party started the split share structure reform in 2005, with the aim of transforming all non-tradable shares into tradable shares in an orderly fashion.

This study aims is to examine the influence of the split share structure reform on the information environment of Chinese listed firms which had a change in their ultimate controlling shareholder from the state to non-state due to the split share reform. The motivation to follow these firms is due to the structural changes in the ownership structure from the state to non-state, which this study predicts will initiate changes in the behaviour of ultimate controlling

shareholder towards corporate reporting. My thesis includes three empirical chapters, each of which explores a different aspect of the information environment of Chinese listed firms during the period from 2003 until 2014.

My thesis contributes to existing knowledge by revealing some interesting aspects of the changes in ownership structure due to the split share reform. The research findings show that, although the split share structure reform was successfully implemented by Chinese listed firms, there are still a large number of state-owned firms which exist in strategically important sectors. Of the firms which had a change in their ultimate controlling shareholder from the state to non-state, this study shows an improvement in the information environment for these firms due to the split share reform, which is represented by low analyst dispersion, increase in value relevance of earnings and greater information disclosures. By focusing on firms which converted from SOEs to non-state due to the split share structure reform, my study contributes to the privatization literature, providing evidence on the success of the share reform in terms of improvement in the information environment in China.

TABLE OF CONTENTS

LIST OF TABLES 8

CHAPTER 1 INTRODUCTION 10

1.1 INTRODUCTION AND MOTIVATION 10

CHAPTER 2 CHINA'S INSTITUTIONAL BACKGROUND 19

2.1 INSTITUTIONAL BACKGROUND 19

2.1.1 REGULATORY INSTITUTIONS IN CHINA 19
2.1.2 CHINESE CAPITAL MARKETS AND OWNERSHIP STRUCTURE 22
2.1.3 LAWS AND REGULATIONS IN CHINA 27
2.1.4 INSTITUTIONAL INVESTORS IN THE CHINESE STOCK MARKETS 34
2.1.5 PRIVATE INVESTORS IN THE CHINESE STOCK MARKETS 36
2.1.6 ANALYSTS IN CHINA 36

2.2 AGENCY PROBLEMS ASSOCIATED WITH THE SPLIT SHARE STRUCTURE 37

2.3 SPLIT SHARE STRUCTURE REFORM 2005 40

2.3.1 CASE STUDY OF CHINA CHEMICAL AND PETROLEUM CORPORATION SHARE REFORM PROCESS (SINOPEC) 43
2.3.2 EARNINGS MANAGEMENT AND THE SPLIT SHARE STRUCTURE REFORM 48

CHAPTER 3 LITERATURE REVIEW 53

3.1 INTRODUCTION 53

3.2. THEORETICAL PERSPECTIVE 53

3.2.1 DISCLOSURE THEORY 53
3.2.2 INFORMATION DISCLOSURE AND CONCENTRATED OWNERSHIP 57

3.3 REVIEW OF LITERATURE ON ANALYST FORECAST PROPERTIES 62

3.3.1 EMPIRICAL EVIDENCE ON CORPORATE DISCLOSURE AND ANALYST FORECAST PROPERTIES 62
3.3.2 EMPIRICAL EVIDENCE ON OWNERSHIP STRUCTURE AND ANALYST FORECAST PROPERTIES 65
3.3.3 EMPIRICAL EVIDENCE FROM CHINA 71

3.4 REVIEW OF THE LITERATURE ON SHARE PRICE SYNCHRONICITY 78

3.4.1 EMPIRICAL EVIDENCE FROM DEVELOPED AND EMERGING ECONOMIES 78
3.4.2 EMPIRICAL EVIDENCE FROM CHINA 87

3.5 REVIEW OF THE LITERATURE ON VALUE RELEVANCE STUDIES 92

3.5.1 OHLSON (1995) VALUATION MODEL 92

3.5.2 Empirical Evidence On The Impact Of IFRS On The Value Relevance Of Earnings And Book Value 100
3.5.3 Empirical Evidence On The Impact Of Ownership Structure On The Value Relevance Of Earnings And Book Value 103
3.5.4 Empirical Evidence On The Value Relevance Of Other Accounting Information 109
3.5.5 Empirical Evidence On The Value Relevance Of Accounting Information In China 110

CHAPTER 4 HYPOTHESES DEVELOPMENT 115

CHAPTER 5 DATA COLLECTION AND RESEARCH METHODOLOGY 126

5.1 Introduction 126
5.2 Sample and Research Methodology for Analyst Forecast Properties 130
5.2.1 Sample selection 130
5.2.2 Research Methodology 131
5.3 Sample and Research Methodology for Share Price Synchronicity 144
5.3.1 Sample selection 144
5.3.2 Research Methodology 145
5.4 Sample and Research Methodology for Value Relevance 161
5.4.1 Sample selection 161
5.4.2 Research Methodology 162

CHAPTER 6 ANALYSIS AND DISCUSSION 176

6.1 Introduction 176
6.2 Analysis and Discussion For Analyst Forecast Properties 176
6.2.1 Descriptive statistics 177
6.2.2 Pairwise correlation analysis 190
6.2.3 Regression results 194
6.2.4 Findings and discussion on control variables 202
6.2.5 Robustness results 207
6.2.6 Appendix (additional tests) 210
6.3 Analysis and Discussion for Share Price Synchronicity 219
6.3.1 Descriptive statistics 219
6.3.2 Pairwise Correlation analysis 232
6.3.3 Regression results 232
6.3.4 Findings and discussion on control variables 243
6.3.5 Robustness results 249
6.3.6 Appendix (additional tests) 252
6.4 Analysis and Discussion for Value Relevance Tests 259
6.4.1 Descriptive Statistics 259
6.4.2 Pairwise correlation analysis 265
6.4.3 Regression results 266
6.4.4 Regression results using operating revenue as a deflator 275
6.4.5 Earnings prediction tests 278

CHAPTER 7 CONCLUSION 286

7.1 Summary of the research question and research hypotheses 286
7.2 Summary of Research Findings and Discussion 289

7.2.1 RESEARCH FINDINGS OF ANALYST FORECAST PROPERTIES CHAPTER 289
7.2.2 RESEARCH FINDINGS OF SHARE PRICE SYNCHRONICITY CHAPTER 293
7.2.3 RESEARCH FINDINGS OF VALUE RELEVANCE STUDY 295
7.3 CONTRIBUTIONS AND IMPLICATIONS 296
7.4 LIMITATIONS 300

APPENDICES 301

APPENDIX A: THE THEORY OF OWNERSHIP STRUCTURE (JENSEN AND MECKLING, 1976) 301
APPENDIX B: SUMMARY OF KEY EMPIRICAL PAPERS 307
APPENDIX C: LIST OF HYPOTHESES 320
APPENDIX D: OBSERVATIONS ON ANALYSTS AND CHINESE BROKERAGE FIRMS 321

REFERENCES: 325

List of Tables

Table 1: China Petro-Chemical Corporation (Sinopec) Shareholding Structure..... 45

Chapter 5.2 Sample and Research Methodology for Analyst Forecast Properties
Table 2: Sample Selection Process 140
Table 3: Sample Firms by Year and by Firm Type 142
Table 4: Sample Size And Share Structure (Average Values)..... 143

Chapter 5.3 Sample and Research Methodology for Share Price Synchronicity
Table 5: Sample Selection Process 156
Table 6: Sample Constituents by Year and by Firm Type..... 159
Table 7: Sample Size And Share Structure (Average Values)..... 160

Chapter 5.4 Sample and Research Methodology for Value Relevance study
Table 9: Variables Identified In Other Value Relevance Studies 167
Table 8: Sample Selection Process 174

Chapter 6.2 Analysis and Discussion for Analyst Forecast Properties
Table 10: Descriptive Statistics..... 183
Panel A: Full Sample Observations (2003-2014) 183
Panel B: Distribution of Sample Firms By Industry 185
Table 11 Panel A: Average Values of Variables By Year..... 186
Panel B: Univariate Results of Sample Firms Divided By Time Period..... 187
Table 12: Constant Vs New Analysts' Univariate Analysis 189
Table 13: Pairwise Correlation Table 192
Panel A: (Coverage Sample) 192
Panel B: (Error And Dispersion Sample)..... 193
Table 14: Regression Results for Analysts Forecast Properties..... 196
Panel A: Regression for pre-reform (2003-2004) and post-reform (2009-2014) periods separately 196
Panel B: Pooled regression results with the split share structure reform interaction term 198
Table 15: Robustness regression results for Analysts Forecast Properties..... 208
Table 15(I): Additional tests for Analysts Forecast Properties 214
Panel A: Regression results for the pre-reform (model 1) and the Pooled-OLS regression from 2003 until 2014 (model 2) separately using additional variables..... 214
Panel B: Regression results using firm-fixed effects.....217

Chapter 6.3 Analysis and Discussion for Share Price Synchronicity
Table 16: Descriptive Statistics..... 225
Panel A: All Firm-Years (2003-14)..... 225
Panel B: Univariate results of sample firms divided by time period..... 227
Panel C: Distribution of sample firms by industry 229
Table 17: Pairwise correlation..... 230
Table 18: Regression Results for Share Price Synchronicity..... 234
Panel A: Regression results for the pre-reform (2003-2004) and the post-reform period (2009-2014) separately..... 234

Panel B: Pooled regression results with the split share structure reform interaction term 236
Table 19: Robustness Regression results for Share Price Synchronicity 250
Table 19(I): Additional Tests For Share Price Synchronicity 255
Panel A: Regression results for the pre-reform (model 1) and the Pooled-OLS regression from 2003 until 2014 (model 2) separately using additional variables 255
Panel B: Regression results using firm-fixed effects 257

Chapter 6.4 Analysis and Discussion for Value Relevance study

Table 20: Descriptive statistics 262
Panel A: Full Sample Observations (2003-2014) 262
Panel B: Average values for variables by Year and Firm Type 263
Panel C: Distribution of sample firms by industry 264
Table 21: Pairwise Correlation Table 265
Table 22: Regression Test for Value Relevance Of Earnings 267
Panel A: Regression results for *DSTATE2NSOE* firms for pre-reform and post-reform period separately 267
Panel B: Pooled regression result for value relevance of earnings of *DSTATE2NSOE* firms with split share reform interaction term 268
Panel C: Regression results for value relevance of earnings for *DSTATE2NSOE* and *RDSTATE* firms only 269
Table 23: Regression results for value relevance of earnings (deflate by operating revenue) 275
Panel A: Regression results for *DSTATE2NSOE* firms for pre-reform and post-reform period separately (deflate by operating revenue) 275
Panel B: Pooled regression result for value relevance of earnings of *DSTATE2NSOE* firms with split share reform interaction term (deflate by operating revenue) 277
Table 23(I): Earnings Prediction Test 279
Panel A: Earnings prediction regression results for *DSTATE2NSOE* firms for pre-reform and post-reform period separately 279
Panel B: Pooled earnings prediction regression results for *DSTATE2NSOE* firms with split share reform interaction term 280

Chapter 7 Conclusion

Table 24: Summary of Hypotheses And Findings 288
Table 25: Results for Empirical Findings (Analyst Forecast Properties) 291
Table 26: Results of Empirical Findings (Share Price Synchronicity) 294
Table 27: Results of Empirical Findings (Value Relevance Study) 295

Appendix Tables

Table B2: Summary on Key Empirical Literature (Analyst Forecast Properties) 307
Table B3: Summary of Key Empirical Studies On China (Analyst Forecast Properties) 310
Table B4: Summary of Key Empirical Papers (Share Price Synchronicity) 312
Table B5: Summary of Key Empirical Papers: China Evidence (Share Price Synchronicity) 314
Table B6: Summary of Key Papers (Value Relevance Study) 317
Table B7: Summary of Key Empirical Paper: China Evidence (Value Relevance Study) 319
Table D1: Composition of Brokerage Institutions In China 321
Table D2: Constant Analyst Brokerage Institutions 324

Chapter 1 Introduction

1.1 Introduction and Motivation

"The Chinese Dream"

This slogan became the highlight in not only China's media but also the press all over the world was full of this dream when the Chinese President, Xi Jingping, came into power in 2013. However, there is little doubt that the first priority of the new leadership of the People's Republic of China will be to keep the wheel turning towards economic growth based on the Chinese spirit and the Chinese strength.[1]

China has lifted itself out of poverty and now, hundreds of millions of Chinese people have joined the middle class.[2] It has emerged from stagnation under Mao Zedong's regime to become the world's fastest growing and second largest economy (Walter, 2006). This phenomenal growth over the last three decades has attracted increasing interest among researchers, economists and policymakers (Zhang and Liu, 2009). China is more global than ever and is expected to overtake the US economy by 2023.[3] China's goal has been wealth and strength.[4] However, different Party leaders have adopted different approaches.[5] Since 1949, China has been controlled by the Communist Party. Mao's China was run as a socialist system in which the state had control over all aspects of economic life, including capital, labour, industries, schools and the allocation of resources (Guo,

[1] http://www.bbc.co.uk/news/world-asia-pacific-11551399
[2] https://www.economist.com/news/leaders/21577070-vision-chinas-new-president-should-serve-his-people-not-nationalist-state-xi-jinping
[3] https://www.economist.com/news/leaders/21577070-vision-chinas-new-president-should-serve-his-people-not-nationalist-state-xi-jinping
[4] https://www.economist.com/news/leaders/21577070-vision-chinas-new-president-should-serve-his-people-not-nationalist-state-xi-jinping
[5] https://www.economist.com/news/leaders/21577070-vision-chinas-new-president-should-serve-his-people-not-nationalist-state-xi-jinping

2013). The state had control over all key sectors, and everything was regulated by the Communist party, such as production decisions, distribution of products and pricing decisions, all made centrally (Guo, 2013, Morck and Yeung, 2014). Private ownership of enterprise was non-existent in Mao's China.

The information environment under Mao's regime was strictly controlled and monitored (Guo, 2013). Mao's economic policies and his ambitions often resulted in policy failures. For example, the 'Great Leap Forward' (1958-1960) left millions dead from famine. The launch of the 'Cultural Revolution' (1966-76) was intended to erase China's cultural heritage and its past (Zheng, 2013). Under Mao's regime, which was from 1958 until 1976, China's economy was in ruins and the people in poverty, with shortages of necessities, low productivity and high costs (Morck and Yeung, 2014). This period was known as the 'period of suppressed life' (Boden, 2008).

"Be not afraid of going slowly, be afraid only of standing still."
-Chinese proverb

After Mao's death in 1976, Deng Xiaoping took charge and initiated major market-oriented reforms that put China onto a new path (Morck and Yeung, 2014). These reforms aimed to bring substantial changes to several aspects of the economy such as industrial structure, ownership structure and economic decision-making. The emphasis was on allowing market forces to determine resource allocation (Guo, 2013), on reducing government control over state-owned firms, allowing foreign capital inside the country, and promoting the development of private enterprises (Boden, 2008).

The first reform period (1978-84) focused on the development of the agricultural sector. The second stage of the reform process (1984-89) was towards the development of the industrial sector. The third stage of the reform (1992-2001) focused on multiple dimensions such as reform of state-owned enterprises; development of a private sector; promoting the development of a modern capital

market system; and the rescue of the state-owned banking system (Zhang and Liu, 2009). A fundamental feature of China's economic transition is the ownership structure of firms. This determines the ownership and control of resource allocation (Guo, 2013). It was during this period when the state allowed a minority stake of public ownership in state-owned enterprises by listing state-owned firms on the stock market. This partial privatisation, known as "the split share structure", segregated the equity ownership structure into tradable shares and non-tradable shares. Around 70% of listed firms' outstanding shares were non-tradable, which were mainly held by the state controlling shareholders (Liu and Tian, 2012). Ownership through non-tradable shares allowed the state to retain substantial control over listed firms. The remaining shares were tradable shares, which were highly dispersed amongst individual shareholdings and institutional investors (Liu and Tian, 2012).

These state-owned Chinese listed firms had some essential features. For instance, the ultimate controlling shareholder of state-owned Chinese listed firm is either central SASAC or local SASAC, or some other government institution such as Ministry of Finance, Ministry of Railway, Ministry of Education, or even state-owned enterprise.[6] The restructuring of SOEs, which include the appointment of top executives, evaluation of top executives, and the appointment of the Board is done by SASAC (OECD, 2011). The senior management and board members are current or ex-politicians, who have connections with the government (Wong, 2016). Their career aspirations are to reach higher levels of the government hierarchy which is only possible by using the state-owned firm to fulfil the government objectives (Wong, 2016).

Moreover, one of the essential features of Chinese listed state-owned enterprises is the easy access to bank loans. Chinese state-owned banks are under pressure from politicians to favour SOEs over non-SOEs in terms of granting bank loans which in turn softens the budget constraints for state-owned enterprises (Megginson et al., 2014, Wong, 2016). These soft budget constraints are further

[6] These are the institutions or agencies which own state shares.

seen as compensation for the political objectives these state-owned enterprises undertake (Liu et al., 2017). Also, preferential access to financing reduces state-owned enterprises' incentives to provide high-quality financial reporting (Wong, 2016). Overall, the government maintains absolute control over the operation, financing and investment decisions of these state-owned listed companies (Liu et al., 2017).

The existence of the split share structure gave rise to various agency issues which were mainly between the controlling shareholders (state) and minority shareholders (non-state). These agency problems adversely affected the information environment of Chinese listed firms, and consequently the allocation of resources. This was due to: (1) the non-tradability aspect of shares held by the controlling shareholders; and (2) different objectives of the state controlling shareholders which were more towards fulfilling political goals.[7]

As controlling shareholders, who mainly held non-tradable shares, could not benefit from capital gains in the stock market, they resorted to other means to benefit themselves. Evidence shows that the controlling shareholders pressure the management to pay out cash dividends (Wei and Xiao, 2009, Dedman et al., 2015), engaged in related party transaction to expropriate the wealth of the firm (Jiang et al., 2010), and engaged in excessive perks consumption for their private benefit at the expense of minority shareholders (Gul et al., 2011). To cover up their wealth extraction, controlling shareholders had greater incentives to manipulate information disclosures, delay disclosure of financial information, conceal the information and withhold value-relevant information (Gul et al., 2010, Firth et al., 2011, Chen et al., 2016a).

Consequently, the lack of accounting transparency increased the information processing cost for market participants and with the suppression of firm-specific information, share prices were more responsive to market-wide information, an

[7] For non-state controlling shareholders, the objectives were private benefit such as to finance other companies in the pyramid structure.

indication of the weak information environment (Gul et al., 2010). Altogether, the split share structure adversely affected the resource allocation to important sectors.

In 2005, the Communist Party commenced the split share structure reform, which aimed to eliminate the segregated nature of the ownership structure of Chinese listed firms by converting all those non-tradable shares into tradable shares. This is one of the fundamental steps which the Communist Party has taken to further loosen its control over Chinese listed firms and allow more non-state owners to participate in the capital markets. The split share structure reform process included a compensation scheme which required non-tradable shareholders to compensate tradable shareholders for the potential decline in share prices due to increasing supply of previously non-tradable shares once they are traded on the stock (Li et al., 2017). This compensation was in the form of cash, bonus shares or both. Moreover, to allow for the gradual conversion of non-tradable shares into tradable shares, a lock-up period was established which was spread out over a period of three years for each reform firm (Liao et al., 2014).

My thesis addresses the question of whether the split share structure reform has improved the information environment of Chinese listed firms. To answer this question, I investigate the information environment of Chinese listed firms which converted from state-owned enterprise to non-state owned due to the share reform. I investigate the information environment by looking at market-based proxies of changes in the disclosure environment and include the following three main topics: (1) analysts' forecast properties; (2) share price synchronicity; and (3) the value relevance of financial disclosures.

A review of research papers on the split share structure reform shows that its impact on the information environment through analysts' forecast properties, share price synchronicity, and value relevance of disclosures remains under-researched areas in the literature. Moreover, only a handful of papers have investigated the efficiency of analysts in Chinese capital market (Barniv, 2009,

Haß et al., 2014, Huang and Wright, 2015, Huang and Boateng, 2016). Amongst these papers, only Haß et al. (2014) and Huang and Wright (2015) have investigated this research area by incorporating a more recent time period, e.g. until 2011. Huang and Wright (2015) specifically investigate within the context of the split share structure reform. Hence, little is known on the analysts' role in contributing towards Chinese listed firms' information environment. Also, focusing on analysts forecast properties reduces the constraint to directly examine narrative disclosure as mostly Chinese listed firms' annual reports are only available in Chinese. The narrative disclosures, along with other financial information disclosed by Chinese listed firms are cited in analysts' research reports and their earnings forecasts.

With respect to share price synchronicity, a review of the literature highlights that studies on the impact of the split share reform on share price synchronicity of Chinese listed firms are rare. Hou et al. (2012) is the only academic paper which sets out to show the impact of the reform on share price synchronicity. However, as the time period of their study ends in 2008, there is no recent evidence after the expiration of the lock-up period of non-tradable shares. My thesis attempts to fill this research gap by taking into account the period 2009 and onwards, i.e. the era of significant changes in the ownership structure of Chinese listed firms. These significant changes in the ownership structure are likely to bring about changes in the behavior of controlling shareholder towards financial reporting.

Moreover, my thesis also contributes to the value relevance literature by firstly taking into account the econometric issues highlighted by recent studies which include issues with omitted variables and deflation issues (Shen and Stark, 2013). Studies which examine the value relevance of earnings and book value, such as Liu et al. (2011) and Lee et al. (2013), only focus on earnings and book value and do not incorporate measures of other information which have been identified by value relevance studies. These studies also use valuation model based on a *per share* basis, which in the Chinese context, is not an accurate

measure of the scale effect given the substantial use of stock dividends and the transfer of shares from non-tradable to tradable shares due to the split share reform. Secondly, by taking into account a larger time period from 2003 until 2014, my study also contributes to the existing literature such as Dedman et al. (2015), Lin et al. (2016) and Cai et al. (2017) as these studies also document improvements in overall dimensions in Chinese listed firms' information environment due to the split share structure reform.

Although my thesis does not directly examine the impact of the split share structure reform on corporate disclosures, it, however, maintains the following underlying assumptions. This study predicts the split share structure reform will improve the information environment of Chinese listed firms which switch from state-owned to non-state though two channels: (1) the economic incentives associated with the split share structure reform; and (2) the change in the ultimate controlling shareholder from the state to non-state.

Firstly, the elimination of the non-tradability aspect of state shares will provide state controlling shareholders with the option to sell their shares and benefit from capital gains. Hence, the better is the firm performance, the higher will be its share price and the more they can benefit if they are to sell their shares. To help these state-owned firms, the CSRC further introduces two regulations which allowed the use of equity incentive plans to motivate the management towards firm value maximization, and also associated the performance assessment of state controlling shareholder with the market value of the firm.[8] This, in turn, will likely reduce state controlling shareholders incentive to expropriate firm resources and manipulate information disclosures, as disclosure of negative news will adversely affect the share price performance.

[8] These regulations include *The Measures Governing Equity Incentive Plans of Listed Companies* issued in 2005, and *Issues Concerning the Administration of the Stock Rights of State-owned Shares in the Share Trading Reform of Listed Companies* issued in 2005.

Secondly, this study predicts that the change in the ultimate controlling shareholder from the state to non-state due to the split share structure reform will be associated with an improvement in the information environment. The change in the ultimate controlling shareholder from the state to non-state will likely eliminate the political dependence of the firm and, therefore, reduce the preferential access to financing (access to equity markets and bank loans) which was obtained through government channels (Liu et al., 2017). These firms will now be more concerned regarding reducing the information asymmetry and will have greater incentive to provide more reliable and complete information disclosures.

One of the significant contributions of this study is that it provides the impact of the split share structure reform after it categorizes Chinese listed firms into those which remained state-owned throughout the time period of this study, and those which transferred from state-owned to non-state owned due to the share reform. Studying the impact of the reform by using this research design uncovers a conflict in Chinese policies on split share structure reform. This is because on the one hand, the state wants to improve the efficient allocation of resources and the information environment of Chinese listed firms by converting non-tradable shares into tradable shares. On the other hand, there are certain regulations introduced by the SASAC and the CSRC which acts as obstacles with respect to the trading and transfer of state shares.

For instance, according to the *Law of the People's Republic of China on State-Owned Assets in Enterprises* issued in 2008, the government encourages greater investment of state capital to further enhance the dominance of state-owned firms in key strategically important sectors.[9] Moreover, *The Interim Measures for the Administration of State-owned Shareholders' Transfer of Their Shares of Listed Companies* issued in 2007[10], further specifies restrictions for the transfer

[9] http://www.npc.gov.cn/englishnpc/Law/2011-02/15/content_1620615.htm
[10] http://www.lawinfochina.com/display.aspx?lib=law&id=6209&CGid=&EncodingName=big5

of state shares.[11] Article 8 emphasizes that the transfer of state shares shall not cause a significant shift in the controlling rights. Review of the split share reform literature highlights that previous studies have not incorporated this research design to test the impact of the reform due to which they have largely ignored this policy conflict.

Secondly, my thesis contributes to the existing literature by uncovering the importance of not only focusing on the immediate time period of the split share reform but also the later time period when there are substantial changes in the ownership structure. Moreover, although in theory, the shares of reform firms are subject to trading restriction from the reform completion date up to 36 months, however, there are actually (i) some firms which had an immediate change in the shares from state to non-state in the same year of the reform, (ii) there are some firms which still retain state shares (either these firms not willing to sell their shares or fail to obtain approval from the government), and (iii) there are firms which had the change in the shares and the ultimate controlling shareholder after the lock-up period. This has not been mentioned in the existing Chinese studies on the split share structure reform. My thesis contributes to the existing literature by showing that the split share structure reform has improved the information environment of Chinese listed firms which transfer from state to non-state owned firms relative to firms which remained state-owned throughout the time period of this study.

My thesis is organized as follows. Chapter 2 provides the institutional background of China. Chapter 3 provides a literature review covering three main topics of this PhD thesis. Chapter 4 includes hypotheses development. Chapter 5 includes the methodology for the three topics. Chapter 6 presents the empirical results of the three topics. Chapter 7 concludes this thesis.

[11] The regulation specifies the approvals which are needed from SASAC and the State Council for the transfer of state shares in key strategic sectors.

Chapter 2 China's Institutional Background

This chapter provides an overview of China's institutional background. Section 2.1.1 provides details on the main regulatory institutions in China which exists to monitor and manage the state-owned enterprises, stock markets, and the banking and insurance sector. Section 2.1.2 provides a detailed description of China's capital markets and the ownership structure of Chinese listed firms. Section 2.1.3 provides information on laws and regulations in China such as audit regulations, disclosure regulations and overview of accounting standards reforms. Next, this study provides information on capital market participants such as institutional investors (section 2.1.4), retail investors (section 2.1.5) and information intermediaries such as financial analysts (section 2.1.6).

Section 2.2 provides detail account of agency issues associated with the split share structure which adversely affected the information environment of Chinese listed firms and the development of the stock markets. This section is followed by section 2.3 which provides a detailed description of the split share structure reform, the explanation of the reform process through a case study of Sinopec, and a review of earnings management studies in the light of the split share structure reform.

2.1 Institutional background

2.1.1 Regulatory institutions in China

State-owned Assets Supervision and Administration Commission of the State Council (*SASAC*).

Established in 2003, *SASAC* is authorized by the State Council to perform several duties according to the Company Law of the People's Republic of China.[12]

[12] http://en.sasac.gov.cn/n1408028/n1408521/index.html

It is responsible for the restructuring of state-owned firms and carries out activities such as pushing forward the reforms of state-owned enterprises, the appointment and removal of top executives in state-owned firms, and the evaluation of top executive performance (OECD, 2011). It appoints directors and supervisors to state-controlled firms. It also plays a role in setting up incentives for corporate management. It establishes rules and regulations and supervises the management work of central and local state-owned firms.[13]

China Securities Regulatory Commission (*CSRC*)

Created in 1992, the CSRC is a ministerial-level public institution directly under the State Council, responsible for the supervision of China's stock market and futures market, and for ensuring market compliance with the law (OECD, 2011). It is located in Beijing, with 36 securities regulatory bureaus covering different regions and provinces. It also has registered offices in Shanghai and Shenzhen. It performs several duties such as supervising and inspecting the issuance of shares, listing of firms on the stock exchange and the trading activities on the stock market (OECD, 2011). It also is responsible for providing guidance over stock trading activities and the enforcement of stock market reforms.

Apriority of the CSRC is to bring about improvements in the corporate governance of Chinese firms. It is also responsible for initiating improvements in several other areas, such as independent directorships, information disclosure, related party transactions, and mergers and acquisitions. The CSRC has also issued a series of rules such as Code of Corporate Governance of Listed Companies; Regulations on Information Disclosure of Listed Companies; Guidelines on Articles of Association of Listed Companies; Rules on Shareholders' Meeting of Listed Companies; and Guiding Opinions on the Establishment of the System of Independent Directors in Listed Companies etc. (OECD, 2011).

[13] http://en.sasac.gov.cn/n1408028/n1408521/index.html

China Banking Regulatory Commission (*CBRC*)

CBRC is responsible for the setup and enforcement of rules governing the banking institutions. Its objective is to maintain market confidence and protect the interests of depositors through the effective supervision of China's banking system, facilitating information disclosure to enhance public knowledge. It is also responsible for promoting financial stability and facilitating innovation in the Chinese banking sector. It is responsible for assessing, monitoring and mitigating the overall risks of China's banking institutions.[14] It looks after the industry standards, investigates matters such as illegal behaviour, and promotes bank reforms and innovation to further strengthen financial services in China (Yan and Li, 2015).

China Insurance Regulatory Commission (*CIRC*)

Established in 1998, CIRC is authorized to conduct administration, supervision and regulation of the Chinese insurance market and ensure that the insurance industry operates in compliance with the law.[15] It is responsible for creating policies to improve further, transform and innovate in the China insurance industry (Yan and Li, 2015).

China Banking and Insurance Regulatory Commission (CBIRC)

On 8th April 2018, CBRC and CIRC were merged to form a single supervising agency, known as China Banking and Insurance Regulatory Commission (CBIRC), which is directly under the guidance of the State Council.[16] The merger is a response to the rapid changes in China's financial system, as well as the inadequate supervision of insurance companies by the CIRC (Pugsley, 2018). This merger is also expected to address the increasing complexity of financial activities (Pugsley, 2018).

[14] http://www.cbrc.gov.cn/showyjhjjindex.do
[15] http://www.circ.gov.cn/web/site45/
[16] http://www.cbrc.gov.cn/EngdocView.do?docID=F495CC398DAD4FA4B10B0B25A8BDC9E5

CBIRC aims to identify regulatory problems, to clarify regulatory objectives, and to issue regulations to further improve the quality and efficiency of the banking and insurance industry.[17] For instance, the goals of China's new banking and insurance regulator is to implement new measures to solve the banking and insurance industry problems, such as to reduce the leverage of local governments and state-owned enterprises, control the rising household debt, crack down on the opaque shadow banking activities[18] and reduce riskier types of financing.[19]

2.1.2 Chinese capital markets and ownership structure

Chinese stock markets comprise the Shanghai Stock Exchange and the Shenzhen Stock Exchange, re-established in December 1990 and July 1991, respectively. Three different types of shares are issued by Chinese listed firms; A-shares, B-shares and H-shares. 'A' shares are the most common and the most traded shares on both the Shanghai and Shenzhen stock exchange. They were initially only available to domestic Chinese investors.[20] These shares are traded in Chinese currency (RMB) (Green et al., 2010). 'B' shares are denominated in the US dollar and are available to foreign investors[21]; and 'H' shares are issued by Chinese companies which are cross-listed on Hong Kong Stock Exchange (Green et al., 2010). Hence, there are Chinese A-share firms only, Chinese firms which issue dual shares 'A' and 'B' shares, and there are Chinese listed firms which are cross-listed in Hong Kong stock market (A and H share firms). There are also Chinese listed firms which are cross-listed in the US, the UK and other international stock exchanges.

---

[17] https://www.moodysanalytics.com/regulatory-news/apr-09-18-china-banking-insurance-regulatory-commission-replaces-cbrc-and-circ

[18] Shadow banking activities are performed by financial firms which are outside the formal banking sector (Tan, 2017). These activities carry higher risks and are off the balance sheets (Tan, 2017). China's shadow banking sector is estimated to be worth $15000 bn (Pugsley, 2018).

[19] https://www.reuters.com/article/us-china-regulator/china-names-cbrc-chief-guo-as-head-of-new-banking-insurance-regulator-caixin-idUSKBN1GX0PD

[20] From 2003, Qualified Foreign Institutional Investors were allowed to trade in the A-shares of Chinese listed firms. http://www.csrc.gov.cn/pub/csrc_en/OpeningUp/RelatedPolices/QFII/201211/t20121109_216704.html

[21] From 2001, domestic Chinese investors were also allowed to trade in B-share market (Jiang and Kim, 2015).

Since the establishment of the Chinese stock markets, equity ownership has been based on the split share structure. The split share structure further categorizes the total outstanding A-shares of a listed firm into non-tradable and tradable shares. The purpose of the split share structure was to allow listed firms to raise external financing and at the same time to allow the government to have control over the listed firms (Firth et al., 2010, Liao et al., 2011). Shares held by the state or state-owned institutions are known as 'state shares', which are in the non-tradable share category. State shares are held by either central government, local government or other government-owned agencies. Institutions with 'legal person' status were classified as 'legal person shares', which were also in the non-tradable share category. Further, legal person shares comprise state-owned legal person shares, owned by state-owned enterprises or institutions which are state-owned, and social legal person shares which are owned by non-state-owned enterprises (Delios et al., 2015, Jiang and Kim, 2015). Shares held by individual and institutional investors were classified as tradable shares (Hou et al., 2012, Liu and Tian, 2012).

Until 2005, almost 70% of listed firms' outstanding shares were non-tradable and were held by the state (Liu and Tian, 2012). These shares were priced at book value and could not be traded on the stock market (Huang and Zhu, 2015, Jiang and Kim, 2015). Ownership through non-tradable shares allowed the state to retain majority control of listed firms (Liao, Liu and Wang, 2011). The remaining shares were tradable shares, which were highly dispersed amongst individual shareholdings and institutional investors (Li et al., 2011). Moreover, non-tradable shares and tradable shares have the same voting and cash flow rights. They differ only in the tradability and the pricing aspect. The dominant or substantial ownership, therefore, remained with non-tradable shareholders in many listed companies.

Another important characteristic of Chinese capital markets are the existence of highly concentrated ownership, mainly by the state or a few non-state owners

(Piotroski and Wong, 2012, Wong, 2016). Ownership concentration is high when the largest shareholder (or few shareholders) has (have) significant ownership in the firm. According to the CSRC definition, a firm in which the ultimate controlling shareholder is the state (or a state-related institution) is classed as a state-owned firm. Any firm in which the ultimate controlling shareholder is non-state is called a non-state-owned firm or a private firm (Liu and Tian, 2012). For non-SOEs, the ultimate controlling shareholder is either an individual, family or legal person (Chen et al., 2009, Jiang and Kim, 2015). Therefore, the concentration of ownership in Chinese listed firms exists in both state-owned firms and non-state-owned firms.

Chinese listed firms are structured in such a way that the ultimate controlling shareholder controls the listed company by holding shares of another company and so on (Wong, 2016). This is known as the pyramid structure in which there is one ultimate controlling owner at the top of the pyramid who controls a firm through layers of intermediate companies (Fan et al., 2012). As most of the Chinese listed firms were carved out from the parent companies, the controlling shareholder is mostly either the Central or the Local government. Overall, Chinese listed firms often operate within a pyramid-structure (Wong, 2016).

There are two ways in which the ownership structure of Chinese listed firms is organized. For instance, in the case of locally controlled SOEs, Fan et al. (2012) show that local government can either directly own shares of the listed company through a state-owned agency, which holds state shares, or it can own and control the firm indirectly through pyramidal layers of intermediate companies. However, with multiple layers of intermediate companies, it is more likely that the control rights will be transferred to a larger SOE group in the pyramid group. This option can make it difficult to intervene (for local government) in the firm decision-making process (Fan et al., 2012). Figure 1 shows a simple ownership structure of ShanDong Chenming Paper Holdings Limited in 2005. The company is directly controlled by the local State-Asset Management Bureau who is the ultimate controlling shareholder with 31.24% ownership.

Figure 1: Ownership structure of ShanDong Chenming Paper Holdings Limited 2005

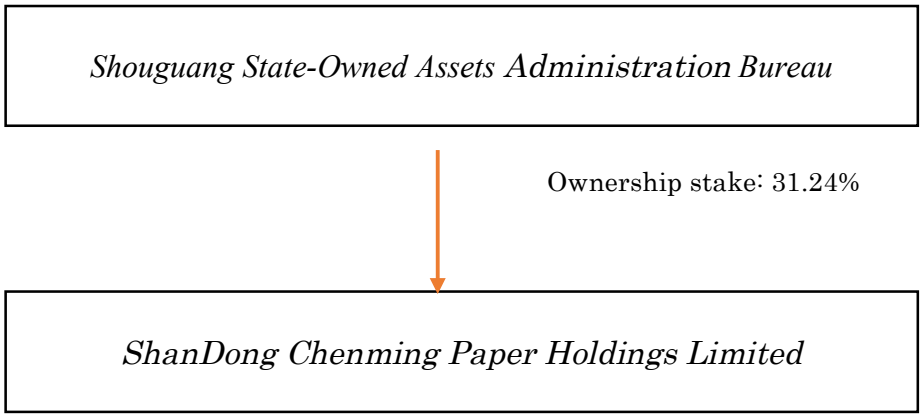
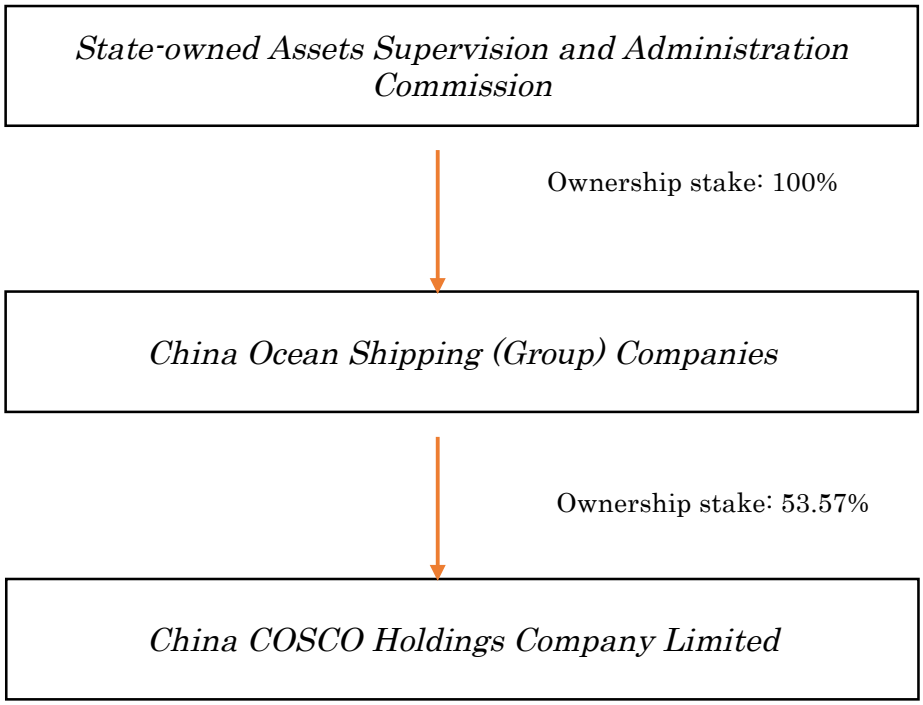


Figure 2 shows another example, which is of China COSCO Holdings Company Limited which is controlled and owned indirectly by SASAC (*State-owned Assets Supervision and Administration Commission*) through a pyramid structure. For this firm, the ultimate largest shareholder is SASAC. All state-owned firms are overseen by a government agency which is known as State-owned Assets Supervision and Administration Commission (SASAC). SASAC operates on behalf of the central government. It carries several responsibilities such as the appointment of executives and managers in SOEs, setting executive compensation, reforming and restructuring SOEs.[22] Local SOEs are overseen by the local SASAC (Jiang and Kim, 2015).

[22] http://en.sasac.gov.cn/n1408028/n1408521/index.html

Figure 2: Ownership structure of China COSCO Holdings Company Limited 2007



Ownership concentration is documented to be higher for SOEs relative to non-SOEs. For instance, during the period 1999 until 2004, the largest shareholder of central SOEs (non-SOE) owns on average 49.6% (32%) while the second largest owns on average 7% (12%) of the firm (Chen et al., 2009). These results show that there is a huge gap between the largest share ownership and the second largest share ownership in state-controlled firms, on average.

Moreover, as state-owned firms are controlled by different institutions, they have different incentives and objectives. For instance, state shares are held by the central government, local governments, or other government-owned agencies (Delios and Wu, 2005). State-owned firms which are controlled by the central government are known as central-SOEs, and most of them have their headquarters in Beijing with their subsidiaries located in several provinces (Chen et al., 2015). Central SOEs are more influenced by the central government's policies and are supervised by bureaucrats for achieving the

government's economic and social goals. However, these bureaucrats are civil servants who have little business experience. Central-SOEs are generally large firms and are subject to strict monitoring (Chen et al., 2009).

On the other hand, local SOEs are more influenced by the policies of the local government for instance infrastructure development and employment in the region (Piotroski and Wong, 2012), as well as by the incentives of the local politicians (Piotroski et al., 2015). There is greater involvement of bureaucrats in locally controlled state-owned firms which are under their supervision. The intervention can either be to facilitate firm decisions to help boost the local economy or to intervene for personal gains, for instance, corruption (Fan et al., 2011). The objective of local SOEs is to contribute towards the economic growth of the region, and they are therefore viewed by the local government as a valuable source of economic growth (Chen et al., 2008).

2.1.3 Laws and Regulations in China

Audit Regulation

Prior to the 1978 economic reforms, nearly all of China's economic activity was centrally controlled and hence, there was no government audit institution (Yee, 2012). It was only after the 1978 economic reforms, which created a demand for external audits that the auditing system in China was established (DeFond et al., 2000, Yee, 2012).

Established in 1983, the National Audit Office (NAO), which is under the direct control of the State Council (the central government), is responsible for devising the audit strategy and the audit for state-controlled firms (Yang et al., 2008, Yee, 2012, Xiao et al., 2016). An executive-dominated government audit system is adopted in China which means that the NAO reports to, and is also financed by, the executive branch of the central government (Xiao et al., 2016). Also, the Auditor-General of the NAO is appointed by the President of the State (Yang et

al., 2008). This government audit system is frequently criticized for lacking independence. Similarly, the Chinese Institute of Certified Public Accountants (CICPA) was established in 1988 under the supervision of the Ministry of Finance. CICPA was also involved in the audit standard setting and served as a communication bridge between the State and Certified Public Accountants (CPA) (DeFond et al., 2000, Yee, 2012).

The expansion of its stock market, together with increased interest and investment by foreign investors in Chinese listed firms led to an increase in the demand for independent auditing services (Gul et al., 2009). Therefore, to meet the increasing demand for auditing services, the Audit Law of the People's Republic of China has been consistently being updated over the last 24 years (OECD, 2011, Xiao et al., 2016).

For instance, Chapter I Article 5 of the Audit Law 1994 (revised in 2006) requires that audit institutions shall independently exercise their power of supervision subject to no interference by any other administrative department or any public organization or individual. The National Auditing Standards of the People's Republic of China implemented in 2011 further provide specific circumstances which may compromise audit independence such as: (1) auditor having a conjugal relationship, lineal descent relationship, collateral kinship within three generations or lineal affinity with the person-in-charge or any executive of the auditee entity; (2) auditor having an economic interest relationship with the auditee or the audit item; and (3) auditor having managed or directly handled the business under audit.[23] Article 18 further requires that the auditor shall investigate the members of the audit team for circumstances which may jeopardize audit independence and take necessary measures specified in the law.

[23] Article 16 of the National Auditing Standards of the People's Republic of China (2011).

With respect to the audit of state-owned firms, Chapter III Article 20 of the Audit Law 1994 (revised in 2006) requires that audit institutions shall exercise supervision through auditing over the assets, liabilities, profits and losses of the state-owned enterprises.[24] Further to this, Chapter II Article 15 of the National Auditing Standards of the People's Republic of China (revised in 2011) specifies that auditors shall adhere to principles, not bend to external pressure, not conceal problems found in audits and make audit evaluations based on facts.[25]

In 2004, SASAC further issued two rules aimed at improving audit quality for central state-owned enterprises by limiting the influence of management over auditor appointments and termination. Under the new rule, the appointment of the auditor is the responsibility of SASAC instead of the management of the central SOE. The new rules further require firms to retain the auditor for at least two years and at most five years (Chi et al., 2013). Moreover, the new audit regulations require firms to change the auditors every five years (Lee, 2016).

Document 56

In 2009, the State Council approved the implementation of the new audit policy which was designed by the CICPA and the Ministry of Finance. This new audit policy entitled *A Number of Opinions on Accelerating the Development of Certified Public Accountants*, mostly known as Document 56, aimed to bring substantial institutional changes in China's auditing market (Gillis, 2011). Document 56 calls for the development in the following areas: (1) Guidance to promote the development of the CPA industry; (2) development of the CPA profession; (3) promoting talent development of the CPA profession; and (4) the supervision of the CPA profession.[26]

The regulation categorizes Chinese audit firms into the following three groups and outlines specific guidelines for each of these groups: (1) large firms; (2)

[24] http://www.china.org.cn/china/LegislationsForm2001-2010/2011-02/14/content_21917188.htm
[25] http://www.lawinfochina.com/display.aspx?lib=law&id=8578&CGid=#menu9
[26] http://www.china.com.cn/policy/txt/2009-10/12/content_18686725.htm

medium-sized firms; and (3) a larger group of small firms (Gillis, 2011). Amongst these groups, the focus, however, is more towards the development of large audit firms. For instance, it encourages large Chinese CPA firms to expand their service range to include special audits, performance evaluation, internal control assessment and investment decision support (Gillis, 2011). The aim is to prepare these large Chinese CPA firms, so they become capable of providing high-quality and international-level services to Chinese enterprises. Document 56 proposes institutional reform for large accounting firms such as improvement in the professional ethics and competence of CPAs, promote the development of IT function to support auditing, internal control and related services. The document further proposes to create ten large CPA firms which are capable of serving Chinese firms globally (Gillis, 2011).

One of the most crucial aspects of Document 56 is that it stresses on the expansion of large Chinese CPA firms in the audit market. The provision emphasizes large state-owned enterprises and cross-listed firms to choose large Chinese CPA firms over foreign Big 4 audit firms to protect or ensure the safety of the national economic information.[27] Moreover, as outlined in Document 56, the State Council require Big 4 audit firms to restructure into limited liability partnership which can only be owned by Chinese CPAs.[28] This further suggests the intention of the government to reduce the involvement of Big 4 audit firms and work towards improving the standards of domestic audit firms to make them internationally compatible.

Document 56 further calls on for a talent development programme, i.e. importance of training young people and restructuring Chinese accounting firms with the young generation (Gillis, 2011). It also requires the Ministry of Finance to strengthen its supervision of large and medium-sized accounting firms and their accountants.[29] Overall, Document 56 is aimed to bring developments in the

[27] http://www.chinaaccountingblog.com/weblog/the-perfect-storm-big-chall.html
[28] They are required to restructure at the end of their joint venture term with local Chinese audit firms.
[29] http://www.china.com.cn/policy/txt/2009-10/12/content_18686725.htm

audit industry by encouraging audit firms to reorganize with a good reputation, implement innovative development models, their service methods, the quality controls and their governance.[30]

IFRS convergence with the Chinese accounting standards in 2007

Since 1990, China's Ministry of Finance (MOF) has consistently updated accounting regulations to bring substantial improvements to the quality of its accounting standards (Peng and Smith, 2010). Peng and Smith (2010) highlight the four stages of accounting regulation in China. The first stage (1993-1997) introduced a market-oriented accounting model. The second stage (1998-2000) comprised of *Accounting System for Joint Stock Limited Enterprise*. The third stage (2001-2006) comprised of *Accounting System for Business Enterprises* (Peng and Smith, 2010). The fourth stage represents the convergence of Chinese accounting standards with IFRS (Heng and Noronha, 2011).

Prior to 2007, Chinese listed firms were required to report under Chinese GAAP which was largely rules-based standard (ICAS, 2010). Firms that only issued 'A' shares were required to furnish financial statements following the Chinese domestic accounting standards. Firms which issued both 'A' and 'B' shares were required to prepare additional accounting information under IFRS for foreign investors (Lee et al., 2013). Firms that issue 'A' and 'H' shares were also required to furnish additional financial reports under IAS or the Hong Kong GAAP (H.K GAAP) (Liu and Liu, 2007). The dual share firms were also audited by international auditors (such as Big 4).

The new accounting standards are expected to increase the confidence of foreign investors to invest in China's capital markets.[31] Moreover, the improved financial reporting and transparency associated with IFRS adoption is predicted to reduce the information asymmetry of Chinese listed firms.

[30] http://www.china.com.cn/policy/txt/2009-10/12/content_18686725.htm
[31] A review by Deloitte on the China's New Accounting Standards. Available at: https://www.iasplus.com/en/publications/china/other/pub1136

Disclosure Regulation

The CSRC has been taking progressive actions to strengthen the information disclosure of listed companies and improve their transparency. The aim is to help protect investors' interests and facilitate the development of China's capital market.[32] The *Administrative Measures on Information Disclosure by Listed Companies* 2007 (AMID) introduced by the CSRC is an example of an attempt to further improve Chinese listed firms' information environment by improving the disclosure practice of listed firms. AMID regulation is an improved version of previous disclosure rule[33], taking account of the recent developments in China's capital market.[34]

AMID regulation 2007 provides general guidelines for Chinese listed firm disclosure activities and is seen as an approach by the CSRC to further toughen the disclosure standards for listed companies and to strengthen the responsibilities of directors, supervisors and senior managers towards information disclosure activities. The regulation is targeted towards four parties: (1) directors, supervisors and senior managers of Chinese listed firms; (2) shareholder, controlling shareholders, acquisition suitors; (3) security service providers, sponsors; and (4) market-related parties such as institutions and individuals.[35]

For instance, Article 2 of the Administrative Measures on Information Disclosure by Listed Companies 2007 requires that the information disclosure by obligors must be truthful, accurate, complete and timely, and shall not contain any false, misleading statement or major omissions. The regulation also specifies the time period for the listed companies to make available the annual report to the public.

[32] http://www.csrc.gov.cn/pub/csrc_en/newsfacts/release/200708/t20070810_69224.html
[33] In 1993, the CSRC approved the Implementation Rules (Trial) of information Disclosure of Listed Companies.
[34] http://www.csrc.gov.cn/pub/csrc_en/newsfacts/release/200708/t20070810_69224.html
[35] http://www.csrc.gov.cn/pub/csrc_en/newsfacts/release/200708/t20070810_69224.html

According to Article 20, annual reports of Chinese listed firms must be prepared and published within the four months after the end of each accounting year. The accounting year for all Chinese listed firms follows the calendar year.

The regulation further emphasizes certain responsibilities of the board of directors, supervisors and senior management personnel with respect to the information disclosure. For instance, Article 38 further emphasizes that the directors, supervisors and senior management personnel shall diligently and responsibly perform their duties, monitor the preparation of information disclosure and ensure timely disclosure of reports.

The guidelines also highlight the strict measures which shall be taken by the CSRC if the obligors or listed companies fail to comply with the regulation. For instance, Article 61 emphasizes that if the listed information disclosure obligor fails to disclose information within the stipulated time period or discloses falsified information, misleading statements, or there are major omissions, the CSRC shall impose a penalty pursuant to the provisions of Article 193 of the Securities Law.[36] Moreover, Article 59 emphasizes that in the event of violation of disclosure measures, the CSRC may also take certain actions against the information disclosure obligors, their directors, supervisors and senior management personnel, as well as the listed company's shareholder.[37]

Moreover, in addition to the publishing of regular annual reports, the Administrative Regulations further require firms to disclose material information in a timely manner, which is not known to market participants and may have a considerable effect on the firm share price (Piotroski and Wong, 2012). Article 30 specifies that in case of a significant event which is likely to affect the share prices and derivatives of a listed firm, the listed firm shall make

[36] Article 193 of the Securities Law (2006) stipulates that in the event of violation or failure to comply, the CSRC may order the listed company to take corrective action, issue a warning and impose a fine of 300,000 yuan up to 600,000 yuan.
[37] http://www.for68.com/new/2008/5/wa0417231122580023416-0.htm

a timely disclosure and state the cause, the current status and the likely effect of the event.[38]

2.1.4 Institutional investors in the Chinese stock markets

Institutional investors in China comprise securities companies, mutual funds, Qualified Foreign Institutional Investors (*QFII*), financial funds and insurance firms (Jiang and Kim, 2015). From 2003 onwards, there has been a large increase in the number of institutional investors, mainly driven by an increase in mutual funds. However, despite the large increase in the number of institutional investors in China, their ownership is still very low. In 2011, all institutional investors, including QFII, accounted for only 0.44% of equity ownership (Jiang and Kim, 2015).

Fund management companies are important players in the Chinese capital markets due to their large size and market value (Zhen, 2013). There are two kinds of fund companies. Public funds, which are supervised by the CSRC, and private funds. Since the introduction of *Provisional Measures for the Administration of Securities Investment Funds* in 1997, there has been an increase in China's fund management industry.

Securities companies, such as investment companies and brokerage firms, are the most important market intermediaries in China's capital market (Zhen, 2013). They are expected to stabilize the Chinese stock markets. Securities companies carry out several activities, for instance, brokerage, investment banking and innovative businesses. However, the brokerage is considered to be the most important source of revenue for securities companies (Zhen, 2013). There has been an increase in the brokerage industry, with an increase in the number of brokerage firms, the number of analysts employed and an increase in the analyst coverage of firms (Firth et al., 2013).

[38] http://www.for68.com/new/2008/5/wa041723112258002341 6-0.htm

From 2003, Qualified Foreign Institutional Investors were allowed to trade in the A-shares of Chinese listed firms under a quota system. QFII include asset management companies, insurance companies, securities firms, commercial banks, and others such as pension funds. QFII ownership in Chinese listed firms is subject to certain trading restrictions. For example, QFII investment in a Chinese listed firm can be a maximum of 30%, and a single QFII can invest only up to 10% in a listed company.[39]

[39] https://www.szse.cn/main/en/QFII/include/About_QFII.html

2.1.5 Private investors in the Chinese stock markets

A majority of investors in the Chinese stock market are individual domestic residents (Liang and Willett, 2015). Around 80% of trading volume is contributed by these domestic individual investors.[40] 81% of these investors trade at least once a month.[41] Individual investors are allowed to open multiple stock trading accounts at different brokerage firms.[42] These individual investors have invested their savings into China's stock market. The goal of these individuals is only to benefit from capital gains.[43] These retail investors do not have any trading strategy, as their only investment strategy is to follow others. They are inexperienced, irrational, and often have low levels of education.[44]

2.1.6 Analysts in China

During the period from 1991 until 1997, analysts in China had responsibilities which included informing investors about government policies, technical analysis, financial forecasting and stock recommendation. However, this early stage of the Chinese analyst industry lacked a regulatory and supervisory framework and was characterized by weak development (Feng et al., 2016).

In 2000, the Securities Analysts Association of China (SAAC) was formed and became responsible for regulating the analyst industry in China (Feng et al., 2016). Analysts' research reports and recommendations are now available publicly and are distributed to existing clients such as institutional clients and individual investors (Firth et al., 2013). At the end of 2011, there were 92

[40] http://www.csrc.gov.cn/pub/csrc_en/Informations/phgall/201708/t20170825_322649.html
[41] http://money.cnn.com/2015/04/01/investing/investing-stock-market-china/
[42] http://www.chinadaily.com.cn/business/2016-09/14/content_26790979.htm
[43] http://www.chinaeconomicreview.com/bullet-proof-bourse
[44] http://www.chinaeconomicreview.com/bullet-proof-bourse

brokerage firms employing more than 2,067 financial analysts, where most of them had working experience in the US (Gu et al., 2013).

2.2 Agency problems associated with the split share structure

Agency theory originates from the conflict of interest between the principal and the agent, which is due to the separation of ownership and control (Jensen and Meckling, 1976). The owner's (principal's) objective is to maximize firm value whereas the manager's (agent's) objective may be other than maximizing firm value, for example, perquisite consumption (Jensen and Meckling, 1976). The owners and the manager will pursue actions that will maximize their self-interest (Smith, 1986).

After the seminal work of Shleifer and Vishny (1997) and La Porta et al. (1999), much attention has been paid to the agency conflict between large shareholders and minority shareholders; the principal-principal agency problem. In terms of costs, large shareholder interests might not align with those of other investors and managers, and they may direct resources at the expense of minority shareholders (Shleifer and Vishny, 1997, Stulz, 1999). In terms of benefits, agency theory predicts that with concentrated ownership in the firm, large shareholders have incentives to collect information and monitor the management to work in the general interest of profit maximization (Shleifer and Vishny, 1997). However, this monitoring role is mainly based on a Western perspective and may not work in China, given the distinct nature of ownership in China: tradable and non-tradable shares, and substantial state ownership in Chinese listed companies.

The split share structure gave rise to various agency problems which adversely affected the development of the stock market and the information environment of Chinese listed firms. Firstly, there was a conflict of interest between non-tradable shareholders and tradable shareholders because non-tradable shareholders could not trade their shares in the stock market to benefit from

capital gains. Also, non-tradable shareholders had objectives that were different from tradable shareholders, who are a minority.

For example, the state which had ownership in listed firms through non-tradable shares, had objectives which were other than profit maximization and more towards fulfilling political goals such as employment targets (Peng et al., 2011, Chen et al., 2016a). Hence the resource allocation in SOEs was more influenced by political objectives rather than efficiency (Wurgler, 2000). The appointment of directors, managers and supervisory directors is under the state influence. Mostly the executives in state-owned firms are bureaucrats (Conyon and He, 2011). These officials in state-owned firms were civil servants who did not have business acumen. Their promotion was mainly dependent on fulfilling political objectives rather than value enhancing activities (Chen et al., 2009).

Moreover, to cover up wealth extraction from the firm, the controlling shareholder in SOEs had incentives to keep the activities of the firm opaque and had influence over the financial reporting of listed firms under their control. The evidence further highlights that during the period from 1996 until 2003, Chinese listed firms in which the state was the largest shareholder had less value relevant firm-specific information disclosure (Gul et al., 2010). This made it more difficult for market intermediaries to obtain private information and there was high synchronicity[45] in the Chinese stock market (Gul et al., 2010).

Segregated ownership led to different preferences for different types of dividends by tradable and non-tradable shareholders (Wei and Xiao, 2009). As non-tradable shareholders could not sell their shares to benefit from capital gains, they had greater incentives to pressure the management to pay out cash dividends to benefit themselves. This ultimately removed the managerial control over the distribution of dividends and the ability of dividends to predict the

[45] Synchronicity is defined as when the share price mirrors the movements in the stock market and is symptomatic of a weak information environment (Morck et al., 2000, Jin and Myers, 2006).

prospects of the firms (Dedman et al., 2015). The substantial ownership in the firm provides non-tradable shareholders with power and influence over the listed firm.

Moreover, as non-tradable shareholders could not trade their shares to benefit from capital gains, they had greater incentives to benefit themselves through other channels such as intercorporate loans (Jiang et al., 2010a, Liu and Tian, 2012). Intercorporate loans, identified as the most transparent form of tunnelling activity, was extensively used by controlling shareholders of Chinese listed firms. Jiang et al. (2010a) found that during 1996 until 2004, tens of billions in RMB[46] were transferred from Chinese listed firms as loans to firms or parties associated with the controlling shareholders. These are loans made to controlling shareholders, which are not part of the business operations and are hidden in the balance sheet under "other receivables". These controlling shareholders had greater incentive to benefit from tunnelling activities because the legal system in China provides minority shareholders with few options to take private action against these controlling shareholders (Jiang et al., 2010a). The use of intercorporate loans was found to be more severe in local SOEs relative to central SOEs. This form of expropriation adversely affected future firm performance and made firms more likely to enter financial distress (Jiang et al., 2010a).

On the other hand, Liu and Lu (2007) provide evidence of "reverse" tunnelling for Chinese listed firms with poor financial conditions[47]. These firms are subject to greater de-listing risk if they do not report a better performance within a year. They show that controlling shareholder have greater incentive to inject cash or

[46] Renminbi (RMB) is the official currency of China. https://www.investopedia.com/articles/forex/061115/yuan-vs-rmb-understanding-difference.asp

[47] In 1998, the CSRC introduced a delisting mechanism to delist Chinese listed firms which performed poorly. If a firm reports a net loss for two consecutive years, it will be labelled as ST firm (special treatment) (Peng et al., 2011). An ST firm is therefore subject to certain restriction such as the share price change limit for an ST firm is set at 5% vs the normal 10% limit. In 2003, the new delisting mechanism regulation replaced the old "ST" designation with "* ST" (Peng et al., 2011). If *ST firm reports another loss for one more year, it will then be delisted (Peng et al., 2011).

assets to the listed firm to boost its performance to avoid de-listing. This is because delisting will result in loss of control of the controlling shareholder over the listed firm and the associated private benefit of control.

2.3 Split share structure reform 2005

Given that these agency problems adversely affected the development of the Chinese stock markets and the information environment of Chinese listed firms, the Chinese government decided to transform the non-tradable shares, which were mainly the state shares into tradable shares (Liu and Tian, 2012). The first attempt was made in June 2001, when the Communist party launched the State Shares Holding Reduction by selling state shares directly on the stock market in initial public offerings and seasoned equity offerings. The increased supply of shares in the market led to a significant decline in the share prices of tradable shares, by over 30%. Following the market collapse, the plan was terminated in 2002 (Cumming and Hou, 2014, Kuo et al., 2014).

After the initial unsuccessful attempt in 2001, the CSRC launched the split share structure reform in 2005 under the leadership of the CPC and the State Council.[48] The split share structure reform aimed to convert all non-tradable shares into tradable, allowing a shift in ownership structure from highly concentrated state ownership to dispersed ownership (Green et al., 2010). The split share structure reform was carefully designed and implemented, with a focus on market stability and the rights of investors.[49] As part of an experiment, the implementation of the split share structure reform initially started with two batches of listed firms in May and June 2005, and after successful trials, the reform was open to all Chinese listed firms in August 2005 (Firth et al., 2010, Beltratti, Bortolotti and Caccavaio, 2012). Firms were required to implement the reform in batches, and all firms were expected to complete the reform by the end

[48] https://openknowledge.worldbank.org/bitstream/handle/10986/12643/712710ESW0P09906028020120Box370067B.pdf?sequence=1&isAllowed=y
[49] https://openknowledge.worldbank.org/bitstream/handle/10986/12643/712710ESW0P09906028020120Box370067B.pdf?sequence=1&isAllowed=y

of 2006. However, there are some firms which implemented the reform later than the set completion deadline (Tong et al., 2013).[50]

The 2005 split share reform had some essential features that enabled its successful implementation. For instance, as part of the reform process, non-tradable shareholders were required to compensate tradable shareholders for the potential decline in the value of shares that would occur once non-tradable shares are traded in the market (Green et al., 2010). Non-tradable shareholders were required to negotiate a satisfactory compensation plan with tradable shareholders, which either included bonus shares or cash or in some cases both (Li et al., 2011, Sun et al., 2017). The reform plan is then forwarded to the CSRC for approval after the final compensation plan is endorsed by at least two-thirds of tradable shareholders.[51] The reform is considered completed after the final approval by the CSRC (Liao et al., 2014).

Moreover, to protect the capital market from a sharp decline in share prices due to a sudden sale of non-tradable shares, a lock-up period was implemented. This allowed a gradual conversion from non-tradable shares into tradable shares over a period of three years (Liao et al., 2014). For instance, for the first twelve months after the reform plan becomes effective at the firm-level, non-tradable shareholders are only allowed to convert 5% of total outstanding shares into tradable shares. Between 12 to 24 months, non-tradable shareholders are allowed to convert another 5% of total outstanding shares into tradable shares. Between 24 to 36 months, non-tradable shareholders are allowed to trade less than 10% of total shares outstanding. Finally, 36 months after the finalization of the compensation plan, all remaining non-tradable shares are allowed to be traded in the stock market at the market price (Liu and Tian, 2012, Liao et al., 2014).

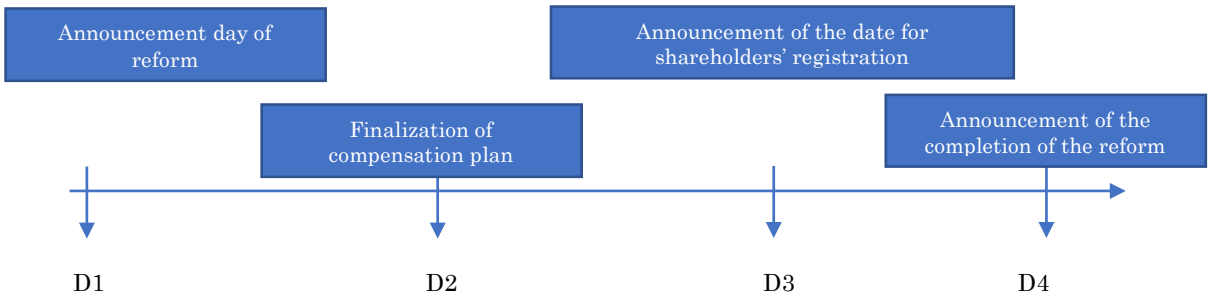
[50] The CSRC required all Chinese listed firms to complete the reform by the end of 2006.
[51] https://openknowledge.worldbank.org/bitstream/handle/10986/12643/712710ESW0P09906028020120Box370067B.pdf?sequence=1&isAllowed=y

The timeline of the share reform process is provided in Figure 3 below (Li et al., 2011, Tong et al., 2013). D1 is the day when the firm makes the reform announcement. The announcement also includes the information on the compensation, which has been decided amongst non-tradable shareholders, that will be offered to the tradable shareholders.

Immediately after the announcement day, the trading of shares in that firm is suspended. This is the first trading suspension period. During this period, negotiations take place between non-tradable shareholders and tradable shareholders on the level of compensation to be paid to tradable shareholders. If the tradable shareholders are dissatisfied with the compensation, they may vote against the compensation plan, and it will then be revised.

Upon the finalization of the compensation plan, the board makes the announcement on D2, and the trading resumes on the same day. D3 is the announcement of the date for shareholders' registration, which is immediately followed by trading suspension. This is the second trading suspension period. Tradable shareholders on that day have the right to cast votes for or against the reform plan and are entitled to the compensation (Li et al., 2011, Tong et al., 2013). The voting date is between D3 and D4. The successful completion of the reform depends on if more than two-thirds of the tradable shareholder vote in favour of the compensation plan. Finally, D4 is the date when the firm officially announces the successful completion of the split share structure reform. Following this announcement, the trading of the firms' shares is resumed. The following section provides a case study on the split share reform for SINOPEC.

Figure 3: Timeline of the firm-level split share structure reform process



2.3.1 Case Study Of China Chemical And Petroleum Corporation Share Reform Process (Sinopec)

China Petroleum and Chemical Corporation (Sinopec) is a large petroleum and petrochemical enterprise group that was formed in 1998. Sinopec is a state-owned company, in which the state is the ultimate controlling shareholder.[52] The company issued A-shares and H-shares in the domestic and overseas markets in 2001 and 2000 respectively (McGuinness, 2009). Sinopec is also cross-listed in global stock exchanges such as New York and London.[53]

Sinopec started its split share reform process in August 2006. Following the initial announcement of the reform, the trading of Sinopec's shares was suspended for 13 days, until the confirmation of terms in the reform proposal. One of the important features of split share reform was that non-tradable shareholders were required to compensate tradable shareholders, in terms of bonus shares and with cash compensation, for the possible financial loss resulting from a large increase in tradable shares on the market after the reform. Tradable shareholders were compensated through bonus shares on the basis of 2.8 shares for every 10 shares held. Table 1 below shows Sinopec's shareholding structure before and immediately after the approval of the reform scheme. The consideration paid by the non-tradable shareholders, China Petroleum Corporation and Guotai Junan Securities, was determined in proportion to their pre-reform ownership in the firm (McGuinness, 2009). Given the compensation ratio, 2.8 shares for every 10 shares held, the proportion of A-shares rose from 3.23% to 4.13%.

One of the important aspects of Sinopec's reform process is that, as shown in Table 1, the reform had no effect on the ownership of 'H' shareholders. This is because they were not part of the split share reform process as it was only

[52] The controlling shareholder is China Petro-Chemical Corporation.
[53] https://www.scmp.com/topics/sinopec

related to the A-shareholders. Also, the split share reform had no impact on the total number of shares outstanding, including all types of shares (McGuinness, 2009).

Table 1: China Petro-Chemical Corporation (Sinopec) Shareholding Structure

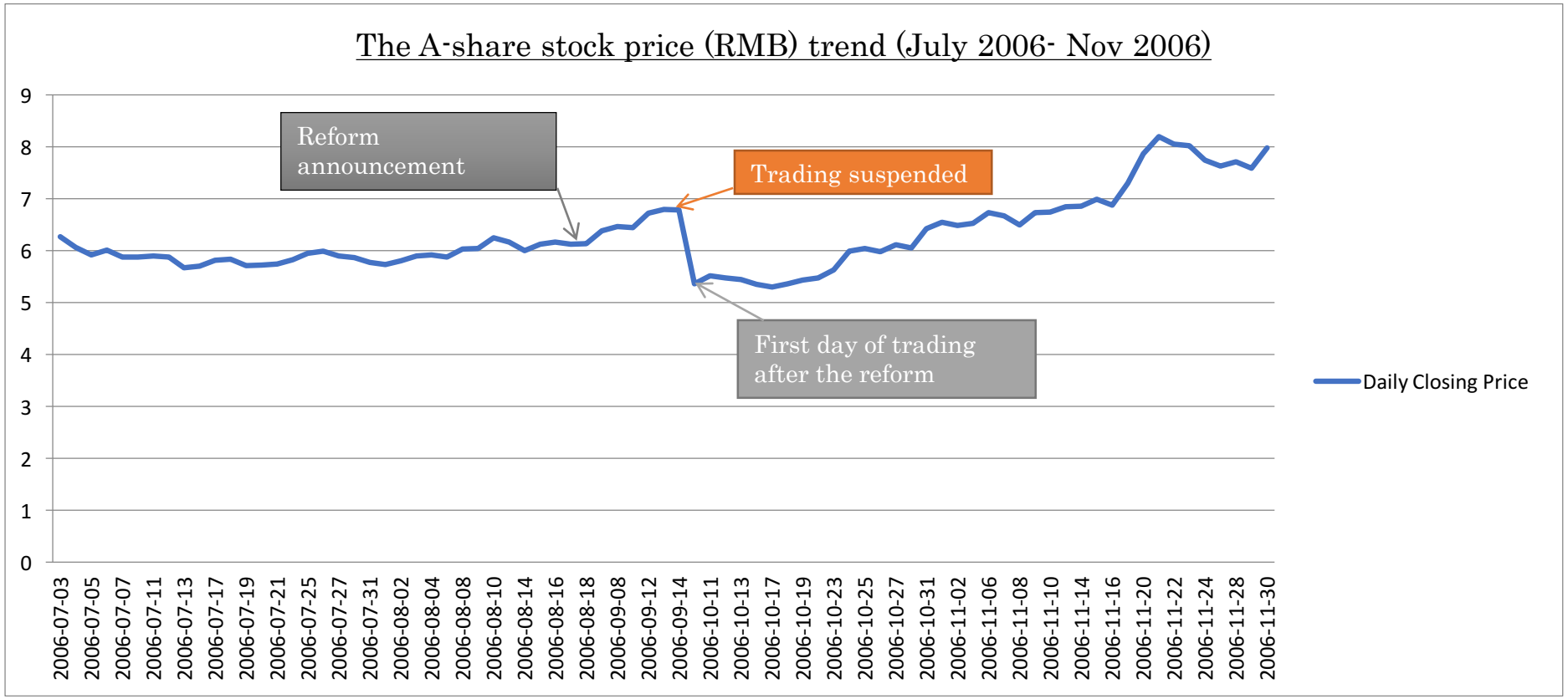
	Number of Outstanding shares	% of Outstanding shares	Number of Outstanding shares	% of Outstanding shares
	Pre-reform		**Following the reform approval**	
Panel (A) Share structure of Sinopec				
Non-tradable shares				
Domestic shares	66,535,191,000	76.74%	65758044000 ▼	75.84% ▼
State-owned Legal person shares	586,760,000	0.68%	579907000 ▼	0.67% ▼
Tradable shares				
A-shares	2,800,000,000	3.23%	3584000000 ▲	4.13% ▲
H-shares	16,780,488,000	19.35%	16,780,488,000	19.35%
Total Number of shares	86,702,439,000	100%	86,702,439,000	100%

Source: McGuinness (2009)

On 15th September 2006, Sinopec entered into the second trading suspension period following the announcement of the voting registration for the reform proposal. This voting process lasted for 17 trading days. The registration of tradable shareholders was essential as it provided the company with the record of shareholders eligible to vote on the reform proposal and for bonus shares compensation (McGuinness, 2009). The reform proposal was greatly supported from Sinopec's tradable A-shareholders and non-tradable shareholders which ultimately led the company to go forward with the reform. Finally, 10th October 2006 was the first trading day of the pre-existing A-shares and newly converted consideration shares after the completion of the split share reform (McGuinness, 2009).

Figure 4 shows the overall share price (closing) trend of Sinopec from July 2006 (pre-reform period) until November 2006 (post-reform period).

Figure 4: SINOPEC A-share price trend



2.3.2 Earnings management and the split share structure reform

This section provides a discussion of the studies which examines the impact of split share structure reform on earnings management of Chinese listed firms. These studies which look at the direct effect of the split share reform on earnings management uncover new factors which provide incentives for controlling shareholders to manage earnings. Firstly, earnings management due to the tradability aspect of non-tradable shares. The logic here is that after the share reform, non-tradable shares become tradable and are valued at the market price. After the lock-up period expiration, non-tradable shareholders are eligible to sell their shareholdings and benefit from capital gains. Xiao (2015) argue that the tradability aspect of non-tradable shares may provide controlling shareholders with the incentive to manage earnings upwards to benefit from maximum capital gains. Xiao (2015) argue that as the government still wants to maintain ownership in firms which belong to vital strategic sectors, the incentive to manipulate earnings will not be significant for such firms.[54] However, the incentive to manipulate earnings will be more significant for firms with a high percentage of legal person shares.

Using 10,788 firm-year observations from 2001 until 2011, Xiao (2015) find an increase in accruals in the post-reform period which is mainly driven by the legal person shareholders.[55] Xiao (2015) further documents that firms with higher information asymmetry, proxy by high forecast errors and low coverage, have greater incentives to manage earnings. This further indicates that opaque Chinese firms are more likely to manipulate information to mislead investors since it is more difficult for investors or regulators to distinguish between the actual firm performance and earnings manipulation. However, greater analysts' coverage of firms helps to limit managerial ability to manage earnings, ultimately leading to a more transparent information environment.

[54] Which includes firms with high state shares or state-owned enterprises.
[55] Although financial statements are prepared by managers, the preparation of financial statements is also influenced by the controlling shareholder (Xiao, 2015).

Although Xiao (2015) documents an increase in the use of accruals in the post-reform period, the study by Kuo et al. (2014), which focuses on the same time period shows a change in the earnings management practice from accruals to real earnings management. Kuo et al. (2014) argue that as non-tradable shares become tradable and will be valued at market price after the reform, this may further provide controlling shareholders with incentives to increase their wealth by inflating stock prices via earnings management activities. The weak investor protection and the absence of effective corporate governance mechanisms further provide controlling shareholders with incentives to expropriate minority shareholders.

Using 13,840 firm-year observations from 2002 until 2011, Kuo et al. (2014) document a switch from accruals management to real earnings management. The result suggests that the controlling shareholders still use the power of their concentrated ownership in the firm to expropriate minority shareholders. Kuo et al. (2014) associate this change in earnings management practice with the ownership concentration, which is still high after the reform.

Although evidence from these studies indicates that the reform has not improved the earnings quality of Chinese listed firms, these studies, however, provide mixed evidence on the use of accruals for earnings management in the post-reform period. On the one hand, Xiao (2015) documents an increased use of accruals in the post-reform period. On the other hand, Kuo et al. (2014) show that controlling shareholders have adopted strategies to conceal their expropriation through real earnings management which is less detectable.

The second factor associated with the split share structure reform which provides the incentive for earnings management is the compensation aspect of the share reform. As part of the split share structure reform, non-tradable shareholders are required to negotiate a compensation plan with tradable shareholders, which either include bonus shares or cash compensation, for the potential decline in the value of shares that would occur once non-tradable

shares are traded in the market (Green et al., 2010, Sun et al., 2017). Prior studies on the share reform document that firms performing poorly in the pre-split share reform period are at a disadvantage in negotiating a lower compensation with tradable shareholders (Firth et al., 2010, Li et al., 2011)

One way to strengthen non-tradable shareholders bargaining position is to pledge to improve future firm performance (Hou et al., 2015).[56] A performance target is a pledge between non-tradable shareholders and minority shareholders to improve future firm performance and achieve a specific performance target. In exchange, minority shareholders accept the low compensation offered to them as part of the split share structure reform process. Hence, these performance contracts are used as mechanisms to reduce compensation.

Hou et al. (2015) argue that the performance contract can have two opposing effects. On the one hand, it can motivate the controlling shareholders to improve business performance, or they will face the default cost.[57] On the other hand, the performance contract may provide controlling shareholders with the incentive to manipulate earnings to meet the performance target in case it is hard for them to reach the set performance target. This will adversely affect the financial reporting quality.

Using data on 314 firm-year observations[58] from 2005 until 2009, Hou et al. (2015) find that firms with poor performance in the pre-reform period are more likely to make a performance contract with tradable shareholders in return for a low compensation offer as part of the share reform. Although existing literature documents a negative relationship between pre-reform firm performance and compensation ratio (Firth et al., 2010, Li et al., 2011), these performance

[56] However, the reform may also provide an incentive to non-tradable shareholders to manipulate accounting information to exaggerate firm performance before the consideration payment through accruals (Jiang and Habib, 2012).
[57] Hou et al. (2015) define default cost as additional compensation, in terms of cash payment or additional shares, paid to minority shareholders as a penalty for failure to meet the set performance target.
[58] These observations relate to 157 firms.

commitment acts as a mechanism to strengthen the bargaining position of non-tradable shares in lowering the compensation offer to minority shareholders.

Secondly, Hou et al. (2015) document that the performance commitment further created an incentive for controlling shareholders to engage in earnings management when the actual performance is short of the target. When the actual firm performance is lower than the target or if the firm is unable to meet the target performance, they have greater incentive to manipulate earnings through non-recurring items or accruals to show better performance. The incentive to manage earnings is mainly due to the default cost which becomes due if the firm fails to meet the required performance target. Overall, their study highlights the use of performance contract as a factor which gives rise to earnings management in the split share reform setting.

Although the studies above provide us with evidence of earnings management due to split share structure reform, there is also evidence that the share reform also helps to limit these earnings management activities. This relates to the monitoring of the management and controlling shareholders by tradable shareholders which restricts the ability of the management and the influence of controlling shareholder to manage earnings (Jiang and Habib, 2012). Jiang and Habib (2012) split their sample period from 2001 until 2009 into three distinct time periods: (1) Pre-reform (2001-2004); (2) reform transition period (2005-2007); and (3) post-reform period (2008-2009). Using 2,873 firm-year observations from the post-reform period (2008-2009), their results show that a higher percentage of tradable shareholders helps to restrict earnings management in the post-reform period.

Their evidence suggests that monitoring function of tradable shareholders helps to limit the earnings management practices of Chinese listed firms and contributes towards improving the quality of information. Moreover, as Kuo et al. (2014) also point out that the reform can indirectly influence the quality of reported information through improvement in corporate governance, there are

several studies which examine the impact of the split share reform on corporate governance. These studies are discussed in detail in later sections of this PhD thesis.

Chapter 3 Literature Review

3.1 Introduction

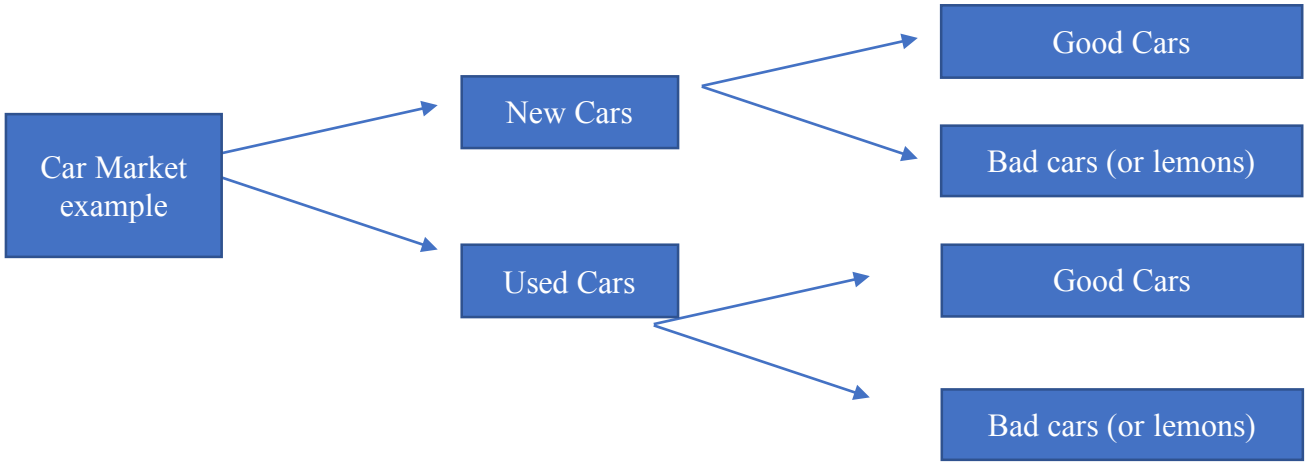
This chapter reviews the literature on the three main topics of this thesis, each of which analyses the information environment of China in a different way, via: (1) analysts' forecast properties; (2) share price synchronicity; and (3) value relevance. Section 3.2 introduces disclosure theory. Section 3.3 reviews the literature on analysts' forecast properties. Section 3.4 reviews the literature on the share price synchronicity. Section 3.5 reviews the literature on value relevance.

3.2. Theoretical Perspective

3.2.1 Disclosure theory

One challenge in any economy is the efficient allocation of resources i.e allocation of savings to investment opportunities. It is important to understand that entrepreneurs have better information than savers about the value of business investment opportunities and have incentive to overstate their value (Healy and Palepu, 2001). Hence, in any economy, there are two problems: (1) the information problem, which is faced by savers or investors; and (2) the agency issue, which is the incentive problem associated with the entrepreneurs (Healy and Palepu, 2001).

Akerlof (1970) describes the information problem through an example of a car market. There are two types of cars, "new" cars and "used" cars which can either be "good" cars or "bad" cars (lemons). However, individuals do not have the information prior to the purchase whether the car they are about to purchase is a "good" car or a "bad" car (lemon).



The individuals in this market buy a new car without having any knowledge of whether the car they will own will be good car or a lemon. However, they do assign a probability of q for the good car and $(1-q)$ for the lemon. The individuals will know exactly about the quality of the car only sometime after the purchase. It is at this time they will likely assign a new probability whether the car is a lemon, which will be a more accurate estimate than prior to the purchase.

The point is that the individuals do not know about the true quality of the car prior to the purchase. This information is only with the sellers, who have more knowledge regarding the car quality (and its value). As the quality of the cars is undistinguishable prior to the purchase, both good cars and lemons are sold at the same price (Akerlof, 1970).

In such instance, the existence of some economic institutions or institutional arrangement, such as guarantees, brand names and licensing, may benefit both parties. Overall, Akerlof (1970) argues that when information is uncertain in the market, there need to be some institutions which can provide some credible support so as to facilitate the market's development.

The second problem (the agency issue) arises due to the separation of ownership and control (Shleifer and Vishny, 1997). An agency relationship is a contractual relationship in which one or more persons (principal) appoints another person (the agent) to perform some prescribed duties on behalf of the principal, which may also include some decision making (Jensen and Meckling, 1976).[59] However, the agent may not always act in the best interests of the principal as both parties are utility maximizers. The manager ends up with substantial control rights and has the discretion to allocate investors' funds (Shleifer and Vishny, 1997). This is why he was appointed in the firm since he has more expertise in the field relative to the investors. In the agency relationship, the issue arises of how the investors make sure that the manager will not expropriate the funds at their disposal (Shleifer and Vishny, 1997).

Therefore, the efficient allocation of resources is adversely affected when there is information asymmetry (information problem) and agency problem (incentive issue). The goal is to come up with mechanisms to mitigate the information and agency issue. Healy and Palepu (2001) argue that it is the information asymmetry and agency issue which increases the demand for financial reporting and corporate disclosures. Healy and Palepu (2001) provide a framework which explains managers reporting and disclosure decisions in a capital market.

Information is disclosed by firms through three channels: (1) financial statements; (2) voluntary disclosures which includes management forecasts; and (3) information conveyed through financial intermediaries such as analysts, industry experts and the financial press. The first channel is the information disclosure through financial statements. This is because listed firms are required by the regulatory institutions to follow disclosure rules, which includes certain minimum disclosure requirement.

[59] The theoretical perspective of agency theory by Jensen and Meckling (1976) is provided in Appendix A.

The minimum disclosure requirements aim to reduce the information gap between informed and uninformed investors (Healy and Palepu, 2001).

Firms may also choose to disclose information in addition to those required of them by regulation, such as management forecasts. Such information disclosures are known as voluntary disclosures. The voluntary disclosure literature examines the reasons for managers' disclosure decisions (Healy and Palepu, 2001). For instance, the theory hypothesizes that managers give more importance to investors' perception of a firm when the firm is about to issue debt or equity, or acquire another company. Voluntary disclosure at this stage will help reduce information asymmetry between informed and uninformed investors, and thereby make it less costly for managers to raise external capital (lower cost of capital) (Healy and Palepu, 2011).

Voluntary disclosure theory also hypothesizes that managers are also likely to make voluntary disclosures to explain any poor performance. This becomes more important to managers when there is risk of dismissal, increased threat of hostile takeover, and a reduction in compensation. This increases managers' incentive to make voluntary disclosures (Healy and Palepu, 2001).

Moreover, theory also states that compensation schemes such as stocks, stock-options and stock appreciation rights also provide incentive for managers to make voluntary disclosures. This is because firstly, the release of private information through voluntary disclosures likely reduces information asymmetry and ensures stocks are fairly priced, i.e. they represent all information. Investors are more certain they are buying stocks which are reasonably priced, thereby increasing liquidity. Managers who are willing to sell their shareholdings have greater incentives to benefit from price appreciation and will have incentives to disclose private information (Healy and Palepu, 2001). Moreover, an

efficient compensation scheme may also help to align managerial interests with shareholders (Jensen and Meckling, 1976).

Voluntary disclosure theory also hypothesizes that managers have greater incentives to make voluntary disclosure if they face the threat of being sued by shareholders if they withhold information (Healy and Palepu, 2001). To summarize, the voluntary disclosure theory suggests that manager's disclosure decisions are influenced by a variety of reasons such as lower cost of capital, increasing stock liquidity and stock compensation schemes.

3.2.2 Information disclosure and concentrated ownership

Although firms in the US have less concentrated ownership structures, firms from emerging economies are mostly characterized by highly concentrated ownership structure, with high levels of equity owned by families and wealthy investors (La Porta et al., 1999). Such dominant ownership in firms is due to specific ownership structure arrangements which exist in emerging economies such as pyramid ownership structure and business groups. A pyramid structure is an ownership structure arrangement in which there is one ultimate controlling shareholder who is at the top of the pyramid and is not owned by anyone else within a chain of ownership (Young et al., 2008). The ultimate controlling shareholder owns and controls a particular corporation indirectly through other corporations. A business group, on the other hand, is a network of different affiliated firms which are bounded ownership or social ties such as family members or friendship ties (Young et al., 2008).

The ultimate controlling shareholder has significant influence over the operations of the firm (Young et al., 2008). Shleifer and Vishny (1997) argue that one of the fundamental problems of concentrated ownership is that large concentrated shareholder interests may not align with those of

other shareholders or with the interests of managers. This conflict between controlling shareholders and minority shareholders is known as principal-principal agency problem and is the corporate governance feature of emerging economies (Young et al., 2008).

The dominant ownership in the firm may allow the controlling shareholders the incentives to divert resources to maximize their own benefit or welfare. Such expropriations can be achieved through: (1) placing less than qualified family members or friends in critical positions; (2) purchasing supplies and materials at above market prices or selling products and services at below market prices to organization owned by controlling shareholders; and (3) engage in strategies based on family or political agendas at the expense of firm performance (Young et al., 2008).

This principal-principal agency issue adversely affects the allocation of capital and also the firm performance (Young et al., 2008). Also, it is important to note that although firms in emerging economies adopted the traditional Anglo-American corporate governance mechanisms from developed economies, their function is different relative to their counterparts in advanced economies (Young et al., 2008). For instance, shareholders in firms from developed economies appoint the board of directors, who are responsible for monitoring the management activities towards firm value maximization. However, in emerging economies, the appointment of the board of directors is mainly done by controlling shareholders which compromises this monitoring task. This is because in developing economies, the agents (managers) are also controlling shareholders (Young et al., 2008).

The agency issue further worsens when the control rights of controlling shareholders are in excess of their cash flow ownership in the firm (Shleifer and Vishny, 1997). The excess control can be achieved through a pyramid ownership structure, or if they own equity with superior voting

rights (Claessens et al. 1998, La Porta et al., 1998). With excess control, controlling shareholders can treat themselves better, such as by paying special dividends to themselves only and through measures such as related party transactions (Shleifer and Vishny, 1997). Expropriation by controlling shareholders may also lead to a reduction in the availability of external financing (Shleifer and Vishny, 1997).

Studies by Fan and Wong (2002) and Claessens et al. (2002) show how ultimate controlling shareholders use their power and control to influence the financial reporting practices of firms in East Asian economies. Usually, controlling shareholders in these firms gain control through pyramid structures which allow them great control with little ownership. These pyramidal ownership structures are prevalent in Eastern countries, where ownership structure is documented to be highly concentrated (La Porta et al., 1999).

Although each emerging economy has its own corporate governance system influenced by its institutional environment, the only similarity among emerging economies as a group is the nature of agency issue, i.e. the principal-principal conflict (Young et al., 2008). However, even this principal-principal agency issue differs among emerging economies. For instance, in the Chinese context, the dominant feature of the Chinese institutional environment is the state control of firms. The state, through non-tradable shares, is the controlling shareholder in many Chinese listed firms. These shareholdings cannot be sold as they are non-tradable. When the state is the ultimate controlling shareholder, political objectives may dominate the other shareholders' objectives, which is to maximize the firm value (Wang and Xiao, 2009). The appointments of executives and managers is done by the state. These executives and managers, who are government servants, are responsible for fulfilling the political objectives set by the state. The achievement of these political objectives is important as executives' and managers' future promotion is mainly associated with

these objectives (Chen et al., 2009). The substantial control over listed firms allows the controlling shareholder to influence the financial reporting of Chinese listed firms, enabling them to withhold any negative information regarding firm performance and expropriation activities (Piotroski et al., 2015).

This firm opacity may further aggravate the information asymmetry between the firm and the market participants.[60] Non-disclosure by the firm is interpreted by investors as bad news (Dye, 2017). Potential investors are uncertain regarding the information about the firm and what information is under manager possession. Dye (2017) argues that there two reasons for non-disclosure: (1) the manager did not receive any information during that period; (2) the manager decided to withhold the unfavourable (information). Unsophisticated investors, however, cannot distinguish between the reason for non-disclosure. Dye (2017) argues that when there is no disclosure during a certain period, investor assigns the firm a lower value if they perceive that information is being withheld.

Summary:

A review of the disclosure theory provides an understanding of managers' corporate disclosures decisions. It highlights that the information problem, as well as agency issues, increase the demand for financial reporting and corporate disclosures. Managers or controlling shareholders may have incentives to manipulate earnings to cover up their extraction of resources for private benefits. This may adversely impact the information environment, with high information asymmetry between the firm and the market participants. This adversely affects the efficient allocation of resources.

[60] "Opaqueness" if defined as the lack of information available to investors that would enable investors to observe firm cash flow, income to compute the firm value, V_t (Jin and Myers, 2006).

The following section provides empirical evidence of how different ownership structures affects the information environment, proxied by analysts' forecast characteristics; first providing an overview of the literature on the impact of financial disclosure on analyst coverage and forecast properties. The purpose is to highlight the importance of firm disclosures as a vital source for analysts to predict future earnings. Following this section is an explanation of the link between ownership structure and analysts' forecast properties.[61]

[61] Summary of key empirical papers discussed in the following section is provided in Appendix B Table B2 and Table B3.

3.3 Review Of Literature On Analyst Forecast Properties

3.3.1 Empirical Evidence On Corporate Disclosure And Analyst Forecast Properties

Lang and Lundholm (1996) examine the impact of financial disclosures on the number of analysts following a firm and on properties of analysts' earnings forecasts. They argue that firms with more disclosures are more likely to attract analysts' coverage, have better forecast accuracy and experience a reduction in information asymmetry. Their paper focuses on: (1) the decision by analysts to follow firms; and (2) the characteristics of their earnings forecasts, measured by forecast accuracy, dispersion and the variability of forecast revisions.

With respect to the impact of disclosures on analyst coverage of firms, Lang and Lundholm (1996) argue that the impact can be through two channels: (a) demand side argument; and (b) the supply side argument. The demand side argument depends on the role which analysts perform in the capital market. For instance, if analysts perform the function as information intermediaries, then an increase in information disclosure means that analysts have a more valuable report to sell. Hence, increased disclosure will increase the demand for analysts' service. However, if analysts play the role as information providers, then increased disclosure will act as a substitute for the analyst service and will likely lead to a reduction in the demand for analysts' services. From the supply side argument, increased disclosure may make it less costly for an analyst to obtain and process information so this will likely increase the number of analysts following the firm.

With respect to earnings forecast dispersion, there are two different ways in which increased disclosures can have an impact on dispersion. Firstly, if all analysts have the same forecasting model, then an increase in firm

disclosure will reduce the differences in the forecasts. Alternatively, if all analysts have the same information set but they differ in the forecasting model, increased disclosure may lead to analysts drawing different conclusions for the firm providing disclosures, so forecasts become more dispersed.

Using COMPUSTAT data on 2,272 firm-year observations from 1985 until 1989, they find that increased disclosures are associated with higher analyst coverage. Their result, therefore, suggests the analyst function in capital markets is more like information intermediaries. They also find that disclosure is positively associated with analyst forecast accuracy, which indicates that firm disclosure is an important determinant of analyst forecast accuracy. Moreover, with respect to dispersion, they find a negative association which suggests that all analysts have the same forecasting model.

Whereas Lang and Lundholm (1996) focus on the impact of financial disclosures on analyst forecast accuracy, a study by Yu (2010) examines the impact of corporate governance disclosures on the analysts' forecast properties. Disclosures on corporate governance include information on corporate governance mechanisms and policies, such as ownership concentration, voting and shareholder meeting procedure, accounting policies and board structure. Information on corporate governance is likely to help analysts to predict earnings as well as assess the credibility of reported information (Yu, 2010).

Yu (2010) argue that corporate governance disclosure provides information on how well companies are organized, which is essential for the reliability and availability of the reported information. For instance, there is evidence in the literature on how ownership structure affects the availability and quality of corporate disclosures (Fan and Wong, 2002). If corporate governance disclosures provide value-relevant information, and

analysts use this information while preparing their earnings forecasts, it is predicted to result in more accurate forecasts. Yu (2010) argue that governance disclosures may also help reduce uncertainty amongst analysts as all analysts receive the same set of information. Therefore, it is predicted that corporate governance disclosures are likely to reduce analyst dispersion.

However, with respect to analysts' coverage, Yu (2010) argue that the impact of governance disclosure on analysts' coverage can be through two channels: (a) the demand for analyst services; and (b) the supply of analysts' services. Lang and Lundholdm (1996) also demonstrated this argument as discussed earlier.

To proxy for corporate governance disclosures, they incorporate the transparency and disclosures rankings published by Standard and Poor's for companies globally. The S&P transparency index provides information on the quantity of governance-related disclosures. The corporate governance items in S&P transparency index are classified into three aspects: (1) ownership structure and investor rights; (2) financial transparency and information disclosure; and (3) board and management structures and processes.

Using data on 1,128 firm-specific observations from 36 countries, Yu (2010) finds evidence that the greater the transparency and disclosure score, the more accurate are analysts' forecasts and the lower the forecast dispersion amongst analysts. The results indicate that governance disclosures are useful for financial analysts in preparing their earnings forecasts. The result also show that the greater transparency and disclosure scores attracts more analyst following which indicates that analysts play the role of information intermediaries.

3.3.2 Empirical Evidence On Ownership Structure And Analyst Forecast Properties

This section provides an overview of the empirical studies which focus on the impact of ownership structure and analyst forecast characteristics (Lang et al., 2004, Haw et al., 2010, García-Meca and Sánchez-Ballesta, 2011, Sabherwal and Smith, 2008, Wang and Yu, 2017). There are several kinds of ownership structure arrangements which are documented to impact differently on analyst forecast properties and the decision of analysts to follow firms. Most of these studies focus on the impact of shareholdings by the concentrated shareholder, inside shareholder or outside shareholders, or both, on analyst characteristics.

The link between ownership structure and the ability of analysts to forecast earnings arises from the fact that concentrated control in the hands of the largest shareholder may shape financial reporting and disclosure practice, which then influences analyst forecasts (Haw et al., 2010). This is because analysts' primary source of information upon which they form their projections is the information disclosed by the firm (Haw et al., 2010). Fan and Wong (2002) document that the divergence of control rights and cash-flow rights provides incentives to the concentrated shareholder to expropriate minority shareholders for private benefits. This results in lower credibility of reported information as reported information is manipulated to cover up wealth extraction.

Lang et al. (2004) examine the impact of concentrated ownership and control by the largest shareholder on the incentives of analysts to follow firms. Specifically, their study focuses on family control, where the family is the largest shareholder. In family-controlled firms, the management group, which likely includes family members, makes the operational and financial decisions of a firm. Their involvement may influence the financial reporting practice of listed firms.

As the largest shareholder also has control over the firm, they have an incentive to cover up wealth extraction for private benefits and prefer to remain opaque. Lang et al. (2004) argue that this makes it less attractive and reduces analysts' willingness to follow these firms. One of the reasons for reduced analysts' willingness is high information processing costs. When firms are opaque, this raises the information process costs for analysts as they have to put more effort to acquire more resources to process the opaque disclosure (Park et al., 2017).

Using a sample of 2,094 firms from 27 countries in 1996, they firstly document substantial differences amongst sample firms from English origin countries and non-English origin countries. For instance, the results show that family control is higher in firms from non-English origin countries. Also, a family is often the largest shareholder in firms from non-English origin countries.

They further show family-controlled firms are associated with lower analysts' coverage. The results provide support to their argument that governance issues associated with family-controlled firms for instance expropriation of wealth and manipulation of reported information reduces analysts' willingness to follow these firms. Moreover, taking account of variations in the level of investor protection across countries, they find that the impact is more pronounced in the environment with weak investor protection.

Although large concentrated ownership may result in an entrenchment effect, concentrated ownership by outside shareholders may also provide them with greater incentive to monitor the management (Shleifer and Vishny, 1986). The substantial ownership in the firm may enable the large shareholders to cover the information acquisition costs, as well as perform the monitoring function themselves rather than delegating this task to

financial analysts (Sabherwal and Smith, 2008). However, if the share ownership of each outside shareholder is small, then they are more likely to demand analysts' services. Sabherwal and Smith (2008) argue that the ownership by each outside shareholder is not enough to cover the information acquisition and processing costs. Based on the above arguments, they predict that high ownership concentration by outside shareholders[62] reduces the demand for analyst services and leads to lower analyst coverage for these firms.

With respect to the insider ownership concentration, high insider ownership is associated with following a value-maximizing objective. Hence, outside shareholders' demand for analyst information will decline since it is expected that insiders will not expropriate and will share the interests of shareholders. Examining 3,115 US firms from 1996 until 2001, Sabherwal and Smith (2008) document that an increase in the ownership concentration of both insiders and outsiders reduces analyst coverage of these firms.

Wang and Yu (2017) also examine the impact of insider ownership on analyst forecast properties. Their research takes into account variations in the level of investor protection which exist across countries. Wang and Yu (2017) argue that insiders can affect the information environment through two channels. Firstly, based on the agency issue, concentrated ownership by insiders may influence a firm's disclosure incentives and practices. Concentrated ownership in the firm by insiders can lead to the alignment of interests between inside shareholders and outside shareholder (Jensen and Meckling, 1976), which will likely result in better quality disclosures. However, higher levels of ownership may provide insiders with the opportunity to benefit themselves at the expense of outside shareholders

[62] Including institutions and non-institutions.

because of the low risk of them being removed due to their high ownership in the firm.[63]

The second channel through which insider ownership can influence the information environment depends on the role which analysts have in the capital market, for instance as information intermediaries or as information providers (Lang and Lundholm, 1996). In general, controlling shareholders have the power and incentives to influence a firm's information environment.

Using data on 50,000 firm-year observations on 39 countries from 1990 until 2005, they find an inverted U-shaped relationship between insider ownership and analyst forecast accuracy. With respect to dispersion, they document a U-shaped relationship. Their results suggest that, as insider ownership initially increases, there is an alignment of interest between insiders and outside shareholder which leads to improvement in disclosure quality, resulting in more accurate analyst forecasts and lower dispersion. However, as insider ownership increases beyond 42.9% (37.8%), insiders become entrenched, and they want to withhold information resulting in less (greater) accurate (dispersion) in forecasts.

Taking into account the variations in the level of investor protection, Wang and Yu (2017) document a higher inflection point in insider ownership for firms in countries with stronger investor protection, which include New Zealand, Norway, Switzerland, the U.K and the US. For instance, analysts' forecasts become less accurate when insider ownership level increases beyond 68.9%.[64] Similarly, there is greater dispersion in analysts' forecasts when insider ownership increases beyond 44.4%.[65]

[63] The reference here is made to the entrenchment effect.
[64] For firms in weak investor protection countries, which include Greece, Indonesia, The Philippines, Sri Lanka, Taiwan and Thailand, the inflection point is 43.7%.
[65] For firms in weak investor protection countries, the inflection point is 38.3%.

These results suggest that as expropriation is harder in these countries, insiders require even higher ownership in the firm in order to expropriate for private benefits. They further argue that due to stronger investor protection, the role of insider ownership as an interest alignment and entrenchment mechanism is reduced.[66]

Also adopting the agency perspective, García-Meca and Sánchez-Ballesta (2011) argue that monitoring by different types of owners may help to reduce the agency problem and help to align the incentive between minority and large shareholders (Jensen and Meckling, 1976). Their research focuses on Spain, where firms have highly concentrated ownership structures, and banks play a significant role as both suppliers of capital, and as shareholders of listed firms. Their research examines the impact of the different type of owners, such as bank ownership, insider ownership[67] and the ownership concentration of outsiders on analysts' forecast.

With respect to ownership concentration, García-Meca and Sánchez-Ballesta (2011) argue that substantial ownership in the firm provides the concentrated shareholder with effective control over a firm. This allows him to control the firm's information production and can also influence the reporting policies regarding which information to report and the information to withhold. This ultimately influences the ability of an analyst to accurately forecast future earnings.

However, banks in Spain play a dual role. Apart from acting as suppliers of finance, banks are also seen as active investors in the firm as they have large investments in the firm and want to have the return on their

[66] Based on the smaller magnitude of coefficient on ownership variable for firms in strong investor protection countries, they argue that the role of insider ownership as interest alignment mechanism is reduced for firms in those countries. They further argue that internal governance and investor protection are natural substitutes.
[67] Their insider ownership focuses on director ownership.

investment (Shleifer and Vishny, 1997). In this way, they can be considered as large shareholders. However, empirical evidence is scarce regarding their role in governance (Shleifer and Vishny, 1997). As shareholders, the ownership in the firm provides the incentive to monitor, discipline and influence management decisions to improve the firm disclosures. As suppliers of finance, they have the incentive to monitor the management which helps to reduce management opportunities to manage earnings. García-Meca and Sánchez-Ballesta (2011) argue that the higher the bank ownership, the more accurate will be analysts' forecasts.

Using a sample of 173 firm-year observations on 57 companies from 1999 until 2002, García-Meca and Sánchez-Ballesta (2011) find that an increase in bank ownership in firms leads to an increase in analysts' forecast accuracy. The results suggest that banks play an effective monitoring role by limiting the ability of management to manage earnings and have a positive influence on firm transparency.

Haw et al. (2010) examine the control-cash flow divergence aspect of ownership on the analyst forecast activities. They also examine how this relation varies across environments with different levels of legal institutions. The concentration of control limits the flow of information to outside shareholders. Haw et al. (2010) argue that if control divergence leads to reduced corporate disclosure and poor financial reporting, this will likely lead to low accurate forecast and high forecast dispersion. Using a sample of 7,911 firm-year observations from 9 East Asian and 13 Western European countries from 1990 until 1996, Haw et al. (2010) find that control divergence has an adverse effect on accuracy in countries with weak legal protection only.[68]

[68] Haw et al. (2010) East Asian sample includes Hong Kong, Indonesia, Japan, Korea, Malaysia, Philippines, Singapore, Taiwan and Thailand. Their Western European sample includes Austria, Belgium, Finland, France, Germany, Ireland, Italy, Norway, Portugal, Spain, Sweden, Switzerland and the UK.

3.3.3 Empirical Evidence From China

This section analyses the empirical evidence with a focus on China. Barniv (2009) examines whether analyst effort and expertise in forecasting earnings for Chinese firms differ for shares traded by local investors and shares traded by foreign investors. Until 2001, Chinese stock markets were segregated in terms of share ownership by different parties. Domestic Chinese investors could only trade A-shares, whereas foreign investors could only trade B-shares and H-shares issued by Chinese listed firms. This setting provides a platform to examine whether analysts' effort and expertise differ for different types of share.

Barniv (2009) argues that, as domestic Chinese investors are familiar with the institutional environment and market conditions, they have a lower demand for analysts' information for the A-shares of Chinese listed firms. However, as foreign investors are unfamiliar with the market conditions, they have greater demand for analysts' information for firms which issue foreign shares. Barniv (2009) argues that this increased demand for information by foreign investors creates an incentive for analysts to follow these firms and put in extra effort. The analysts also have a greater incentive to compete in this market as extra effort may benefit analysts in terms of bonuses from brokerage firms, and may also enhance the reputation of analysts.

Barniv (2009) argues that this extra effort and greater expertise will lead to more accurate forecasts for firms issuing foreign shares (B-shares and H-shares) relative to firms issuing A-shares for domestic Chinese investors. To proxy for analyst effort, Barniv (2009) incorporates analyst coverage of Chinese listed firms. To proxy for expertise, Barniv (2009) uses analyst forecast dispersion. Using data on 4,922 annual earnings forecasts for 170 companies from 1991 until 2001, Barniv (2009)

documents higher analyst coverage for H-share firms relative to A-share and B-share firms. Moreover, despite A-share firms being more profitable, larger and with few loss-making firms, the results show greater dispersion amongst analysts for A-share firms. Barniv (2009) also finds that forecast accuracy improves with greater coverage for B-shares and H-share firms. Barniv (2009) also incorporates foreign ownership variable which proxy for foreign investor demand for information. The result shows a significant positive relationship which suggests an improvement in analysts' forecast accuracy for B-share and H-share firms due to the high demand for analysts' information by foreign investors. The results overall support the argument that analyst effort and expertise becomes more important for firms issuing foreign shares relative to firms issuing A-shares only.

Although Barniv (2009) focuses on different types of shares issued by Chinese listed firms, B-shares and H-shares are less dominant relative to A-shares. Also, after 2003, foreign institutional investors were allowed to trade A-shares of Chinese listed firms, which are the most popular type of shares amongst all investors. Given China's segregated capital market structure, not all A-shares were traded in the stock market. A substantial proportion (two-thirds) of A-shares were non-tradable and were mainly held by the state (Tong et al., 2013). The unique Chinese institutional features have now been the focus of recent studies by Haß et al. (2014) and Huang and Wright (2015) who investigate the impact of corporate governance mechanisms on the information environment of Chinese listed firms.

Haß et al. (2014) argue that the special characteristics of China's institutional environment for instance high state-ownership, the existence of the two-tiered board structure, and non-tradability of shares, exacerbates agency problems in Chinese listed firms. Moreover, the presence of weak corporate governance mechanisms, such as legal infrastructure, and the absence of monitoring by market participants,

along with the influence of the state on the financial reporting of Chinese listed firms further weakens China's information environment.

Given China's special institutional environment, they examine the relationship between a firm's corporate governance and the information environment, measured by analyst activities. Their argument is based on Yu (2010) that better corporate governance improves the quality of information disclosures, which then leads to an improvement in the information environment. Corporate governance mechanisms exist to protect investors from expropriation by insiders or other large shareholders (Shleifer and Vishny, 1997).

Haß et al. (2014) predict that better-governed firms will have greater analyst coverage, more informative analysts' forecasts and lower forecast dispersion. To investigate the relationship between corporate governance and the information environment, they construct a firm-level corporate governance index, which comprises several corporate governance mechanisms such as independent directors, board size, CEO duality, top 10 relation, Big 4, management share ownership and foreign share ownership. The higher the total corporate governance index score, the better is the firm-level corporate governance.

Using data on 12,649 firm-year observation from 2003 until 2011, they find evidence that better-governed firms have more analyst coverage, more accurate analysts' forecasts and lower forecast dispersion amongst analysts. They further document a negative association between state ownership and analyst coverage.[69] Moreover, they also document a positive association between non-tradable share ownership and analyst coverage. This result is surprising since a substantial portion of non-tradable shares in Chinese listed firms were state shares (Liu and Tian, 2012). However, in their sample firms, the correlation between non-

[69] State ownership in Chinese listed firms is through non-tradable shares.

tradable shares and state shares is 0.44. Overall, the result suggests that better-governed firms have higher transparency level and a better information environment. Moreover, Barniv (2009) and Haß et al. (2014) find a positive association between foreign ownership[70] and analyst forecast accuracy.

Huang and Wright (2015) adopt the agency perspective and examine the impact of ownership structure on analysts' earnings forecast of Chinese listed firms. They argue that substantial state ownership in Chinese listed firms through non-tradable shares may also influence analysts' forecasting behaviour. If analysts' future prospects are influenced by the state and party networks, and if the target firm has a high proportion of state ownership, the analyst may generate upwardly biased forecasts. Therefore, analysts in China operate in an environment where the analysts forecasting behaviour is likely to be adversely affected by the economic incentives which are available to them. Huang and Wright (2015) predict that the state ownership in a firm is associated with upward bias and less accurate analysts' forecasts.

Huang and Wright (2015) also argue that more tradable share ownership, as well as tradable share ownership concentration, will likely lead to less biased and more accurate analysts' forecasts. This is based on the monitoring role of large shareholders to ensure the minority shareholder is protected from expropriation (Shleifer and Vishny, 1986, Shleifer and Vishny, 1997). Large concentration ownership further provides access to inside information, and large owners can acquire information at a low cost to monitor the management (Shleifer and Vishny, 1986, Shleifer and Vishny, 1997).

[70] They, however, do not specify how they measure foreign ownership. It is predicted that they refer to QFII because they have excluded B-shares and H-shares from their sample.

Using data on 1,298 firms from the year 2004 until 2011, Huang and Wright (2015) do not find any improvement in analyst forecast accuracy. Regarding the impact of the state ownership, they find that the state ownership in Chinese listed firms is adversely associated with analysts forecast accuracy and there is greater uncertainty amongst analysts, proxied by high forecast dispersion. The result provides strong evidence which supports their argument that state ownership is associated with more optimistic analyst forecasts.

The results on the impact of other ownership variables show that tradable share ownership, tradable share ownership concentration and institutional shareholdings improve analysts' forecast accuracy. The results overall show that greater tradable share ownership leads to better quality of information disclosure, which results in more accurate analysts' forecasts.

Jensen and Meckling (1976) propose a long-term incentive contract as a mechanism to align the interest of insiders with those of outsiders. This will induce the manager to act in the interest of the shareholders. Incentives can take various forms such as share ownership, stock options, the threat of dismissal (Shleifer and Vishny, 1997). Huang and Boateng (2016) and Liu (2017) examine whether this incentive alignment perspective works in the Chinese listed firms' context. Huang and Boateng (2016) examine the impact of executive ownership[71], the board of directors and supervisors' ownership, as well as the effect of compensation, on analysts' forecasting properties (forecast errors and dispersion). Although insider ownership is very low in China, the leadership style is very different from the Western countries with executive management having substantial power.

[71] Executive ownership include ownership by general manager, vice-president, president and CEO. In their study, they include the top 3 executive shareholdings.

The leadership style is different in the following ways: (a) the appointment of the board chairman and the CEO of SOE is carried out by SASAC. These CEOs are ex-government officials, and their primary objective is to get promoted to higher ranks within the government (Conyon and He, 2011, Wong, 2016). Their promotion is less associated with firm performance, and mostly related to fulfilling political objectives (Chen et al., 2009, Wong, 2016); (b) China has a two-tier board structure, which includes a main board of directors and a supervisory board. Firms are also required by the CSRC to have independent directors, which comprise one-third of the board. However, the appointment of board and supervisory board is done by the state (Conyon and He, 2011); and (c) the manager of SOE is a government official who is appointed by the state, who will later return to their government posts after the end of their term as firm managers. These government appointed senior executive (politicians and bureaucrats) have management control over the firms (Wong, 2016).

Huang and Boateng (2016) argue that insider ownership may help to align the interests of the managers with those of outside shareholders and improve information quality. The alignment effect will enable managers to take actions to strengthen disclosure quality, i.e. additional disclosures and greater credibility of information. Better governance increases the quality of reported information which makes it easier for analysts to predict earnings.

Using data on 4,257 firm-year observations from 2007 until 2012, Huang and Boateng (2016) do not find any significant impact of executive shareholdings and shareholdings by the board of directors and supervisors on analysts forecast errors and dispersion. The result, therefore, indicates that the strategy to offer shares to insiders to help align interests is not effective in the Chinese context. However, the results do show that, given high insider ownership, cash compensation for these insiders further weakens the information environment, as measured by high forecast

errors and dispersion. Cash compensation further exacerbates the information environment as it facilitates expropriation and adversely affects information disclosure. One of the reasons which they highlight is because compensation is based on short-term performance measures. Hence, insiders are more likely to manipulate the reported information which leads to an increase in forecast errors and dispersion.

Liu (2017) examines the equity incentive plans which were designed by the government to specifically align the interests of the managers with those of outside shareholders.[72] As corporate disclosures are the key source of analysts' information to predict earnings, corporate transparency is likely to be reflected in the analysts' output such as earnings forecasts. Liu (2017) predicts that the greater the managerial ownership in the firm, the more accurate will be the analysts' forecast.

With respect to the equity incentive plan, Liu (2017) mainly focuses on stock options and restricted stock units. Using data on 558 firm-year observations from 2008 until 2014, Liu (2017) finds that equity incentive plans are significant in aligning the interest of the principal with those of the agent in China. The study also shows that the use of restricted stock options is more effective towards aligning the interest of managers with those of outside shareholders. Interestingly, the results also show that state ownership leads to more accurate forecasts, which indicates that the state is working towards improving the information environment.

[72] The reference made here relates to the circular issued by the CSRC in 2005 on *the Measures Governing Equity Incentive Plans of Listed Companies.*

3.4 Review Of The Literature On Share Price Synchronicity

When there is no information about the firm in the market, investors are only left with market-wide information, and they trade the stock following the market. Then when the market goes up, the stock price goes up and vice versa. In such a scenario, the stock price will be very closely related to the market movement because no other firm-specific information is there in the market; there is only the market information. This is known as stock price synchronicity.

3.4.1 Empirical Evidence From Developed And Emerging Economies

A seminal paper by Roll (1988) explores whether stock price movements can be explained by macro-economic events, industry influences and firm-specific news events. These are called explanatory factors which are predicted to explain the stock price movements and form the basis of the asset pricing theory. Using data on US firms, Roll (1988) documents that only 35% of stock return variation can be explained after taking account of economic and industry factors. Moreover, he also finds that there is hardly any difference in R^2 between all observations including firm-specific news and no-news period.[73] This suggests that there is some degree of private information.

A cross-country study by Morck et al. (2000) reveals that the amount of information incorporated into stock prices varies across developed and emerging economies.[74] Using data for 1995, Morck et al. (2000) show that synchronicity is higher for firms in emerging markets while it is lower for firms in developed economies.[75] Morck et al. (2000) further argue that this negative relation between synchronicity and institutional development is predicted to be associated with low-income economies having poor protection of private property rights. To measure investor protection, they construct a "good government

[73] Slightly higher R^2 for the no news period.
[74] A summary of key papers discussed in this section is provided in Appendix B Table B4 and B5.
[75] To measure the economic development of countries, they incorporate GDP per capita.

index", which is a combination of three indices adopted from La Porta et al. (1988): (i) government corruption; (ii) risk of expropriation of private property by the government; and (iii) risk of the government repudiating contracts.

Using data on 15,920 firms from 40 countries for 1995, they find evidence that the negative relationship between synchronicity and institutional development is associated with the level of investor protection. Their results suggest that better protection of property rights promotes informed trading which helps to incorporate more firm-specific information into stock prices, shifting stock prices closer to their fundamental values.

Morck et al. (2000) highlight two factors which can have an impact on the share price movements given the level of protection of property rights. The first factor is the influence of political factors or political events on asset values which could cause high levels of share price synchronicity. The impact of political factors can be either through political connections or through certain policies such as licensing requirements, nationalization etc. (Morck et al., 2000). The second factor is the level of informed risk arbitrage. They argue that weak property rights discourage informed risk arbitrage and create room for noise trading. For instance, economic fundamentals are opaque due to political factors in low-income economies which makes it less economically attractive for risk arbitrageurs.[76] Also, forecasting political events is hard given the opaque nature of the government. If noise trading dominates the market, share prices in such markets will be highly synchronous (Morck et al., 2000). According to Black (1986), noise trading is trading which is not based on fundamental analysis, which involves analysis of firms' financial statements and the economy. It is trading on noise as if it were information (Black, 1986). This type of trading is based on poor sources of information such as observing market movements and

[76] Risk arbitrageurs direct resources to uncover proprietary information about stocks and their trades help to incorporate firm-specific information into stock prices (Morck et al., 2000).

unreliable news.[77] This explains the relatively low levels of synchronicity in developed economies.

When stock prices are far from fundamentals, they are mispriced and capital may be allocated poorly which adversely affects economic growth (Morck et al., 2000, Stowe and Xing, 2011). Stocks can be mispriced if investors do not have firm-specific information or there isn't any firm-specific information in the market (Stowe and Xing, 2011). When investors have less information about the firm, they can only observe market-wide information, and they trade the stock based on that information. This market-wide information is common across all firms. This lack of firm-specific information is termed 'opaqueness' (Jin and Myers, 2006).

Overall, studies by Morck et al. (2000) and Jin and Myers (2006) show that stock price movement in emerging markets is mainly driven by noise trading and share prices are highly synchronous to stock market movement. Such considerations shift our focus to how transparency is determined in countries. Bushman et al. (2004) examine whether differences in legal and political environments across countries determine corporate transparency. They further categorize corporate transparency into financial transparency and governance transparency.[78] Using data on 46 countries, they document that financial transparency is greater in countries with a better economic environment, such as higher GNP. They also find that state ownership is associated with less information disclosure and, consequently, less firm-specific information in the market. They find that governance transparency is more associated with the legal regime whereas financial transparency is more associated with the political regime.

[77] https://www.investopedia.com/university/introduction-stock-trader-types/noise-traders.asp
[78] Financial transparency captures the intensity and the timeliness of financial disclosures. It also includes the interpretation of financial disclosure and dissemination by analysts and the media. Governance transparency captures the intensity of governance disclosure, which includes the identity and remuneration of shareholdings of officers and directors. It also includes the identity and holdings of other major shareholders (Bushman et al., 2004).

Therefore, when the environment is opaque and investors only have market-wide information, stock prices are far from fundamentals and the stock market may allocate resources poorly. If stock prices are uninformative, then they cannot provide signals regarding investment opportunities (Durnev et al., 2003). Share price synchronicity therefore adversely affects the efficient allocation of resources. Efficient allocation of resources may be described as available investment going to growing industries and being withdrawn from declining industries (Wurgler, 2000).

Wurgler (2000) explores three factors which are likely to have an impact on the allocation of capital to more productive uses: (1) firm-specific information (2) state ownership and (3) investor protection. He documents efficient allocation of capital in countries with better protection of minority shareholders and in markets which reflect more firm-specific information. Further, as the primary goal of state-owned firms is to fulfil political objectives, the results confirm that state ownership reduces the efficient allocation of resources.

There is substantial evidence in the literature on the impact of ownership structure on stock price synchronicity (Piotroski and Roulstone, 2004, Brockman and Yan, 2009, Gul et al., 2010, Ben-Nasr and Cosset, 2014, Boubaker et al., 2014). Ownership by a large shareholder can result in either alignment of interests with minority shareholders or expropriation of minority shareholders. For instance, given substantial ownership in the firm, a large shareholder has a greater incentive to collect information and monitor the management (Shleifer and Vishny, 1986). The large shareholder also has voting power and may pressure the management to pursue value-enhancing activities (Shleifer and Vishny, 1997, Fan and Wong, 2002).

However, it can also be that the interest of large shareholder may not align with those of minority shareholders, or with the interest of managers. Large shareholders can direct the resource allocation to maximize their own benefit at the expense of minority shareholders. This type of agency problem occurs mostly

in countries where ownership structure is concentrated in the hands of one or a small group of investors and is mainly found in countries outside the US and the UK (Fan and Wong, 2002).

The agency problem is further aggregated through ownership structure arrangements such as pyramid structures and cross-holdings which allow the large shareholder to have greater control over the firm while having a low equity investment (Shleifer and Vishny, 1997). When there is a divergence between control and cash flow ownership, the controlling owner only bears a fraction of the cost if he extracts wealth from the firm (Fan and Wong, 2002). When the largest shareholder has effective control over the firm, he also has control over the financial reporting (Fan and Wong, 2002).

The logic here is that controlling shareholders expropriating wealth from the firm wish to hide their expropriation and avoid close monitoring by outside shareholders. These controlling shareholders have greater incentives to manipulate the accounting information and withhold value-relevant information. The controlling shareholders can achieve this as they have control over the financial reporting policies. This reduces the credibility of reported earnings, and the stock prices become less informative (Fan and Wong, 2002).

Studies by Brockman and Yan (2009) and Boubaker et al. (2014) provide evidence of the impact of ownership concentration for US firms and French listed firms respectively. These studies show that the impact of ownership structure on share price synchronicity varies across countries based on the ownership arrangements, as well as the institutional environment in these countries.

Examining the impact of concentrated ownership on share price synchronicity for firms in the US, Brockman and Yan (2009) argue that the information advantage which is available to concentrated shareholders over diffuse shareholders will likely be reflected in the trading activities of these concentrated shareholders, with more incorporation of firm-specific information

into stock prices. Concentrated shareholders, with their greater ownership in the firm, have access to more firm-specific information at lower cost than dispersed shareholders. Concentrated shareholders have the knowledge, expertise and resources to conduct arbitrage operations and their trading activities will, therefore, impound stock prices with more firm-specific information. Their study focuses on inside ownership concentration (employee stock ownership, managers and directors), as well as outside ownership concentration.

Using data for firms listed on NYSE and AMEX from 1996 until 2001, Brockman and Yan (2009) document that ownership concentration by the insider and outside shareholders helps to incorporate more firm-specific information into stock prices. Outside shareholders incorporate more firm-specific information relative to insiders. Overall, their study shows that ownership structure does have an impact on the information environment through incorporating firm-specific information into stock prices.

Boubaker et al. (2014) examine the impact of ownership concentration on share price synchronicity for French listed firms. In particular, their study investigates the impact of the divergence between the control and cash flow rights, and the impact of large shareholder ownership, on stock price synchronicity. French listed firms are characterized as having a highly concentrated ownership structure, mainly through pyramidal ownership and cross-holdings. In most cases, the largest shareholder is typically a family who has control rights in excess of cash flow ownership (Boubaker and Labégorre, 2008).

Boubaker et al. (2014) argue that the existence of dual-class shares and pyramid ownership structures allows the controlling shareholder (largest shareholder) to have greater control in the firm, which often exceeds their cash flow ownership. This provides the controlling shareholder with control over the firm, as well as the incentive to expropriate the wealth of the firm to benefit himself at the expense of outside shareholders. When the divergence between the control rights and the cash flow rights is large, low-quality financial information is

disseminated, and less accurate firm-specific information is available to investors.

Overall, the separation of control and cash flow rights lowers financial reporting quality and increases information asymmetry between the large shareholder and the minority shareholders. Boubaker et al. (2014) predict that the stock prices of firms with larger separation of control and cash flow rights will incorporate less firm-specific information and will be more synchronous with the market.

However, greater ownership in the firm by the largest shareholder may also result in an alignment of incentives between the largest shareholder and the minority shareholders (Shleifer and Vishny, 1986). High ownership in the firm also provides easy access to information that encourages informed trading (Piotroski and Roulstone, 2004). Boubaker et al. (2014), therefore, predict that large ownership increases the firm-specific information disclosure by the controlling shareholder, which reduces share price synchronicity.

Using data on 4,561 firm-year observations from 1998 until 2007, Boubaker et al. (2014) first document that the greater the divergence between control and cash flow rights, the higher is the share price synchronicity. This result suggests that excess control limits the flow of firm-specific information into stock prices and, therefore, stock prices co-move strongly with the market and industry. Controlling shareholders, with excess control, have incentives to limit the flow of firm-specific information to cover up their expropriation and to avoid unwanted scrutiny.

They also find evidence that high ownership in the firm by the controlling shareholders results in more firm-specific information being incorporated into stock prices. The results suggest that greater ownership by controlling shareholder improves the information environment.

Focusing on the US firms, An and Zhang (2013) examine the impact of institutional ownership on share price synchronicity. Their argument centres around the monitoring perspective to reduce agency problems (Shliefer and Vishny, 1986). They argue that the monitoring by institutional investors will differ based on their ownership in the firm and their objectives. Institutional investors with large ownership in the firm and who have long-term investment objective have a greater incentive to monitor the management. These are classified as dedicated investors. Monitoring by dedicated institutional investors reduces the ability of managers to extract firm resources for private benefit. This is predicted to lead to a lower R^2. In econometrics, a lower R-square from the regression model indicates a "worse" model however here a lower R-square reflects that more of the variation in stock price is firm-specific or there is more firm-specific information incorporated into the stock price (Morck et al., 2013). However, there are also institutions which have smaller ownership in the firm and have short-term investment horizons. These are classified as transient investors. Transient institutional investors have lower monitoring incentives that may allow greater extraction of firm resources by managers.

Using data on 79,932 firm-year observations from all Compustat firms incorporated in the US from 1987 until 2010, An and Zhang (2013) show that dedicated institutional investor ownership is associated with the incorporation of more firm-specific information into share prices of these firms. The result indicates that monitoring by dedicated institutions helps to limit the extraction of firm resources by the management and leads to greater information disclosures. They also find that transient institutional ownership is positively associated with share price synchronicity. This result supports their argument that, as transient institutions have lower incentives to monitor, the managers extract firm resources to benefit themselves, with firms being more opaque.

State ownership is not necessarily consistent with the efficient management of firms. Although, in theory, state firms are controlled by the public, the control rights belong to the bureaucrats (Shleifer and Vishny, 1997). These bureaucrats

retain significant control rights but no cash flow ownership. Their main responsibility is to fulfil political objectives (Shleifer and Vishny, 1997). Ben-Nasr and Cosset (2014) investigate the impact of state ownership on share price synchronicity. They argue that, as the government has political objectives, it may direct firm resources to achieve such goals. To cover up the expropriation of resources, bureaucrats in state-owned enterprises have more incentive to manipulate earnings and disclose selected information. This increases information acquisition costs and discourages informed trading, which leads to a less transparent information environment.

Ben-Nasr and Cosset (2014) also look at how different political institutional arrangements impact the relationship between state ownership and stock price informativeness. They argue that political institutions are important in how they shape the government's incentives towards corporate transparency. They predict that in regions with weak political constraints such as a weak judiciary, the government may have greater incentives to expropriate corporate resources, leading to lower transparency and less firm-specific information is incorporated into stock prices.

Using data on 41 countries during the period 1980 until 2012, Ben-Nasr and Cosset (2014) document that state ownership is associated with lower corporate transparency and that less firm-specific information is available in the market for state-owned firms. They also document that, state-controlled firms in places where government accountability is lower, such as in countries with weak political constraints, have less firm-specific information incorporated into stock prices. The result indicates that the state-controlled firms have even more incentives to expropriate and to manipulate accounting information.

3.4.2 Empirical evidence from China

Gul et al. (2010) examine the impact of corporate governance mechanisms such as ownership concentration, government ownership, foreign ownership, and audit quality, on share price synchronicity. They argue that ownership concentration by the controlling shareholder can either result in an entrenchment effect or an alignment effect. These can have varying impact on the amount of firm-specific information incorporated into stock prices. They argue that the entrenchment effect will dominate the alignment effect because, in China, large controlling shareholders have control over disclosure policies and have more involvement in the management operations. Therefore, a large controlling shareholder will use their ownership position to benefit themselves. For instance, controlling shareholders use intercorporate loans from Chinese listed companies under their control to benefit themselves (Jiang et al., 2010a). Moreover, as the largest shareholder is mostly the state, Gul et al. (2010) predict the expropriation by the state will lead to less firm-specific information disclosure and higher synchronicity.

However, as there are Chinese listed firms which are also cross-listed on the Hong Kong stock exchange, these firms are subject to strong institution level investor protection, greater disclosure requirements and stricter legal and regulatory enforcement than other firms such as A-share only and A +B share firms. Gul et al. (2010) predict that more firm-specific information will be incorporated into stock prices of A+H firms relative to A+B firms.

Using data on 6,120 firm-year observations from 1996 until 2003, they firstly find that synchronicity is increasing as ownership concentration increases up to 40-50%. However, ownership concentration of more than 50% leads to a reduction in synchronicity. Secondly, they find that when the state is the largest shareholder, it has fewer incentives to disclose value-relevant information. Hence the amount of firm-specific information incorporated in the stock price is lower, which increases the information asymmetry. Their research, however,

covers the time period when demand for information was low due to non-tradability of shares, and there was high state control in listed firms. They do find evidence of lower synchronicity with foreign ownership through B-shares and H-shares, and high audit quality in Chinese listed firms.

Focusing on a more recent sample period, Hou et al. (2012) examine the impact of the split share structure reform on the incorporation of firm-specific information into stock prices of Chinese listed firms. They argue that, before the split share structure reform, the state could not sell their shares to benefit from capital gains and therefore, had greater incentives to force the payment of cash dividends. Also, as the share price movement in the capital market did not have any effect on the restricted shares held by the state, state shareholders had little incentive to maximize firm value and attached greater importance to fulfil political goals.

Hou et al. (2012) argue that, as state shares became more sensitive to share price movements after the split share structure reform, the share reform will help align the interest of state shareholders with minority shareholders to maximize firm value and benefit from capital gains. They predict that the incentive to expropriate resources and to conceal information will reduce and so more firm-specific information will be incorporated into stock prices.

Using a sample of 9,871 firm-year observations from 2001 until 2008, Hou et al. (2012) document that, prior to the share reform, high state ownership in firms is associated with less firm-specific information incorporation into stock prices. This suggests that these firms had a poor information environment prior to the share reform. Secondly, they find that after the share reform, higher state ownership incorporates more firm-specific information into stock prices. Their results, therefore, indicate that the share reform led to an improvement in corporate transparency in Chinese listed firms through the alignment of interest between state shareholders and minority shareholders.

Although state ownership in Chinese listed firms has been more prominent, ownership by institutional investors, though with smaller ownership stakes, are also found to have an impact on share price synchronicity. Ding et al. (2013) examine the impact of mutual fund ownership on the amount of firm-specific information incorporated into stock price. They argue that mutual fund ownership in Chinese listed firms can have a beneficial impact on the information environment through two channels. The first is through the monitoring role. Mutual funds, with their large ownership in the firm, may pressure the management to disclose high-quality information. This is predicted to reduce the information asymmetry between the firm and the market participants. Secondly, the large ownership in the firm, relative to individual investors, provides mutual funds with greater incentives and access to information, for instance through direct communication with the management. This information can be incorporated into stock prices through their trading activities.

Ding et al. (2013) also argue that the impact of mutual fund ownership is predicted to be limited in the presence of high state ownership in the firm. This is because the state is more interested in pursuing political objectives than in maximizing the firm value. Their capital allocation is heavily influenced by political objectives and they have incentives to cover up the wealth extraction (Wurgler, 2000). Using data on 6,104 firm-year observations from 2003 until 2008, Ding et al. (2013) find evidence that high mutual fund ownership leads to more firm-specific information incorporation in the stock prices. This suggests higher transparency associated with mutual fund ownership.[79] However, they also find evidence that the impact of mutual fund ownership is moderated in firms with higher state ownership, as well in state-controlled firms.

While Ding et al. (2013) only focus on the impact of domestic mutual funds, Li et al. (2015) investigate the type of information incorporated into stock prices of

[79] They, however, do not specify which channel plays an important role towards this improvement i.e the monitoring role or mutual fund trading activities.

cross-listed Chinese firms by domestic institutional investors and foreign institutional investors. They argue that both parties differ in terms of the information advantage they possess. For instance, while domestic institutional investors have the advantage of familiarity with the Chinese institutional environment, for instance, the market players, as well as relationship contacts with the management in some cases, foreign institutional investors have the skills to collect, analyze information and incorporate that information into share prices through their trading activities. Li et al. (2015) examine the ability of domestic vs foreign institutional investors to impound firm-specific information into market prices during the time period when foreign institutional investors were allowed to trade the A-shares of Chinese listed firms. Using data on 60 cross-listed Chinese firms on Hong Kong stock exchange during the period from 2005 until 2010, they show that QFII helps to incorporate more firm-specific information into A-share prices of Chinese cross-listed firms. They also find evidence that increased ownership by Qualified Domestic Institutional Investors (QDII) is associated with more firm-specific information being incorporated into stock prices.[80]

However, in an environment where controlling shareholders have control over the financial reporting, it becomes difficult to obtain information when the firm is opaque due to the controlling shareholders' incentive to expropriate firm resources. When firm disclosures are already limited, along with low environmental transparency, there is a greater demand for information by investors for information produced by market intermediaries such as analysts. Feng et al. (2016) argue that a higher level of corporate opacity to conceal expropriation by controlling shareholder may hinder analysts in the collection and analysis of firm-specific information. It is, therefore, predicted that analyst coverage will likely incorporate more market-wide information into stock prices relative to firm-specific information.

[80] QDII are domestic Chinese investors.

Using data on 11,913 firm-year observations from 2005 until 2012, they first document that analyst coverage of firms incorporates more market-wide information into stock prices. Secondly, they document that the greater the divergence between control and cash flow rights, the more opaque the firms are and is less firm-specific information is incorporated into the stock price for these firms.

Although the above studies on China already show that firm disclosures are already reflected in stock returns, which is captured by the R^2, Cheng et al. (2014) further investigate whether information disclosure is indeed incorporated into stock prices by examining changes in the R^2. They argue that in China as disclosure by firms is already limited, then new information disclosure will likely cause a large reduction in synchronicity. In particular, they look at the disclosure of annual earnings and the announcement by firms of ST status.[81]

Using data from 2001 until 2006 for all Chinese listed firms on the Shanghai and the Shenzhen stock exchange, they find that a large change in earnings leads to a bigger decrease in synchronicity after the earnings announcement by the firm. This is consistent with their prediction that information disclosure leads to a decrease in synchronicity and that the R^2 does indeed capture the firm-specific information.

[81] Firms receive ST status due to poor performance such as if the firm has two years of consecutive losses (Cheng et al., 2014).

3.5 Review Of The Literature On Value Relevance studies

This section provides the review of the value relevance literature. Section 3.5.1 provides the details on Ohlson (1995) valuation model. Next, this study provides a discussion on empirical studies on the value relevance of financial disclosures.

3.5.1 Ohlson (1995) valuation model

Ohlson (1995) shows how market value is related to accounting numbers and other information. His model basically replaces dividends with clean surplus relation i.e earnings and book value when deriving firm value.

The Ohlson (1995) model rests on three assumptions:

Assumption 1: The present value of expected dividends is equal to the market value of the firm:

$$P_t = \sum_{\tau=1}^{\infty} \frac{E_t(D_{t+\tau})}{(1+r)^{\tau}} \tag{A1}$$

where

P_t = the market value or price of the firm's equity at date t
D_t = net dividends paid at date t
r = the cost of capital
E_t = expected value

Assumption 2: The clean surplus relation, which requires that the change in book value equals to earnings minus dividends.

$$y_t - y_{t-1} = x_t - d_t \tag{A2}$$

where

y_{t-1} = the opening book value
y_t = the ending book value at date t
d_t = the dividend paid at date t
x_t = the earnings for the period (t-1, t)

Ohlson (1995) shows that using the clean surplus relation, one can represent the value of the firm in terms of expected earnings and book value instead of expected dividends in the present value of expected dividend formulae.

Assumption 3: The time series behaviour of abnormal earnings follows a particular forecasting structure, as detailed below:

$$\tilde{x}^a_{\tau+1} = wx^a_t + v_t + \tilde{\varepsilon}_{1\,t+1} \tag{A3}$$

where

x^a_t = abnormal earnings at date t
w = persistence parameter of residual income from one period to the next ($0< w < 1$)
v_t = other information at date t

Abnormal earnings, x^a_t, is defined as a charge for the use of capital, whereas normal earnings relate to the normal return on the capital invested at the beginning of the period (Ohlson, 1995):

$$x^a_t = x_t - (r)y_{t-1}$$

where

x^a_t = abnormal earnings at date t
x_t = the earnings for the period (t-1, t)
y_{t-1} = the opening book value
r = the cost of capital

Ohlson (1995) adds linear information dynamics to the residual income model to arrive at the firm value, expressed in terms of accounting numbers. This expression can further be written as:

$$x_t = x_t^a + (r)y_{t-1} \tag{3.1}$$

Substitute equation (3.1) in the clean surplus equation (A2), we obtain the following expression:

$$d_t = y_{t-1} - y_t + x_t^a + r.y_{t-1}$$

$$d_t = x_t^a - y_t + (r+1)y_{t-1} \tag{3.2}$$

where

x_t^a = abnormal earnings at date t
y_{t-1} = the opening book value
r = the cost of capital
d_t = the dividend paid at date t

Given the above three assumptions, the firm value is therefore expressed as the book value and the present value of expected abnormal earnings (future profitability) (Ohlson, 1995). This implies that as firm value can be deduced by forecasting future abnormal earnings, then the focus should be on predicting abnormal earnings rather than dividends:

$$P_t = y_t + \sum_{\tau=1}^{\infty} \frac{E_t(x_{t+\tau}^a)}{(1+r)^\tau} \tag{3.3}$$

where

P_t = the market value or price of the firm's equity at date t
y_t = the ending book value at date t
r = the cost of capital
$E_t(x_{t+\tau}^a)$ = expected abnormal earnings

Ohlson (1995) argues that dividends have effect on the future earnings, as well as current book value. So basically, future earnings depend on current book value. Also, an increase in dividends reduces the next period earnings.

He further states the time series of abnormal earnings, Assumption 3, depends on two variables:

1. x_t^a
2. v_t

v_t is known as "other information" which accounts for all non-accounting information used to make prediction of future abnormal earnings. It captures all value relevant events that are yet to have an impact on the accounting numbers.

$$v_{t+1} = +\gamma v_t + \tilde{\varepsilon}_{2t+1} \tag{3.4}$$

where

v_{t+1} = following period's "other information"
v_t = "other information" at date t
γ = persistence parameters ($0< w<1$)

The above equation (3.4) shows that the prediction of next period's "other information" is independent of current and past abnormal earnings and mainly depends upon v_t (Ohlson, 1995).

Ohlson (1995) further shows that forecasting next period earnings does not require the forecasting of dividends. However, earnings prediction becomes a problem when the forecast is for the period beyond the next one. For instance, when $\tau \geq 2$, the model cannot predict the earnings for the period $\tau \geq 2$. This is because prediction of earnings for the period $\tau \geq 2$ requires prediction of book value, $t+1$, which in turn depends on the prediction of d_{t+1}.

Given the assumptions above, the linearity of the forecasting system implies linearity of the value system (Ohlson, 1995):

$$P_t = y_t + \alpha_1 x_t^a + \alpha_2 v_t \tag{3.5}$$

where

P_t = the market value or price of the firm's equity at date t
y_t = the ending book value at date t
x_t^a = abnormal earnings at date t
v_t = "other information" at date t

So the above equation (3.5) shows that the market value is equal to the book value adjusted form (i) current profitability measured by abnormal earnings, (ii) other information. α_1 and α_2 are valuation coefficients, which can be further written as:

$$\alpha_1 = \frac{\omega}{(1 + r - \omega)} \tag{3.6}$$

$$\alpha_2 = \frac{(1 + r)}{(1 + r - w)(1 + r - \gamma)} \tag{3.7}$$

where

ω = persistence parameter of residual income from one period to the next ($0< w < 1$)
r = the cost of capital
γ = persistence parameters ($0< w < 1$)

Given α_1 and α_2, the equation (3.5) can also be written as follows:

$$P_t = y_t + \frac{\omega}{(1 + r - \omega)} x_t^a + \frac{(1 + r)}{(1 + r - w)(1 + r - \gamma)} v_t \tag{3.8}$$

where

P_t = the market value or price of the firm's equity at date t
y_t = the ending book value at date t
ω = persistence parameter of residual income from one period to the next ($0< w < 1$)
r = the cost of capital
γ = persistence parameters ($0< w < 1$)
v_t = "other information" at date t
x_t^a = abnormal earnings at date t

where ω is the growth rate or persistent parameter and v_t is "other information". The persistent parameter, ω, depends upon certain firm characteristics such as management ability, innovation and also the environment in which the firm operates (Zhang, 2014). Zhang (2014) further explain that why ω cannot be equal to 1. It is because if the firm is successful, then its competitors will try to copy it and take away its share from the market. This will eliminate the persistence and

its ability to earn residual income will go down by time. Hence, economic rent cannot get bigger and bigger, it can only get smaller and smaller (Zhang, 2014). However, if abnormal earnings have zero persistence, ω=0, this will indicate that $E_t[\tilde{x}^a_{t+\tau}]$ is independent of x^a_t and therefore firm value cannot depend on x^a_t (Ohlson, 1995).

Ohlson (1995) further presents his model in terms of earnings and book value as the primary value indicators. Given the definition of residual income and the clean surplus assumption, Ohlson (1995) further transforms the above firm value equation as:

$$P_t = k(\varphi x_t - d_t) + (1-k)y_t + \frac{(1+r)}{(1+r-w)(1+r-\gamma)} v_t \qquad (3.9)$$

where

P_t = the market value or price of the firm's equity at date t
y_t = the ending book value at date t
ω = persistence parameter of residual income from one period to the next ($0< w < 1$)
r = the cost of capital
γ = persistence parameters ($0< w < 1$)
v_t = "other information" at date t
k = a weighting factor such that when $0 \leq \omega \leq 1$, k is $0 \leq k \leq 1$
= $\frac{(r\omega)}{(1+r-w)}$
φ = earnings capitalization factor
= $\frac{(1+r)}{(r)}$

The above equation (3.9) shows that to calculate firm value requires both, balance sheet and income statement (Zhang, 2014).

Given the following assumption $v_t \equiv 0$, Ohlson (1995) specifies two scenarios:

Firstly, when $\omega = k = 1$, we substitute these values in equation (3.9) and we arrive at the following firm value:

$$P_t = (\varphi x_t - d_t) \tag{3.10}$$

$$E_t[x_{t+1}] = \omega x_t^a + (r)(y_{t-1} + x_t - d_t) \tag{3.11}$$

where

$E_t[x_{t+1}]$ = expected next period earnings
ω = persistence parameter of residual income from one period to the next ($0< w < 1$)
x_t^a = abnormal earnings at date t
y_{t-1} = the opening book value
x_t = the earnings for the period (t-1,t)
d_t = the dividend paid at date t
r = the cost of capital

In the first case, earnings and dividends are sufficient to determine the firm value, as well as next period earnings. In this case, only income statement items are important to determine firm value.

Secondly, when abnormal earnings have zero persistence, $\omega = k = 0$:

$$P_t = y_t \tag{3.12}$$

$$\tilde{x}_{t+1} = r y_t + \tilde{\varepsilon}_{1t+1} \tag{3.13}$$

where

$\tilde{x}_{t+1}$ = the next period earnings
r = the cost of capital
y_t = the ending book value at date t

The second scenario suggests that book value can predict next period earnings, as well as being equal to the firm value. In this scenario, only the balance sheet is important to determine the firm value.

The Ohlson (1995) model is frequently used in value relevance studies in a modified form (Barth et al., 2001). The model expresses firm value as a linear

function of book value of equity and the present value of expected future abnormal earnings. In many studies, accounting earnings are used as a substitute for abnormal earnings (Choi et al., 2013, Cormier and Magnan, 2016, Elshandidy, 2014, Lee et al., 2013). Many empirical studies investigate the value relevance of other accounting and non-accounting information and include such variables to further extend the Ohlson (1995) model. An accounting amount or a non-financial information variable is considered as value relevant if the amount reflects information relevant to investors in valuing the firm (Barth et al., 2001). The following sections provide a review of the empirical literature on value relevance studies which covers topics in ownership structure, accounting standards changes and value relevance of other accounting information.

3.5.2 Empirical Evidence On The Impact Of IFRS On The Value Relevance Of Earnings And Book Value

Cormier and Magnan (2016) provide evidence from Canada regarding the value relevance of earnings after the adoption of IFRS.[82] Given Canada's strong legal and regulatory institutional environment, which closely resembles the US institutional environment, it is predicted that IFRS implementation will lead to economic benefits. They further argue that Canadian firms which are cross-listed on US exchanges are subject to greater scrutiny by SEC and this may further enhance the value relevance of earnings reported under IFRS for these firms.[83]

Their sample includes 792 firm-year observations of firms listed on Canadian stock exchange TSX Index, and Canadian firms cross-listed on S&P from 2009 until 2012. Focusing on Canadian firms listed on TSX index only, they show that earnings prepared under Canadian GAAP are value relevant. However, after the implementation of IFRS in 2011, earnings prepared under IFRS are no longer value-relevant to investors for these firms. Also, focusing on Canadian firms cross-listed in the US, they find that earnings prepared under Canadian GAAP are not value-relevant. However, with the adoption of IFRS, earnings became value relevant to investors for these firms. The result here supports their argument that stricter monitoring and regulatory requirements by SEC enhances the value relevance of reported earnings of Canadian firms cross-listed in the US. The results of their study suggest that strong enforcement is essential for the adoption of new accounting standards.

Also focusing on the impact of IFRS on the value relevance of earnings, Choi et al. (2013) provide some interesting results on firms from the UK. They examine whether earnings under IFRS became more informative and more useful to

[82] A summary of key papers discussed in this section is provided in Appendix B Table B6 and Table B7.
[83] Since 2011, Canadian firms are required to prepare their financials according to IFRS. Moreover, firms cross-listed in the US are allowed by SEC to report their financial prepared under IFRS.

investors' pricing decisions than earnings prepared under UK GAAP. They examine this issue by incorporating a measure of "other information", which is one-year ahead analysts' consensus earnings forecasts. Using data on 3,277 firm-year observations from 2003 until 2007, their results suggest that, after IFRS adoption, earnings became more value relevant. However, analysts' consensus earnings forecasts lose their importance for investors' valuation decisions. The result suggests that reported earnings under IFRS provide investors with more information to make their investment decisions and they rely less on analyst earnings forecasts. Overall, their findings highlight that the new accounting standard regime has shifted the value relevance away from analyst forecasts towards the reported earnings prepared under IFRS.

However, the mandatory implementation of accounting standards alone will not necessarily bring improvements in the quality of reported accounting information. Developments in the other areas of the institutional environment, such as legal, corporate governance and auditor independence are also essential to reap the benefits of such implementation (Ball et al., 2000). Financial reporting quality is also influenced by preparers incentives, which are shaped by institutional environment factors such as market demand and political factors. Ball et al. (2000) and Ball et al. (2003) argue that the institutional environment plays a major role in shaping the incentives of financial report preparers such as managers and auditors. For instance, in countries in which there is greater involvement of the government in the economy, there is greater incentive to hide losses of firms because this will have a negative impact on government policies.

Ball et al. (2000) argue that it is mainly issuers' incentives, rather than the mandatory implementation of accounting standards which determine the quality of financial statement information. To investigate the quality of financial statement information of Chinese listed firms, their study focuses on the timeliness with which accounting income incorporates economic losses. For instance, managers have greater incentives not to write off large losses in a single amount because this may trigger debt covenants. Given China's

institutional environment in which the state has a greater influence on financial reporting, Ball et al. (2000) argue that it is more likely that firms will avoid reporting large losses and also more opportunities for income manipulation to hide losses.

Ball et al. (2000) also argue that if the quality of financial reporting is primarily determined by accounting standards, then reporting under international accounting standards, as in the case of Chinese dual-share firms, should exhibit timely incorporation of economic losses because under IAS rules, there is greater asymmetry in incorporating gains and losses. Using a sample of 1,625 firm-year observations for the A-share sample and 289 firm-year observations for the A+B share (dual-share firms) sample from 1992 until 1998, their results show that it is the influence of financial statement issuers which determine the quality of financial reporting. The implementation or mandatory implementation of accounting standards alone cannot bring improvement in transparency unless there are changes in the institutional environment itself.

Christensen et al. (2015) examine whether it is the change in the accounting standards or the reporting incentives which dominate the accounting quality of German firms. In Germany, from 1998, firms had the option to adopt IFRS accounting standards until this became mandatory in 2005. The voluntary adoption by some firms reflects the incentives of those firms to improve on their financial reporting relative to those firms which delay the adoption until it became mandatory for all firms in 2005. For instance, if firms need external financing, these firms have greater incentives to adopt IFRS that will, in turn, be perceived by the market that the firm is complying with better quality accounting standards. This will likely help the firm to raise external financing more easily. Moreover, it can also help raise finance from foreign investors as they are more familiar with IFRS reporting standards (Christensen et al., 2015). Christensen et al. (2015), therefore, predict better quality financial reporting, proxy by value relevance, for voluntary IFRS adopters in Germany relative to their pre-IFRS adoption period.

To capture the impact of firm incentives, they split their sample into those firms which voluntary adopted IFRS before it became mandatory (voluntary adopters), and those firms which adopted IFRS when it became mandatory (resisters). Using data on 133 voluntary adopters from the period 1993 until 2006, they first document an increase in the value relevance of earnings for these firms following the adoption of IFRS. Secondly, focusing on 177 mandatory adopters, they find that IFRS adoption reduces the value relevance of earnings for these firms. Overall, the results of study by Ball et al. (2000) and Christensen et al. (2015) show that mandatory adoption of accounting standards to bring improvements in the accounting quality will have limited effect until the preparers of financial reports have the incentives to comply with the objectives of IFRS, which is to improve accounting quality.

3.5.3 Empirical Evidence On The Impact Of Ownership Structure On The Value Relevance Of Earnings And Book Value

To examine the impact of ownership structure on the value relevance of accounting information, one must first understand the link between ownership structure and the quality of reported information. The theoretical link arises from the agency theory argument. However, there is also empirical evidence which supports the stewardship theory argument (Bona-Sanchez et al., 2014). The stewardship theory holds that managers' interests are aligned with outside shareholders and there is no conflict of interest between managers and owners (Donaldson, 2008). Stewardship theory holds the view that managers do not act opportunistically for their private benefit at the expense of outside shareholders, but are team players and will act in the best interests of owners (Donaldson, 1990). According to stewardship theory, managers seek to maximize firm performance and firm value (Donaldson and Davis, 1991).

A seminal paper by Fan and Wong (2002) investigates the impact of ownership structures on the earnings informativeness of East Asian economies. Specifically,

their study looks at the different types of ownership structures which prevail in these economies, such as highly concentrated shareholdings by the largest shareholder, and the divergence between the cash flow and control rights of the largest shareholder.

Fan and Wong (2002) argue that, when the controlling shareholder has effective control over the firm, there are two outcomes: (i) the entrenchment effect; and (ii) the information effect. From the entrenchment effect perspective, concentrated control over the firm by the controlling shareholder indicates that he also manages the information production and reporting policies. Outside investors pay less attention and place less value on the reported information because they know that the information being disclosed is not credible. It is manipulated to cover up wealth extraction by the controlling shareholder. Also, the controlling shareholder will not report accounting information that will attract close monitoring by outside shareholders.

With respect to the information effect perspective, opacity is considered a good strategy for the company as it can hide information from competitors. Concentrated shareholder will have the right to make decisions and will have access to key sensitive information to make decisions. If more individuals have access to key information, there are more chances of information leakage to the public and potential competitors. The information effect argument implies that control by the largest shareholder is associated with low earnings informativeness (Fan and Wong, 2002).

Fan and Wong (2002) focus on the impact of the ultimate largest shareholder on earnings informativeness through two aspects: (i) control rights of the ultimate largest shareholder; and (ii) the divergence between cash flow ownership and the voting rights of the ultimate largest shareholder. Ultimate largest shareholder is the one who is not controlled by anyone else and has the determining voting rights (Fan and Wong, 2002). Using data on 3,572 firm-year observations from 7 East Asian economies-Hong Kong, Indonesia, Malaysia, Singapore, South Korea,

Taiwan and Thailand, during the period from 1991 until 1995, the result of their study shows that the greater the divergence between cash flow rights and control rights, the lower is the earnings informativeness. This result provides support to their entrenchment hypothesis. With respect to the control rights of the largest shareholder, the result provides support to their information effect argument. The finding suggests that high control rights are associated with opaqueness to conceal information from competitors and unwanted scrutiny by outsiders.

Also focusing on East Asian economies, Claessens et al. (2002) examine two aspects of ownership structure on firm value: (i) concentrated ownership by the ultimate shareholder; and (ii) the divergence between the control and cash flow ownership of the ultimate shareholder. The greater the concentration of ownership by the largest shareholder, the stronger will be his incentive to run the firm with the objective to maximize the firm wealth because this will, in turn, increase his wealth. With substantial ownership in the firm, the large shareholder will have lower incentives to extract private benefits because that will affect their wealth adversely (Shleifer and Vishny, 1986).

Using data on 1,301 firms from Eight East Asian economies- Hong Kong, Indonesia, Korea, Malaysia, the Philippines, Singapore, Taiwan and Thailand- their results first show that the greater the concentration of ownership by the ultimate largest shareholder, the higher is the firm value. With respect to the divergence between the control and cash flow ownership, the results further indicate that higher divergence reduces firm value.

Bona-Sanchez et al. (2014) provide us with some evidence on the earnings informativeness of politically connected firms in Spain. They argue that the impact of politically connected firms on earnings informativeness is an empirical issue as it can either lead to lower earnings informativeness due to entrenchment activities (agency theory) or the controlling shareholder may work towards enhancing the earnings informativeness (stewardship theory). This also depends on how the institutional environment shapes the incentives of the

controlling shareholder. For instance, Spain's institutional environment is characterized by weak investor protection and dominant concentrated shareholders through pyramid ownership structures. Through pyramid structure, the ultimate controlling shareholder can have greater control of corporate wealth with less investment. Extraction of firm wealth in such a scenario will have less impact on his own wealth (Bona-Sanchez et al., 2014).

With respect to the information effect argument, the presence of political connections may reduce earnings informativeness. This is due to the incentives of the politicians and controlling shareholders to disclose as little information as possible to protect political ties from public scrutiny and withhold information from competitors (Bona-Sanchez et al., 2014). However, having political connections may also lower earnings informativeness which is associated with the entrenchment hypothesis. Spain has a bank-oriented financial system with greater influence of the government on financial institutions. Having political connections will likely help firms to gain easy access to bank loans. In such a scenario, politically connected firms may care less about the reporting of high-quality accounting information and may have incentives to expropriate minority shareholders (Bona-Sanchez et al., 2014).

From the stewardship theory perspective, controlling shareholders view the firm's health as part of their own well-being. The controlling shareholders' objective is to maximize the value of the firm, enhance the firm reputation and report high-quality information (Bona-Sanchez et al., 2014). Using data on 689 firm-year observations from 2003 until 2011, they find evidence that politically connected firms are associated with lower earnings informativeness. This supports the information effect argument associated with politically connected firms that politically connected firms have a greater incentive to protect political ties from public scrutiny and to protect firm competitive advantage. Moreover, in a politically controlled firm, the greater the divergence between the cash flow ownership and control ownership of the ultimate largest shareholder, the better the earnings informativeness. The result here indicates that the largest

shareholder of the pyramid acts as a steward of the company assets. This positive relationship supports two arguments: (1) the alignment effect; and (2) stewardship theory. The alignment effect suggests that politicians are there to help the firm improve performance and there is no need for opacity. Stewardship theory suggest that dominant owner will do his best to improve the firm's image and reputation.

The literature above provides us with evidence of how different ownership arrangements can impact the earnings quality of firms. As outside investors know that the reported information is manipulated by the ultimate largest shareholder, they reduce the credibility of reported information. Also, one of the important thing which the above literature highlight is that care must be taken when adopting an international perspective into different institutional environments. This is because without considering the institutional differences and political levels, the outcome may not be the same (Bona-Sanchez et al., 2014).

In Korea, a chaebol is a large business group which comprises several companies with one controlling shareholder. Focusing on the impact of ownership structure on the value relevance of accounting information, Bae and Jeong (2007) provide evidence on chaebol and non-chaebol firms. The controlling shareholder, which in the Korean case is a family, uses a pyramidal ownership structure to maintain control of a number of firms. This allows the controlling shareholder to own a small equity stake but have full control over the firms in the group. The cross-shareholdings in pyramid structure prevents a hostile corporate takeover, therefore increasing controlling shareholder incentive to expropriate minority shareholders.

Given Korea's institutional environment is characterized by poor corporate governance and weak investor protection, controlling shareholders of chaebols are likely to expropriate minority shareholders and manipulate the reported information to cover up expropriation. This adversely affects the quality of the

reported accounting information. Bae and Jeong (2007) argue that reported information by chaebol is predicted to be manipulated to cover up wealth extraction. Using data on 4,285 firm-year observations from 1987 until 1998, their results show that the value relevance of reported earnings and book value for non-chaebol firms is higher than that of chaebol firms.

3.5.4 Empirical Evidence On The Value Relevance Of Other Accounting Information

Much of the literature discussed above examines the value relevance of aggregate earnings. However, studies by Akbar et al. (2011) and Chen et al. (2011c) have also expanded the value relevance literature by partitioning earnings into its different components. For instance, Akbar et al. (2011) examine the value relevance of earnings components such as operating cash flows, funds flow, current accruals, non-current accruals and total accruals. Using 14,503 firm-year observations from 1993 until 2007 on firms listed on London stock exchange, their study documents incremental value relevance of cash flows relative to aggregate earnings and fund flow. Overall, their study highlights that various partitions of earnings are indeed value relevant and the cash flow statement contains information which is useful to UK investors in valuing firms.

Chen et al. (2011c) further provide evidence on value relevance after disaggregating earnings into core earnings and non-core earnings. Their study examines the impact of ownership structure on the return-earnings relation. They argue that Chinese listed firms have different types of large shareholders which have different objectives. These differences in objectives may lead to differences in accounting quality and the quality of the information content of earnings. Using data on 14,582 firm-year observations from 1996 until 2008, they document that core earnings have higher value relevance and are a better signal for investors and analysts to predict future earnings. Taking into account the impact of ownership structure, core earnings are a better signal to predict future earnings for non-SOEs.

3.5.5 Empirical Evidence On The Value Relevance Of Accounting Information In China

Focusing on Chinese listed firms, Firth et al. (2007) investigate the impact of ownership structure on the quality of reported earnings, measured by the return-earnings model. In particular, they examine the effects of concentrated ownership, proxied by the largest share ownership, as well as the effects of different types of shareholders, for instance, foreign ownership, tradable share ownership, and state shares owned by State Asset management Beaurau (SAMB)[84], central SOE and local SOE. The return-earnings model shows the association between stock return and accounting earnings and is used to examine whether earnings are indeed useful to investors for their investment decision. The intuition here is that if the information is useful in forming capital asset prices, then the market will adjust asset prices accordingly to that information (Ball and Brown, 1968). Ball and Brown (1968) demonstrate that when share prices adjust to newly available information contained in reported earnings, this adjustment in share prices associated with the release earnings is an indication that the information contained in earnings is indeed useful to investors for decision-making purpose. The model captures the investors' responsiveness to the reported earnings (Dechow et al., 2010). The basic return-earning model used in the literature is as follows (Kothari and Zimmerman, 1995):

$$Ret_t = \beta_0 + \beta_1 Earn + \varepsilon_t$$

From the above model, the higher the coefficient on earnings, β_1, the more informative or useful are the earnings to investors for decision-making (Dechow et al., 2010). Hence when earnings are informative, this is reflected in stock returns (Firth et al., 2007). This β_1 is known as the earnings response coefficient and is a proxy for earnings quality. The purpose of using returns as earnings quality is to investigate whether the earnings indeed include some useful information and is timely incorporated in stock price (Easton, 1999).

[84] These are government institutions which own state shares and state legal person shares (Chen et al., 2009a).

Firth et al. (2007) argue that the way firms report earnings is likely to be influenced by the ownership structure arrangements. For instance, as the controlling shareholders in Chinese listed firms have ownership mainly through non-tradable shares, they have little incentive to maximize the share price of tradable shares and to improve the quality of financial reporting. The substantial ownership also provides incentives to the controlling shareholders to conceal the expropriation by manipulating earnings.

Using data on 5,189 firm-year observations from 1998 until 2003, Firth et al. (2007) document that ownership concentration, proxied by large share ownership, reduces the quality of earnings. This supports their argument that, as large shareholders expropriate minority shareholders, they have greater incentives to conceal their expropriation activities. Hence, minority shareholders perceive the reported earnings as not being credible. They also find that firms with more tradable shares have more informative earnings which indicate that the demand for information by shareholders put pressure on the firm to provide high-quality accounting information (Firth et al., 2007).

Elshandidy (2014) investigates the value relevance of earnings and book value of firms which issue different types of shares, for instance, A-share firms, B-share firms and H-share firms. His study also investigates the value relevance of book value prepared after the IFRS convergence with Chinese accounting standards. Firms issuing different types of shares are required to prepare accounting information differently to cater to investor demand. For instance, A-share firms are required to prepare accounting information under the Chinese accounting standards, B-share firms are required to prepare information under IFRS or IAS, whereas H-share firms are required to prepare their accounting information under either IAS or Hong Kong GAAP.

It is predicted that the requirement for information under different accounting standards will impact differently on the value relevance of accounting

information. Covering the period from 1999 until 2012, the results in Elshandidy (2014) show that earnings and book value are value relevant for A-share firms and B-share firms, with only earnings value relevant for H-share firms. Also, comparing these three different types of share issuing firms show that earnings are more value relevant for A-share firms. Elshandidy (2014) further investigates the impact of IFRS convergence on the value relevance of book values.[85] The results of his study show an increase in the value relevance of book value for both A-share and B-share firms relative to pre-IFRS period. Overall, his study highlights that value relevance of book value has improved following the IFRS convergence.

More recent value relevance studies on China by Liu et al. (2011), Lee et al. (2013) and Dedman et al. (2015) examine the impact of the convergence of Chinese accounting standards with IFRS. Examining Chinese A-share firms from 2005 until 2008, Liu et al. (2011) provide evidence of higher value relevance for earnings after IFRS convergence. Using a larger sample of 10,017 firm-year observations from 2003 until 2009, Lee et al. (2013) reveal that IFRS convergence with Chinese accounting standards improved the value relevance of earnings. Their study also examines the effects of several institutional factors such as industry, by region and by ownership. Their result further show improvement in the accounting information was more observed for firms in the manufacturing sector, firms located in less developed regions and firms controlled by the local government. The results from their study suggest the importance of considering the influence of institutional factors on firms reporting incentives.

Although Liu et al. (2011) and Lee et al. (2013) provide evidence on the improvement in the quality of accounting information after IFRS-converged accounting standards, they only focus on book value and earnings and do not incorporate measures of other information which have been identified by value

[85] Due to multicollinearity, his study only includes the interaction term between IFRS dummy variable and book value.

relevance studies (Akbar et al., 2011, Shen and Stark, 2013, Choi, 2014,). Also, their valuation model is based on a *per share* basis. Easton (1999) argues that the use of *per share* as a deflator in the valuation model is subject to some issues. He argues that large firms will have large market values, large book value and large net income. Values of other variables for these firms will also be large, and this leads to coefficients that may capture no more than scale effects. He further argues that the use of per share as a deflator may reflect no more than the choice of management of the number of shares because management has discretion over the number of shares outstanding. For instance, firms may have stock splits, or they may offer stock dividends which will change the price of shares without changing the economic characteristic of the firm (Easton, 1999). In the Chinese context, the use of stock dividends is quite popular, and firms are widely documented to issue stock dividends (Wei and Xiao, 2009, Anderson et al., 2011).

Moreover, Lee et al. (2013) also focus on the time period where many firms were going through the split share reform process, with the transfer of shares from non-tradable to tradable shares. This creates noise in the estimation using *per share* scale and artificially changes the earnings per share value due to the changes in the denominator due to the share reform. Although it is widely documented that there is a significant influence of the controlling shareholder over the financial reporting practices of Chinese listed firms, their study does not take account of the change in the incentives of the controlling shareholder due to the split share reform.

Dedman et al. (2015) examine the value relevance of cash and stock dividends distributed by Chinese listed firms between 2003 and 2011. They argue that before the split share reform, managers had less discretion over the distribution of cash dividends mainly due to the existence of non-tradable shares. As non-tradable shareholder could not sell their shares in the market, they had greater incentive to benefit themselves through cash dividends. Hence, non-tradable shareholders pressure the management to pay cash dividends, reducing the role

of cash dividends to convey value-relevant information. Dedman et al. (2015) argue that the conversion of shares from non-tradable to tradable shares, due to split share reform, is likely to reduce the pressure on managers, giving managers more discretion over the use of cash dividends. Their study also examines the value relevance of stock dividends, which are also distributed by Chinese listed firms.

Dedman et al. (2015) find some interesting results. Firstly, they find no significance of cash dividend before the reforms however, following the split share structure reform, they document an increase in the value relevance of cash dividends. This supports their argument that when managers have more discretion over the distribution of cash dividends, this increases the value relevance of cash dividends. Secondly, for firms which distributed both types of dividend, before the reforms stock dividends are value relevant. Following the reforms, stock dividends remain value relevant while cash dividends for these firms are now value relevant.

Chapter 4 Hypotheses Development

The review of the literature in section 3 indicates that the ownership structure of a firm plays a significant role in shaping its information environment. The logic is that, as controlling shareholders expropriate firm resources, to hide such expropriations they have incentives to manipulate the accounting information and to withhold value-relevant information. Controlling shareholders can achieve this because they have control over the financial reporting policies of the firm. In aggregation, this reduces the general credibility and usefulness of reported earnings to market participants and weakens the information environment (Fan and Wong, 2002).

In the context of my study on China, one of the characteristics of Chinese institutional environment which shapes the financial reporting of its companies is the significant government control of listed firms as the ultimate controlling shareholder. This ownership structure arrangement can be traced back to 1990, when listed firms were formed from SOEs, based on a segregated ownership structure known as the split share structure.[86] This split share structure divided total shares of listed firms into tradable shares and non-tradable shares. A substantial proportion of non-tradable shares (around two-thirds of total outstanding shares) was under government ownership. It was not until 2005 that the Chinese government started the split share structure reform that aimed to eliminate the split share structure and transform all those non-tradable shares into tradable shares. In particular, this privatization reform aimed to allow more non-state ownership of Chinese listed firms.

This study examines the impact of the split share structure reform on the information environment of Chinese listed firms which had controlling shares transferred from the ultimate controlling state shareholders to private owners (non-state). This study refers to such firms as *DSTATE2NSOE* firms. As the split

[86] Since 1978, Chinese firms were mostly owned by SOEs.

share structure reform provides the option for controlling shareholders to sell their shares after the reform, it significantly increases the possibility of privatization of SOEs through the sale of state shares after the reform. This study predicts that the split share structure reform will lead to an improvement in the information environment of these firms.

From 1990 until 2005, the state was the ultimate controlling shareholder in most of China's listed firms.[87] Controlling state shareholders had ownership in the firm through non-tradable shares. As a consequence, they could not benefit from any share price appreciation in the capital market. Therefore, controlling state shareholders used other channels to benefit themselves. For instance, covering the time period from 1995 until 2006, a study by Wei and Xiao (2009) show that as controlling state shareholders could not benefit from capital gains, they had greater incentive to expropriate firm wealth through cash dividends.[88] This also reduces the managerial control over the distribution of dividends and limit the value relevance of dividends (Dedman et al., 2015).

Moreover, the non-tradability characteristics of state-shares provided controlling state shareholders with strong incentives to tunnel wealth from the firm to benefit themselves and to fulfil their non-profit maximizing goals.[89] For instance, evidence highlights the use of intercorporate loans by controlling shareholders to extract billions of RMB from the listed firm under their control (Jiang et al., 2010a). Jiang et al. (2010a) find that these loans were not part of the normal business operations, were of a long-term nature and were hidden in the balance sheet under "other receivables". Peng et al. (2011) also provide evidence on the extraction of funds from the listed firm through connected transactions by the controlling state shareholder. A connected transaction is defined as a transaction which is between a firm or any of its subsidiaries and a connected person. A

[87] Controlling state shareholders maintain control over listed firm through different government agencies such as central SASAC, local SASAC and other government agencies (Chen et al., 2016c).
[88] They find this impact through the state-owned legal person shares.
[89] Non-profit maximizing goals include providing regional employment and maintain control in key industries (Peng et al., 2011).

connected person is the listed firm's substantial shareholder, directors, chief executive (Peng et al., 2011). Covering the period from 1998 until 2004, the results in Peng et al. (2011) show that when the firm is in a sound financial condition, the announcement of a connected transaction has a negative impact on the share returns because investors perceive the connected transaction will have a negative impact on firm performance. The incentive of a controlling state shareholder to tunnel through connected transactions is greater when the firm is performing well.

Studies above also show that the extraction of funds by controlling state shareholders negatively affects future firm performance which makes these firms likely to become candidates for delisting (Jiang et al., 2010a).[90] This provides further support to the general argument that profit maximization is not the sole purpose of state-owned firms[91] and controlling state shareholders extract cash to fulfil goals other than profit-maximization.[92] Firm performance for these controlling state shareholders is only a concern when the state-owned firm is very close to being delisted or plans to raise capital through share issuance.[93]

Therefore, controlling state shareholders are likely to manipulate financial statement to hide their extraction of resources and to enhance reported performance (Jian and Wong, 2010, Firth et al., 2011). This is further shown by Firth et al. (2011), which investigates financial restatements by Chinese listed firms. Firth et al. (2011) find that during the period from 2000 until 2005, around 3.7% of listed firms restate their financial statements each year. These restatements are the results of detection by the CSRC of deliberate manipulation

[90] According to the CSRC 2001 regulation, Chinese listed firms with four-year consecutive losses are delisted from the stock exchange (Chen et al., 2016c).
[91] Chen et al (2008) show that during the period from 1996 until 2000, the average ROA for state-owned firms which transformed into non-SOEs was -0.23%.
[92] Study by Chen et al. (2016a) further show that controlling state shareholders did not care about share return as they could not trade their shares.
[93] According to the CSRC 2001 regulation, Chinese listed firms must maintain an average ROE of no less than 6% in the previous three years in order to obtain the right to issue new shares (either in the form of right issue or seasoned equity offerings) (Peng et al., 2011).

of financial statements to cover up wealth extraction and to show better performances.

The conclusion from the above studies suggests that the manipulated reported information does not accurately reflect the financial position, performance and liquidity of Chinese listed firms. The manipulated financial statements reduce the value relevance of reported information to market participants (Piotroski and Wong, 2012) and the resultant low quality of financial reporting reduces analysts' earnings forecasts accuracy and increases forecast dispersion. Several studies provide evidence on the link between ownership structure and the ability of analysts to accurately predict future earnings (Lang et al., 2004, Sabherwal and Smith, 2008, García-Meca and Sánchez-Ballesta, 2011). This link is established from the fact that different ownership structure arrangements have different approaches towards firms' financial reporting practices (Haw et al., 2010).

As firm disclosure is a primary source and an important determinant of forecast accuracy, it ultimately influences analysts forecast accuracy and dispersion (Lang and Lundholm, 1996, Haw et al., 2010, García-Meca and Sánchez-Ballesta, 2011). Therefore, manipulation of financial statements, in turn, increases analyst forecast error and increases forecast dispersion (Haß et al., 2014, Huang and Wright, 2015, Huang and Boateng, 2016). This is true for Chinese analysts, as alternative sources of information disclosure channels are already limited in China (Lin et al., 2016). Moreover, manipulated earnings and information opacity reduces analysts' willingness to follow these firms (Lang et al., 2004).[94]

[94] Opaqueness increases the information acquisition costs as analysts have limited expertise to analyse the reported opaque accounting information (Park et al., 2017). Information acquisition costs are the costs of becoming familiar with the financial statements and interpreting the information contained in the financial statements (Park et al., 2017).

In such an opaque information environment, stock prices are more synchronous to market-wide movement because market participants, including financial analysts, have less firm-specific information and more market-wide information (Feng et al., 2016).[95] Based on the above discussion, this study predicts the following hypotheses:

H1: Prior to the split share reform, analyst coverage will be negatively associated with state controlled firms, ceteris paribus.
H2: Prior to the split share reform, analyst forecast errors will be positively associated with state controlled firms, ceteris paribus.
H3: Prior to the split share reform, analyst forecast dispersion will be positively associated with state controlled firms, ceteris paribus.
H4: Prior to the split share reform, share price synchronicity will be positively associated with state controlled firms, ceteris paribus.

This study predicts that the split share structure reform will help improve the information environment of Chinese listed firms which switch from SOE to non-SOE through two channels. Firstly, the economic incentives associated with the split share structure reform. As the reform abolishes the restriction on the tradability of state shares, it provides the state shareholders with an option to sell their shares and benefit from capital gains.[96] This option was not available to them prior to the share reform. Therefore, share return performance will likely become more important for controlling state shareholders (Hou et al., 2016).

Moreover, the circular issued by the CSRC in 2005 on *the Measures Governing Equity Incentive Plans of Listed Companies* provide support to state-controlled firms that have completed the share reform to help motivate the management.

[95] Share prices are influenced by factors such as the disclosure of information and the acquisition and processing of information by financial intermediaries (Piotroski and Wong, 2012),
[96] Although the reform provided the controlling state shareholders with an option to sell their shares, the lock-up period regulation, however, restricted the full circulation of the non-tradable shares up to three years following the completion of the compensation plan of the reform firm (Lin et al., 2016).

The circular propose that state-controlled firms which have completed the share reform may implement an equity incentive plan to motivate the management.[97] The study by Hou et al. (2016), which covers the time period from 2000 until 2007, finds an increase in the use of executive remuneration in state-controlled firms that are used to encourage managers to work towards maximizing share returns. Evidence indicates that the split share reform strengthens the alignment of incentives between the controlling state shareholders and minority shareholders, as both parties now want to maximize share return performance. Moreover, a study by Chen et al. (2016a), which covers the period from 1999 until 2008, shows that CEOs of SOEs are more accountable to their fraudulent behaviour following the split share structure reform.

Another economic incentive associated with the share reform is the notice issued by SASAC in 2005 on *Issues Concerning the Administration of the Stock Rights of State-owned Shares in the Share Trading Reform of Listed Companies* which specifies that the performance assessment of the state-controlling shareholders of listed companies will be evaluated on the market value of the state-owned firm under their control.[98] Liao et al. (2014) find a 6% increase in operating revenue, 2% increase in operating profit and a 6% increase in stock returns for state-owned firms compared to their benchmark non-SOEs portfolios after the split share structure reform. Overall, this evidence of stronger post-reform improvement in the performance of SOEs relative to non-SOEs is due to the privatization led incentives provided by the government which facilitated the alignment of interests between controlling state shareholders and minority shareholders (Liao et al., 2014).

Together, the studies by Chen et al. (2016a), Hou et al. (2016) and Liao et al. (2014) highlight the change in the controlling state shareholders' behaviour towards share return performance and their attitude in relation to corporate fraud. These studies indicate that after the split share structure reform,

[97] http://www.fdi.gov.cn/1800000121_39_295_0_7.html
[98] http://www.fdi.gov.cn/1800000121_39_705_0_7.html

controlling state shareholders care more about share prices and firm performance, which in turn reduces their incentive to extract firm wealth via tunnelling. Moreover, these results indicate that the reforms contribute to a reduction in the agency problems associated with the non-tradability aspect of state shares.

Secondly, this study predicts that the change in control of firms from SOE to non-SOE due to the split share structure reform will be associated with an improvement in the information environment. Chen et al. (2008), covering the period from 1996 until 2000, examine the control transfer of firms from controlling state shareholders to non-state owners. They found improvements in corporate performance associated with the change in the controlling shareholder from state to non-state due to the change in the management which was initiated by the new controlling shareholder.[99] The corporate performance also improves when an existing non-controlling shareholder becomes the controlling shareholder of the firm. The new controlling shareholder's better knowledge of the firm is associated with improvement in firm performance.

Moreover, state-owned Chinese listed firms previously enjoyed easy access to financing due to political connections (He et al., 2016). However, the transfer of control from the state to non-state shareholders due to the split share reform weakens their advantage in obtaining loans from state-owned banks (Liu et al., 2017). This will provide incentives for these reform transfer firms to improve the quality of information disclosure to reduce information asymmetry, which will likely make it less costly for them to raise external capital (lower cost of capital) (Hail, 2002).

A positive impact of the split share structure reform is also documented by Liu and Tian (2012), who provide evidence on the reduction of expropriation activities by the controlling shareholders after the reform. Focusing on 2,215

[99] Politicians and ex-bureaucrats serve as senior executives and board members in state-owned firms are mostly bureaucrats (Conyon and He, 2011, Piotroski and Wong, 2012).

firm-year observations on non-SOEs from 2004 until 2010, Liu and Tian (2012) document a decrease in the use of excess debt to tunnel for private benefit by controlling shareholders of non-SOEs after the split share reform.[100] This ultimately leads to a better firm performance following the share reform. Moreover, Chen et al. (2016b) argue that as non-SOEs rely more on the capital market for external financing[101], they are more likely to reduce information asymmetry by providing high-quality disclosures. Also, non-SOEs are under pressure from stock market participants, such as financial analysts, to provide high-quality information. Enhanced quality of accounting information is essential for these firms to lower the cost of raising capital (Chen et al., 2016b).

Overall, the evidence from the above studies shows that the split share structure reform had a positive incentive effect as it caused controlling shareholders to engage in value-enhancing behaviours (Li et al., 2017). This, in turn, reduces their expropriation behaviour and manipulation of financial reporting. Based on the evidence discussed above, this study predicts that the split share reform will also lead to a change in behaviour towards financial reporting and transparency, leading to disclosure of more firm-specific, more accurate analysts' forecasts and value-relevant information disclosures.

However, the impact of the split share structure reform on analyst coverage and dispersion is less obvious. For instance, each analyst has two sets of information: (1) private information acquired through communication with the management; and (2) public information which is available to all market participants (Lang and Lundhom, 1996). An increase in firm disclosures means that now more analysts have similar information, leading to lower disagreements amongst analysts (Lang and Lundhom, 1996). The economic incentives associated with the split share structure reform and the change in the ultimate controlling shareholder are also expected to reduce poor practices of information disclosure

[100] Excess leverage is defined as firm leverage minus the industrial median leverage.
[101] SOEs receive preferential treatment from the government in terms of access to capital (Chen et al., 2016c).

of Chinese listed firms, e.g. release of private information to a limited set of market participants. Therefore, this study predicts lower analyst dispersion due to the split share structure reform for firms which switch from state-owned firms into non-state owned.[102]

The general argument in this study is that the split share structure reform will lead to an improvement in the information environment of Chinese listed firms which switch from state-control to non-state owned. This improvement is through two channels: (1) the economic incentives associated with the split share structure reform; and (2) the change in the ultimate controlling shareholder from the state to non-state. Based on the evidence provided by the above mentioned prior studies, such as the reduction in the expropriation behaviour of controlling shareholders and the manipulation of reported information, this study predicts that the split share structure reform will increase analyst coverage in the following ways. Firstly, as firms are expected to become more open regarding their financial disclosures due to the split share structure reform, it will, therefore, reduce the information acquisition cost for analysts, which in turn will increase the supply of analysts (Lang and Lundhom, 1996). Secondly, an improvement in financial reporting due to the split share reform means that analysts have a more valuable report to sell, leading to an increase in the demand for analysts' service (Lang and Lundhom, 1996). Overall, both these effects will improve the equilibrium analyst coverage in Chinese capital markets. This leads to the following hypotheses:

H5: Split share structure reform will be associated with an increase in analyst coverage in firms which transferred from state control to non-state-owned firms relative to firms which remained state-controlled, ceteris paribus.

[102] However, increase disclosures could also lead to higher dispersion if analysts have different forecasting models through which they draw different conclusions from the firm provided disclosures.

H6: Split share structure reform will be associated with a decrease in analyst forecast errors for firms which transferred from state control to non-state owned firms relative to firms which remained state-controlled, ceteris paribus.
H7: Split share structure reform will be associated with a decrease in analyst forecast dispersion for firms which transferred from state control to non-state owned firms relative to firms which remained state-controlled, ceteris paribus.
H8: Split share structure reform will be associated with a decrease in share price synchronicity for firms which transferred from state control to non-state owned firms relative to firms which remained state-controlled, ceteris paribus.
H9: The value relevance of earnings in firms which switch from state control to non-state owned will increase following the split share structure reform, ceteris paribus.
H10: Following the split share structure reform, the value relevance of earnings will be greater for firms which switch from state control to non-state owned compared to firms which remained state-owned, ceteris paribus.

Conclusion

In this chapter, 10 hypotheses are developed for the three main topics of this PhD, which examine the information environment of Chinese listed firms from the pre-split share reform to the post-split share reform period: (1) analyst forecast properties; (2) share price synchronicity; and (3) value relevance of earnings. This study splits the hypotheses into pre-reform hypotheses (*H1-H4*), and the impact of the split share structure reform (*H5-H10*). To summarize, this study predicts that the split share structure reform will improve the information environment of firms which converted from state-owned firms to non-state owned relative to firms which remained under state control. The discussion focuses on the two main channels which are predicted to help improve the information environment of these switch firms: (1) the economic incentives associated with the split share structure reform; and (2) the change in control of firms from SOE to non-SOE due to the split share structure reform. The

following chapter 5 provides the details of the sample selection, econometric methods, and the selection of variables for the three main topics of this PhD.

Chapter 5 Data collection and Research Methodology

5.1 Introduction

This chapter provides details of the sample selection and the research methodology used for the three topics of this PhD. This section includes details of the econometric methods and selection of variables, and is organized as follows. Section 5.2 provides details of the methodology for analyst forecast properties; section 5.3 describes the methodology for share price synchronicity; and section 5.4 provides the details of the methodology on value relevance.

The data for this thesis comes from the China Stock Market and Accounting Research Database (CSMAR).[103] My thesis excludes financial firms as the accounting information for these firms is measured differently relative to firms in other industries (Dedman et al., 2015). The time period for this thesis starts from 2003 until 2014. The reason to start the time period from 2003 is because all Chinese listed firms were required by the CSRC to disclose the identities of their ultimate owners from 2003 (Liu and Tian, 2012).

Ownership structure measure

Studies which focus on China mainly use data from CSMAR database for ownership classification. Amongst the studies, some categorize firms into state-controlled firms or non-state firms based on the type of share nature[104] (Cheng et al., 2014, Huyghebaert and Wang, 2016), or categorize firms based on only the ultimate controlling shareholder (An et al., 2014, Liao et al., 2014, Huang and Zhu, 2015, Chen et al., 2016c, Li et al., 2017). According to the CSMAR definition, the ultimate controlling shareholder is: (1) the one with the maximum shareholding in the shareholder list of listed company; (2) the one who can execute and control superior voting rights than the shareholder with the

[103] Nottingham University Business School has access to CSMAR under yearly subscription.
[104] Share nature is the type of share such as state share, state-owned legal person share, legal person share, tradable A share, tradable B share, tradable H share etc.

maximum shareholding of a listed company, i.e. can have significant impact on decisions in meeting; (3) the one who holds and control 30% or above of shares and voting rights; and (4) voting rights will allow the ultimate controlling shareholder to elect over 50% of members of the board of directors of a listed company. Tracing the ownership data obtained from CSMAR database for each firm from 2003 onwards reveals that, after the split share structure reform, the database records state ownership through tradable A shares. Therefore, only relying on the nature of shares owned for the classification of firms into state-owned firm or non-state owned firm will underestimate the number of state-owned Chinese listed firms.

To ensure accuracy, I manually record each firm's ultimate controlling shareholder from 2003 onwards. I classify a firm as a state-owned enterprise by looking at the identity and the share nature of its ultimate controlling shareholder. For-instance, a firm is classified as state-owned enterprise if the share nature of its ultimate controlling shareholder is state related or/and the identity of its ultimate controlling shareholder is state related. In several cases, the nature of share is the state but the ultimate controlling shareholder is some other organization or person; this firm is still classified as state-owned enterprise (SOE). In cases where the ultimate controlling shareholder is the state but the nature of share is tradable A-share, the firm is still classified as state-owned enterprise. This approach is confirmed by cross-checking with the annual reports of Chinese listed firms.[105] Finally, firms in which the ultimate controlling shareholder is non-state and share nature is also non-state related are classified as non-state owned firms (Non-SOEs) (Wang et al., 2008, Chen et al., 2011b).[106]

[105] In cases where possible, for example for firms with annual reports available in English, I have cross-checked my ownership categorization.
[106] Details on the observations on the structure of the dataset regarding the ultimate controlling shareholder are available upon request.

Tracing the ultimate controlling shareholders for each firm from 2003 onwards reveals that a majority of state-owned firms had their shares transformed into tradable A-shares due to the split share reform, but the ultimate controlling shareholder was still the state. This further highlights the importance of investigating whether a listed firm is SOE or non-SOE based on the identity of the ultimate shareholder, as well as the nature of shares owned.

I present an example here of Shenzhen Zhenye (Group) Co. Limited (StockCode: 000006). Observing the data, it was revealed that since 2003, Shenzhen SASAC was the ultimate controlling shareholder. However, the nature of their shares has changed since then. In 2003, 2004 and 2005, their shares were state shares. The company implemented the split share structure reform in 2006 and since then, the share type transformed to negotiable A-share. However, the ultimate controlling shareholder was consistently Shenzhen SASAC. Based on this available information, I have classified this firm as state-owned enterprise throughout the time period of this study.

Observing the structure of the ownership dataset, this study reveals that there are 939 firms which remained under state control, 166 firms which transformed from SOE into non-SOE, 52 firms which transformed from non-SOE to SOE and 999 firms which remain non-SOE throughout the time period this study.

Distinguishing between central SOE and local SOE

The ultimate controlling shareholder of state-owned firm is typically a central or local government or government related institution (Piotroski and Wong, 2012). State-owned firms in which the ultimate controlling shareholder is the central government are called central state-owned enterprises (SOEs). Firms in which the ultimate controlling shareholder is the local government are called local SOEs. This study further categorizes state-owned firms into central SOEs and local SOEs. This data is obtained from the China Securities Index website, however, it is only available for the year-end 2016. Therefore, this study traces

the ownership data backward from 2016 and compares the CSI index data with CSMAR to categorize these firms accordingly.[107]

[107] Details on the categorization of each state-owned firm into either central or local SOEs are available on request.

5.2 Sample and Research Methodology for Analyst Forecast Properties

5.2.1 Sample selection

This section provides details on the sample selection and research methodology for analyst forecast properties. Firstly, this study excludes 486 firm-year observations for firms in the finance industry. Secondly, this study excludes 4,020 observations with missing data on the ownership structure. This study next excludes 23 observations on firms which released their previous year-end annual report between May and December in the following year. Next, this study excludes 2 observations with missing control variables such as ROA and leverage. This provides a final sample of 19,146 firm-year observations for analyst coverage.[108]

I also exclude 15,156 firm-year observations with missing data on analyst forecast and dispersion. Observing the dataset, the following point explains the missing observations for analyst error: (1) Missing the mean analyst forecast. To calculate the analyst forecast measure, I incorporate only those forecasts which were made in the month following the release of the annual report (annual report of the previous year-end). There are missing observations for mean analyst forecasts for firms because there are no analysts' forecasts following the month after the annual report release. Observing the dataset, I also notice missing observations for dispersion. This is because, to calculate dispersion, more than one analyst forecast is required. Missing observation for dispersion suggests that there is only one analyst issuing the forecast for the firm in that particular year. The final sample includes 3,990 firm-year observations for analyst forecast errors and dispersion from 2003 to 2014.

[108] Table 2 (end of this section), provides the sample selection criteria for this chapter.

5.2.2 Research Methodology

This section provides the details on research methodology for the first chapter of this thesis, which is analyst forecast properties. This study firstly runs the following regression model for the pre-reform (2003-2004) and the post-reform period (2009-2014) separately:

$$\begin{aligned} INFO.ENVIRONMENT_{i,t+1} \\ &= \beta_0 + \beta_1 DSTATE_{i,t} + \beta_2\, XLIST_{i,t} + \beta_3 QFII_{i,t} + \beta_4 LNTOTASSET_{i,t} \\ &+ \beta_5 ROA_{i,t} + \beta_6 LEVERAGE_{i,t} + \beta_7 COVERAGE_{i,t} + \beta_8 TIME \end{aligned} \quad (5.1)$$

where

$INFO.ENVIRONMENT_{i,t+1}$	$COVERAGE_{t+1}$, $FORERROR_{t+1}$, $DISPERSION_{t+1}$
$DSTATE_{i,t}$	*DSTATE* is a dummy variable which takes a value of 1 for firms which are state-owned, and 0 otherwise.
$XLIST_{i,t}$	*XLIST* is a dummy variable which takes a value of 1 for firms which are cross-listed internationally, and 0 otherwise.
$QFII_{i,t}$	*QFII* is the proportion of QFII (Qualified Foreign Institutional Investor) ownership out of total shares.
$LNTOTASSET_{i,t}$	*LNTOTASSET* is the size measure, which is calculated as the natural log of total assets in RMB million.
$ROA_{i,t}$	*ROA* is NETPROFIT/TOTASSET.
$LEVERAGE_{i,t}$	*LEVERAGE* is (short term debt + long term debt)/total assets.
$COVERAGE_{i,t}$	*COVERAGE* is the number of analysts per firm. This variable is used as a control variable for forecast error and dispersion.
TIME	*TIME* represents the time trend with values from 1-12 representing years 2003 -2014.

To measure the changes in the information environment of Chinese listed firms which converted from SOEs to non-SOEs over the sample period, the *INFO.ENVIRONMENT* includes *COVERAGE, FORERROR* and *DISPERSION*. *COVERAGE*, which is the analyst coverage variable, is the number of analysts per firm issuing one-year ahead forecasts, made one month after the release of the previous years' financial statement. The financial year-end of all Chinese listed firms is 31st December and the Chinese regulations require firms to publish their financial statements by the end of April for 'A' and 'B' share firms and by the end of May for 'H' share firms (Barniv, 2009, Huang and Wright, 2015). For instance, StockCode 000012 issued its 2007 financial year-end report

in March 2008. Therefore, coverage includes the number of analysts which provide a forecast in April 2008 for financial year-end 2008.[109] The data shows that there are 5 analysts who provided earnings forecasts for StockCode 000012 in April 2008 for one-year ahead forecasts, i.e. financial year-end 2008. This study includes forecasts made one month after the release of the previous years' financial statement to allow the incorporation of information into analysts' earnings forecasts. If no analyst is associated with the firm, the variable is assigned a value of 0. As CSMAR only includes data on domestic analysts, the information is only limited to domestic analysts. In the regression test, this study includes the lead term of coverage ($COVERAGE_{t+1}$).

This study employs the following measure for analysts' forecast errors:

$$FORERROR_{t+1} = \frac{\left| Mean\ analyst\ forecast_{i,t+1} - \ actual\ earnings\ per\ share_{i,t+1} \right|}{|actual\ earnings\ per\ share_{i,t+1}|}$$

$FORERROR_{t+1}$ is the absolute value of the difference between the $mean\ analyst\ forecast_{i,t+1}$ minus $actual\ earnings\ per\ share_{i,t+1}$, deflated by absolute $actual\ earnings\ per\ share_{i,t+1}$. The mean analyst forecast is the average of one-year-ahead forecasts for firm *i* made one month after the release of the previous years' financial statement. For instance, StockCode 000006 issued its financial-year end 2009 annual report in March 2010. Therefore, to allow analysts to incorporate the annual report information into updates of their one-year-ahead forecast, this study includes analysts' earnings forecast reported in April 2010 for financial year-end 2010.

This study also includes the dispersion of analysts' forecasts as an additional measure of the information environment. In a strong information environment, we expect to see a lower variance in predicted future earnings. This study calculates forecast dispersion as the absolute of the standard deviation of one-

[109] This is termed as one-year ahead forecast in this study.

year-ahead analyst forecasts for firm *i* earnings per share at time *t,* deflated by mean forecast (Bryan and Tiras, 2007, Fang and Peress, 2009):

$$DISPERSION = |\sigma\left(Analyst\ forcast_{i,t}\right) / mean\left(Analyst\ forecast_{i,t}\right)|$$

For regression tests, this study includes the lead dispersion variable $DISPERSION_{t+1}$.

For *H1*, coefficient β_1 indicates the relationship between *DSTATE* and *COVERAGE*, which is predicted to be negative. This finding would suggest that, prior to the split share structure reform, analysts were less willing to provide coverage for state-owned firms due to their opaque and manipulated information disclosures. For hypothesis *H2* and *H3*, I predict the coefficient β_1 to be positive. This finding would indicate that, prior to the split share structure reform, the state was manipulating and withholding information to hide their expropriation activities which, in turn, increased the analysts forecast errors and dispersion. For the post-reform regression, this study splits the *DSTATE* variable in equation (5.1) into firms which remained state-owned throughout the time period of this study (*RDSTATE*), and firms which converted from state-owned firms to non-state owned firms (*DSTATE2NSOE*) due to the split share structure reform. This will provide the direct impact of these firms in the post-reform period relative to the benchmark firms (non-state owned firms).

Secondly, as this study focuses on the impact of the split share structure reform on the information environment of *DSTATE2NSOE* firms relative to *RDSTATE* firms, it employs the following pooled regression model, which includes the split share structure reform dummy and its interaction term with firms which switch from state control to non-state owned:

$$INFO.ENVIRONMENT_{i,t+1} = \beta_0 + \beta_1\, DSTATE2NSOE_{i,t} + \beta_2\, SSR_{i,t} + \beta_3 DSTATE2NSOE_{i,t}{*}SSR_t + \beta_4\, XLIST_{i,t} + \beta_5 QFII_{i,t} + \beta_6 LNTOTASSET_{i,t} + \beta_7 LEVERAGE_{i,t} + \beta_8 ROA_{i,t} + \beta_9 TIME_t \quad (5.2)$$

DSTATE2NSOE is a dummy variable which is equal to 1 for state-owned firms which converted into non-SOEs due to the split share reform during the time period of this study, and 0 otherwise. *SSR* is a dummy variable which indicates the period of the split share structure reform and equals 1 for firm-year observations in the post-reform period (2005 and onwards), and 0 for observations before the share reform. *SSR* captures the impact of the reform on *RDSTATE* firms. As the information regarding the implementation of the split share structure reform was already made public by the CSRC in 2005, the assumption is that firms may have already taken measures towards maximizing share returns and improving corporate governance regardless of the actual reform implementation date of the firm (Hou et al., 2012). However, the real impact of the reform will be captured when these non-tradable shares become tradable once the lock-up period expires, which happens in 2009 for most Chinese listed firms.

The coefficient of the interaction term, β_3, captures the incremental effect of the split share structure reform on the information environment for *DSTATE2NSOE* firms relative to *RDSTATE* firms and is the variable of interest in testing hypotheses *H5*, *H6* and *H7* (Hou et al., 2012). When *COVERAGE* is the dependent variable, I predict coefficient $\beta_3>0$, which will indicate that the split share structure reform is associated with an increase in analyst coverage for *DSTATE2NSOE* firms relative to *RDSTATE* firms. When *FORERROR* and *DISPERSION* is the dependent variable, I predict $\beta_3<0$. These findings will indicate that the split share structure reform is associated with an improvement in the information environment for *DSTATE2NSOE* firms relative to *RDSTATE* firms measured by greater analyst coverage, lower forecast errors and lower analyst dispersion. In robustness tests, I replace the *DSTATE2NSOE* dummy

variable with the ownership proportion of the ultimate controlling shareholder in *DSTATE2NSOE* firms.

Finally, to mitigate the effect of extreme outliers, this study winsorizes all continuous variables at 1% and 99% in each year. The study also includes industry dummies in the regression model to capture industry-specific impact (Chen et al., 2016c). As this study uses panel data, which includes data on multiple firms over several years, the residuals of a given firm may be correlated across time period for that firm (Petersen, 2009). This is known as the firm effect. Also, the residuals of a given year may be correlated across different firms. This is known as the time effect. Using OLS in such a scenario will lead to biased estimates because OLS assumes that residuals are independent[110] and identically distributed (Petersen, 2009).[111]

Petersen (2009) illustrates that the use of clustered[112] standard errors leads to unbiased estimates. Clustering by firm produces standard errors which are unbiased as it accounts for the correlation between observations on the same firm in different years (Petersen, 2009). Clustering by time produces standard errors which are unbiased as it accounts for the correlation between observations on different firms in the same year. However, in the case of too few clusters, clustered standard errors will be biased (Petersen, 2009). To address this issue, all regressions for this chapter are estimated with robust standard errors clustered by firm (Petersen, 2009).

Moreover, this study also includes a time trend (*TIME*) to capture any general time trend. The time trend variable takes into account unobserved, trending factors that affect the dependent variable, which might also be correlated with the explanatory variables (Wooldridge, 2013). Hence, incorporating the time

[110] This means that what you get from one observation has nothing to do what you get from another observation.
[111] This means that they all come from the same distribution.
[112] Clusters include multiple observations per firm (Peterson, 2009).

trend variable also solves for the omitted variable problem. The coefficient of the time trend variable indicates whether the dependent variable, on average, is increasing (β_9>0) or decreasing (β_9<0) over time for reasons unrelated to the independent variables in the model (Wooldridge, 2013). Therefore, the time trend variable captures the impact of other factors, not included in the model, on the dependent variable (Wooldridge, 2013). By including the time trend variable, we are capturing the impact of other factors on the dependent variable. Omitting the time trend variable will lead to biased estimates on the independent variables included in the model (Wooldridge, 2013).

Control Variables

This study controls for a set of relevant factors identified by previous literature as affecting both analysts' decision to follow firms and the quality of their forecasts. Following are the control variables used in this study:

QUALIFIED FOREIGN INSTITUTIONAL INVESTORS (QFII)

In 2002, a qualified foreign institutional investor scheme was introduced which allowed selected foreign institutional investors to trade in the 'A' shares of Chinese listed firms (Jiang and Kim, 2015, Zhang et al., 2017). QFII ownership in Chinese listed firms has been documented to have a direct and indirect influence on improving the governance of listed firms. For instance, there is evidence of the positive monitoring role of QFII during the negotiation period of the split share reform process (Huang and Zhu, 2015).

Huang and Zhu (2015) document that QFII involvement in the negotiation process benefitted minority tradable shareholders in terms of higher compensation paid by non-tradable shareholders to tradable shareholders. Moreover, these foreign institutional investors are less susceptible to political pressure from a controlling state shareholder. Zhang et al. (2017) also find that large trades by QFII act as market discipline mechanism which limits expropriation by a controlling shareholder through tunnelling. Overall, these

studies suggest that QFII ownership in Chinese listed firms is an effective way to limit the expropriation by controlling shareholders and helps to improve corporate governance.

Based on the above information, this study includes QFII which represents the proportion of qualified foreign institutional investor ownership of 'A' shares listed within the top ten shareholdings. I predict a negative association between QFII and analyst forecast properties (lower forecast errors and lower dispersion). I also expect QFII to have a stronger demand for firm-specific information and that financial intermediaries will respond to this demand; I, therefore, predict a positive association between *QFII* and coverage.

CROSS-LISTED FIRMS (XLIST)

The notion that the information environment of cross-listed firms is better relative to non-cross listed firms is because cross-listed firms are subject to increased scrutiny from investors and auditors, are subject to increased disclosure requirements from the overseas exchange they are listed in, and also are required to prepare their annual reports in accordance with the accounting standards of their overseas listed exchange country (Lang et al., 2003). Chinese listed firms choose to cross-list in overseas stock exchanges for a number of reasons such as to raise capital, better investor protection and improved corporate image (Lin et al., 2016). Chinese listed firms which are cross-listed in developed capital markets are required to follow the more stringent rules and disclosure requirements of the exchange in which they are listed. Lin et al. (2016) show that the cross-listing of Chinese listed firms in overseas exchanges reduces information asymmetry, with these firms providing more information to outside stakeholders.

As cross-listed firms are required to disclose additional information and are subject to the regulatory requirements of the exchange they are listed in, this reduces the information acquisition costs of analyst and in turn leads to increased coverage of these firms by analysts (Lang et al., 2003). Moreover,

analyst perceives cross-listed firms as being of higher quality, which likely attracts investors interests. Prior evidence indicates that non-US firms cross-listed in the US have a better information environment, measured by higher coverage and more accurate analyst forecasts relative to firms which are not cross-listed (Lang et al., 2003). Moreover, as increased disclosure and transparency is associated with more accurate forecast and greater coverage (Lang and Lundholm, 1996), this study predicts a positive association between *XLIST* and coverage, and predicts a negative association between *XLIST* and analyst forecast properties (lower forecast errors and lower dispersion). *XLIST* is a dummy variable which takes a value of 1 for firms which are cross-listed internationally, and 0 otherwise.

LEVERAGE

This study also controls for *LEVERAGE,* which is measured as (short term debt + long term debt)/total assets. In mature capital markets, highly levered firms are likely subject to greater scrutiny and monitoring by debt holders and credit rating agencies, which creates demand for firm-level information (Hutton et al., 2012). China is quite different to the US and the EU environment as it is the state who owns the banks, as well as having large stakes in listed firms, and so borrowing creates little demand for public information (He et al., 2016a, Piotroski and Wong, 2012). In contrast to the findings from Western studies, this study, therefore, predicts a negative association between coverage and firm *LEVERAGE*, and a positive association between *LEVERAGE* and analyst forecast properties (higher forecast errors and higher dispersion).

FIRM SIZE

Previous non-Chinese studies suggest that there is greater information available for larger firms and more press releases (Wang and Yu, 2017). Large firms also provide financial analysts with private information (García-Meca and Sánchez-Ballesta, 2011) and have greater analyst coverage, which in turn leads to smaller

forecast errors (Lang and Lundholm, 1996, García-Meca and Sánchez-Ballesta, 2011, Choi et al., 2013). Focusing on previous Chinese studies, Huang and Boateng (2016) and Haß et al. (2014) also argue that large firms attract greater media attention and have greater analyst coverage. Chen et al. (2016b) further find greater information asymmetry for smaller firms. To control for firm size, this study includes the natural log of total assets (*LNTOTASSET*). I expect a positive association between firm size and analyst coverage, and a negative association between firm size (*LNTOTASSET*) and analyst forecast properties (lower forecast errors and lower dispersion).

ROA

This study also controls for profitability. Profitable firms are more likely to be followed by analysts (Jiraporn et al., 2012) and have more accurate analysts' forecasts (Haß et al., 2014). This is because profitable firms have greater incentive to provide high-quality financial reporting (Byard et al., 2011). This study also predicts a positive association between firm performance and analyst following, and a negative association between firm performance and analyst forecast properties (lower forecast errors and lower dispersion). Firm performance is measured as net profit attributable to owners divided by total assets.

Table 2: Sample Selection Process

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2003-2014
Population (Shanghai and Shenzhen listed firms)	1378	1466	1461	1544	1658	1712	1860	2215	2449	2577	2621	2736	23,677
Step 1: Exclude financial firms	(27)	(27)	(27)	(32)	(40)	(40)	(42)	(47)	(50)	(51)	(51)	(52)	(486)
Non-Financial firms	1351	1439	1434	1512	1618	1672	1818	2168	2399	2526	2570	2684	23,191
Step 2: Exclude observations with no clear evidence on ownership type	(659)	(216)	(229)	(239)	(256)	(248)	(430)	(405)	(368)	(315)	(328)	(326)	(4,019)
Step 3: Exclude missing ownership data	(0)	(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(1)
A-shares	0	1	0	0	0	0	0	0	0	0	0	0	
B-shares	0	0	0	0	0	0	0	0	0	0	0	0	
QFII	0	0	0	0	0	0	0	0	0	0	0	0	
Step 4: If annual report of previous year-end is released between May-Dec in the following year.	(2)	(6)	(7)	(0)	(2)	(1)	(0)	(0)	(1)	(0)	(3)	(1)	(23)
Step 5: Exclude missing on control variables	(0)	(0)	(0)	(0)	(1)	(0)	(0)	(1)	(0)	(0)	(0)	(0)	(2)
ROA	0	0	0	0	1	0	0	1	0	0	0	0	
Leverage	0	0	0	0	0	0	0	0	0	0	0	0	
LNTOTASSET	0	0	0	0	0	0	0	0	0	0	0	0	
Sample for analyst coverage	690	1,216	1,198	1,273	1,359	1,423	1,388	1,762	2,030	2,211	2,239	2357	19,146
Step 6: Exclude missing analyst data:	(669)	(1,176)	(1,154)	(1,246)	(1,084)	(1,110)	(1,005)	(1,253)	(1,479)	(1,601)	(1,698)	(1,681)	
Errors	637	1,086	1,049	1,190	960	955	836	998	1199	1419	1493	1486	(13,308)
Dispersion	32	90	105	56	124	155	169	255	280	182	205	195	(1,848)
Final sample	21	40	44	27	275	313	383	509	551	610	541	676	3,990

Table 2 shows the sample selection criteria. Step 1 excludes financial firms. Step 2 classifies firms as state-owned if the ultimate controlling shareholder or/and the nature of share is related to the state, and excludes observations on firms with no clear information on ownership type. Step 3 excludes observations with missing ownership data. Step 4 excludes firms which released their previous year annual report between May-December in the following year. Step 5 excludes observations with missing data on control variables such as ROA and leverage. This provides a final analyst coverage sample of 19,146 firm-year observations from 2003 until 2014. Step 6 excludes observations with missing analyst data. Observing the structure of the dataset, the following point explains the missing observations for analyst error: (1) Missing on the mean analyst forecast. To calculate analyst forecast measure, this study incorporates only those forecasts which were made in the month following the release of annual report (annual report of previous year-end). There are missing mean analyst forecasts for firms because there are no analysts' forecasts following the month after the annual report release. Observing the data, there are also missing observations on dispersion. This is because to calculate dispersion, the study requires more than one analyst forecast. Missing observation on dispersion suggests that there is only one analyst issuing the forecast for the firm in that particular year. The final sample includes 3,990 firm year observations from 2003 until 2014.

Table 3: Sample Firms by Year and by Firm Type

YEAR	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
Not-cross listed sample (x-list=0)													
A-share firms only	602	1,091	1,077	1,144	1,221	1,283	1,273	1,634	1,894	2,066	2,097	2,213	17,595
A+B share firms only	62	90	88	89	89	87	70	79	81	84	84	86	989
Total non-cross listed firms	664	1,181	1,165	1,233	1,310	1,370	1,343	1,713	1,975	2,150	2,181	2,299	18,584
Cross-listed sample (x-list=1)													
A+H share firms	26	34	32	39	48	52	45	49	55	60	58	57	555
Other exchange listing	0	1	1	1	1	1	0	0	0	1	0	1	7
Total cross-listed firms	26	35	33	40	49	53	45	49	55	61	58	58	562
Total firm-year observations	690	1,216	1,198	1,273	1,359	1,423	1,388	1,762	2,030	2,211	2,239	2,357	19,146

Note: This table shows sample constituents by year and by firm type for firms listed on the Shanghai and the Shenzhen stock exchange. Cross-listed sample includes firms which are listed on the Hong Kong exchange and other international exchanges. The non-cross listed firms include A-share firms only and A+B share firms only.

Table 4: Sample Size And Share Structure (Average Values)

YEAR	N	*DSTATE*	*RDSTATE*	*DSTATE2NSOE*	*NONSOE*	*TRADABLE SHARES*	*NON-TRADABLE SHARES*
2003	690	73%	57%	13.5%	21.9%	40.6%	59.4%
2004	1,216	70.4%	58%	12.2%	23.1%	39.4%	60.6%
2005	1,198	69.8%	58.1%	12.2%	23%	41.4%	58.6%
2006	1,273	66%	56.6%	11.6%	25.5%	47.9%	52.1%
2007	1,359	63%	55.2%	10.7%	28.1%	53.1%	46.9%
2008	1,423	61.8%	54%	10.5%	29.4%	58.9%	41.1%
2009	1,388	52.8%	46.8%	9.1%	35%	66.9%	33.1%
2010	1,762	45.6%	40.4%	7.5%	37.7%	64.6%	35.4%
2011	2,030	40.8%	36.7%	7%	38.9%	66.5%	33.5%
2012	2,211	40.2%	35.9%	6.7%	38%	69.7%	30.3%
2013	2,239	39.3%	35.3%	6.3%	38.7%	74.7%	25.3%
2014	2,357	38.1%	34.4%	6.2%	39.2%	76.1%	23.9%
Total	19,146	51.2%	44.5%	8.7%	33.5%	61.9%	38.1%

Table 4 shows the average values (%) of key ownership variables by year. *DSTATE* is a dummy variable which takes a value of 1 for firms which are state-owned, and 0 otherwise. *RDSTATE* is a dummy variable which takes a value of 1 for firms which remained state-owned during the time period of this study, and 0 otherwise. *DSTATE2NSOE* is a dummy variable which takes a value of 1 for firms which converted from state-owned to non-state owned due to split share reform, and 0 otherwise. Observing the structure of the dataset, it is noted that *DSTATE2NSOE* is reducing overtime. This is due to the missing values on key variables used in this study. *NONSOE* is a dummy variable which takes a value of 1 for firms which remained non-state during the time period of this study, and 0 otherwise. *TRADABLESHARES* is the proportion of tradable shares out of total shares. *NON-TRADABLESHARES* is the proportion of non-tradable shares out of total shares.

5.3 Sample and Research Methodology for Share Price Synchronicity

5.3.1 Sample selection

This section provides the details of the sample selection and the research methodology for the share price synchronicity tests. Step 1 excludes 486 firm-year observations which belong to the finance industry. Next, 4,020 missing observations with missing data on ownership structure are excluded, followed by 370 observations with missing data for control variables such as *LNTOTASSET*, *ROA*, *LEVERAGE*, *TRADVOLUME* and *COVERAGE*. Next, I exclude 4,125 observations with missing data on the synchronicity variable. I also exclude 1,640 observations relating to loss firms and ST firms because these firms are known to have higher information asymmetry and also are subject to certain trading restrictions (Dedman et al., 2015).[113]

This study focuses only on A-share returns for the following reasons. Firstly, the split share structure reform in 2005 was only related to the A-shares, which were categorized into tradable shares and non-tradable shares. These are also the most popular type of shares in Chinese stock market relative to B-shares and H-shares. Given that the sample includes A-share firms which simultaneously also issued B-shares or H-shares, the study only focuses on the A-share prices of these firms for the calculation of the dependent variable (synchronicity).[114]

The exclusion criteria also exclude firms which started the split share reform during the first 5 months from Jan to May.[115] This is because there is evidence of information leakage for firms before the announcement of the split share structure reform implementation (Tong et al., 2013). Information regarding the

[113] Firms with two-years consecutive losses are classified as 'ST' firms and their daily stock price fluctuation is reduced to 5% (Chen et al., 2016c). When ST firms incur a third-year loss, then share trading of these firms is suspended (Chen et al., 2016c).
[114] The study includes all Chinese listed firms with different types of shares such as A-share firms only, AB share firms and AH share firms.
[115] These are only 4 observations.

compensation package and the reform process may have provided firm-specific information that could be incorporated into the share price, which is not related to improvement in corporate transparency (Hou et al., 2012). This provides a final sample of 13,032 firm-year observations from 2003 until 2014.

5.3.2 Research Methodology

This section provides the details on the research methodology for the share price synchronicity tests. Existing studies provide evidence on the use of share price synchronicity as a measure of the information environment (Gul et al., 2010, Li et al., 2015). To construct the share price synchronicity measure of firm *i* for year *t*, I regress each stock's daily return, r_{it}, on their respective exchange listing:

$$r_{it} = \alpha + \beta_1 indexreturn_t + \varepsilon_{it} \quad (5.3)$$

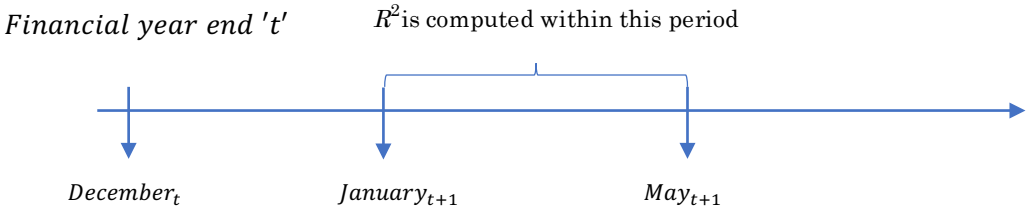
where r_{it} is the daily A-share return of firm *i* on day *t*; $indexreturn_t$ is the daily stock index return where the firm is listed at. For instance, if firm A is listed on the Shanghai stock exchange, then I regress firm A's daily A-share return, $r_{it}^{Shanghai\ listed\ firm}$, on the Shanghai stock exchange index return $Shanghai\ composite\ Ashare\ index_{it}$.[116] Similarly, if firm B is listed on the Shenzhen stock exchange, then I regress firm B's daily A-share return, $r_{it}^{Shenzhen\ listed\ firm}$, on the Shenzhen stock exchange index return $Shenzhen\ composite\ Ashare\ index_{it}$.[117]

The above market model, equation (5.3), decomposes the total return variations into those which are associated with market-wide factors and those which are associated with firm-specific factors (Gul et al., 2010). In this study, synchronicity is used to capture how much firm-specific information is

[116] $r_{it}^{Shanghai\ listed\ firm} = \alpha + \beta_1 Shanghai\ composite\ Ashare\ index_{it} + \varepsilon_{it}$

[117] $r_{it}^{Shenzhen\ listed\ firm} = \alpha + \beta_1 Shenzhen\ composite\ Ashare\ index_{it} + \varepsilon_{it}$

incorporated into stock prices which is available to stock market participants. Therefore, this study focuses on the time period of annual report announcements for the computation of R^2. The following timeline illustrates how I compute the R^2 for this study:



To compute the R^2, I use the daily share returns for each firm from January to May for each year. The financial year-end of all Chinese listed firms is 31st December and the Chinese regulations require listed firms to publish their financial statements by the end of April for 'A' and 'B' share firms, and by the end of May for 'H' share firms (Barniv, 2009, Huang and Wright, 2015). This is the only time period when most of the firm-specific information is available to investors due to public disclosure of financial statements.[118] Around 88% of sample firms in this study release their annual reports in March-April. Therefore, for the computation of R^2, this study incorporates the daily returns from Jan to May for each firm, each year (Gul et al., 2011).

The stock exchange index reflects the movements of A-share price in the Shanghai A-share composite index and the Shenzhen A-share composite index. These two indices are considered the most important indices for A-shares which tracks the performance of A-shares of Chinese listed firms (Jiang et al., 2010b). The Shanghai composite A-share index and the Shenzhen composite A-share index are market-capitalization weighted indices. The index value is calculated using prices of A-shares listed on both exchanges:

[118] Chinese listed firms are encouraged, but not required, by the CSRC to announce earnings before regulatory filings (Huang et al., 2018). Although disclosure rules are frequently updated by the regulatory authority in an attempt to reduce information asymmetry, implementation of such rules is, however, less effective (Huang et al., 2018). Also, there is selective enforcement against firms which violate disclosure rules (Chen et al., 2011a).

$$Current\ Index = \frac{Current\ total\ market\ cap\ of\ constituents}{market\ cap\ at\ the\ time\ of\ index\ creation} \times 100$$

where current total market capital is $\sum(A\ share\ price_{i,t} \times Adjusted\ negotiable\ shares\ shares_{i,t})$, where i stands for firm and t stands for day.[119]

Equation (5.3) provides the R^2 for each firm in each year. The R^2 from equation (5.3) measures the fraction of variations in firm i's share return relative to the market-wide variations (Morck et al., 2013). A higher R^2 suggests that less firm-specific information is incorporated in share returns.

Observing the dataset of daily share returns from Jan to May for each firm-year, it was noted that there are some firms which have only two trading days from Jan to May and the R^2 for these firms during that time interval is very high or close to 1. For instance, Stock Code 603128 has only three trading days from Jan to May in the year 2012. The R^2 for this firm in 2012 is 0.995. Moreover, there are also cases in which the R^2 is very low. For instance, Stock Code 600311 has only 7 trading days from Jan to May in 2008. The R^2 for this firm in 2008 is 0.09%.

The graphical representation in Figure 5[120] shows that there are on average 88% of observations of daily stock returns with more than 90 trading days. Therefore, to reliably compute the R^2 from the market model, this study excludes observations if the number of trading days for each firm-year is less than 90 trading days. This will ensure that there is a sufficient number of observations to reliably compute the R^2 from the market model for each stock (Morck et al.,

[119] http://www.csindex.com.cn/uploads/indices/detail/files/en/SSEMethen.pdf
[120] Figure 5 provided at the end of this section.

2000).[121] Following Gul et al. (2010) and Morck et al. (2000), the study obtains the R^2 from equation (5.3) for each firm in each year and transforms it to define the synchronicity measure as follows:

$$SYNC = \log\left(\frac{R_{it}^2}{1-R_{it}^2}\right)$$

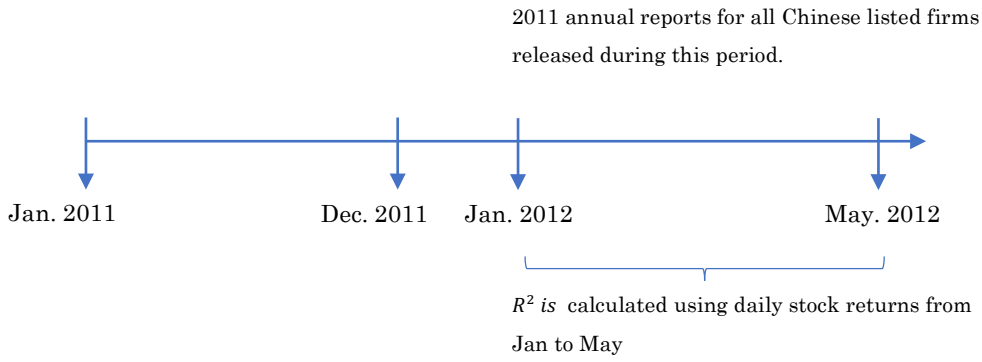
Where *SYNC* is the stock price synchronicity measure which captures the extent to which firm-specific information is incorporated into stock prices. As R^2 is bounded between 0 and 1, this study uses log transformation to create an unbounded continuous variable (Brockman and Yan, 2009). Higher values of *SYNC* suggest that the firm share price is highly correlated with the market, i.e. less firm-specific information is incorporated into stock prices.

Regression model

To examine the hypotheses, firstly this study splits the time period into the pre-reform (2003-2004) and the post-reform (2009-2014) period. To test hypothesis *H4*, this study focuses on the pre-reform (2003-2004) period. Secondly, to test hypothesis *H8*, this study runs a pooled regression, including the split share structure reform dummy variable and its interaction term with firms which switch from being state control to being outside of state-control (*DSTATE2NSOE*). The research design mentioned above also takes into account the time period when most of the non-tradable shares become fully tradable. This is consistent with Hou et al. (2012) who argue that the incentive alignment effect will only occur when most of the restricted shares become tradable. Moreover, Cheng et al. (2017) argue that the direct impact of the reform will be realized once the lockup period expires.

[121] For instance, Stock Code 600508 has 92 trading days from Jan to May in 2012 and the R-square is 86%.

To account for the information contained in the annual reports, this study uses synchronicity measure as the lead dependent variable, $SYNC_{t+1}$. The following timeline further explains my intuition for the regression model employed:



For the financial year 2011, the annual report for 2011 for Chinese listed firms will be issued from January 2012 to May 2012. This is the time period where most of the firm-specific information will be released and will likely be incorporated into stock prices. Therefore, I have used daily share returns between Jan to May for the computation of R^2. This R^2 is used to compute the synchronicity variable (*SYNC*), and then this study uses synchronicity as the lead dependent variable ($SYNC_{t+1}$).

H4 examines the information environment of state-controlled firms in the pre-reform period (2003-2004) and estimates the following regression model:

$$SYNC_{i,t+1} = \beta_0 + \beta_1\, DSTATE_{i,t} + \beta_2\, QFII_{i,t} + \beta_3\, XLIST_{i,t} + \beta_4 QFII_{i,t} + \beta_5 LNTOTASSET_{i,t} + \beta_6 LEVERAGE_{i,t} + \beta_7 TRADVOLUME_{i,t} + \beta_8 COVERAGE_{i,t} + \beta_9 TIME \quad (5.4)$$

H4 predicts that share price synchronicity will be positively associated with state-controlled firms in the pre-reform period. *H4* is supported if the coefficient of *DSTATE* is positive (β_1>0) and significant. For the post-reform regression, this

study disaggregates the *DSTATE* variable in equation (5.4) into firms which remained state-owned throughout the time period of this study (*RDSTATE*), and firms which converted from state-owned firms to non-state owned firms (*DSTATE2NSOE*). This will provide the direct impact of these firms in the post-reform period.

H8[122] examines the impact of the split share structure reform on the information environment of firms which transformed from SOEs into non-SOEs (*DSTATE2NSOE*) relative to firms which remained state-owned (*RDSTATE*) and estimates the following regression model:

$$\begin{aligned} SYNC_{i,t+1} = {} & \beta_0 + \beta_1 DSTATE2NSOE_{i,t} + \beta_2 SSR_t + \beta_3 DSTATE2NSOE{*}SSR_{i,t} \\ & + \beta_4\ QFII_{i,t} + \beta_5\ XLIST_{i,t} + \beta_6 QFII_{i,t} + \beta_7 LNTOTASSET_{i,t} \\ & + \beta_8 LEVERAGE_{i,t} + \beta_9 TRADVOLUME_{i,t} + \beta_{10} COVERAGE_{i,t} \\ & + \beta_{11} TIME \end{aligned} \qquad (5.5)$$

where *DSTATE2NSOE* is a dummy variable which takes a value of 1 for firms which converted from state-owned to non-state owned due to split share reform, and 0 otherwise. The coefficient on *DSTATE2NSOE* shows the association between share price synchronicity and *DSTATE2NSOE* firms in the pre-reform period relative to *RDSTATE* firms. *SSR* is a dummy variable which indicates the period of the split share structure reform and equals 1 for firm-year observations in the post-reform period (2005 and onwards), and 0 for observations before the share reform. The coefficient on *SSR* captures the impact of the reform on *RDSTATE* firms. The coefficient of the interaction term, β_3, captures the incremental effect of the split share reform on the information environment for *DSTATE2NSOE* firms relative to firms which remained *RDSTATE* and is the variable of interest in testing hypothesis *H8*.

[122] *H8: Split share structure reform will be associated with a decrease in share price synchronicity for firms which transferred from state control to non-state owned firms relative to firms which remained state-controlled, ceteris paribus.*

This study predicts coefficient $\beta_3<0$, which will indicate that the split share structure reform is associated with a decrease in share price synchronicity for firms which transferred from state control to non-state owned firms relative to firms which remained state-controlled. For a robustness test, I replace *DSTATE2NSOE* by the ownership proportion of the ultimate controlling shareholder in *DSTATE2NSOE* firms.

This study also includes a *TIME* trend to capture any general trend and industry dummies to control for industry effects. The coefficient of the time trend variable indicates whether the dependent variable, on average, is increasing ($\beta_{11}>0$) or decreasing ($\beta_{11}<0$) over time for reasons unrelated to the independent variables in the model (Wooldridge, 2013). The time trend variable takes into account the impact of unobserved, trending factors on the dependent variable, which might also be correlated with the explanatory variables and are not included in the model (Wooldridge, 2013). Therefore, incorporating the time trend variable also solves the omitted variable problem. Omitting the time trend variable will lead to biased estimates on the independent variables included in the model (Wooldridge, 2013).

Following Petersen (2009), this study uses clustered standard errors at the firm level to account for the correlation between observations on the same firm in different years. The use of OLS clustered standard errors by firm will provide unbiased estimates (Petersen, 2009). All continuous variables are winsorized at 1% and 99% in each year. This study includes the following firm-level control variables:

Control Variables

Qualified Foreign Institutional Investor (QFII)

Foreign institutional investors have the relevant experience and the skill set to analyze the disclosed information and incorporate that information into share

prices through their trading activities (Li et al., 2015). This is the summary from the two most recent Chinese studies by Li et al. (2015) and Zhang et al. (2017) focusing on QFII in Chinese listed firms. The study by Li et al. (2015) examine the abilities of domestic institution investors vs foreign institution investors to incorporate firm-specific information into market prices. Using data on 60 cross-listed firms from 2005 until 2010, Li et al. (2015) find that a greater number of QFII in the top ten shareholdings of Chinese listed firms improves the incorporation of firm-specific information into the A-share prices. Therefore, QFII ownership in Chinese listed firm plays a significant role in improving the firm's information environment.

Also focusing on Chinese listed firms, the study by Zhang et al. (2017) investigate the impact of QFII trading activities on the tunnelling activities of controlling shareholders. They argue that QFII are informed investors which can indirectly influence corporate governance through their trading activities. Using 1,006 firm-year observations from 2003 until 2011, they find that when foreign institutional investors engage in large and frequent transactions, this, in turn, drives the stock prices close to their fundamentals. Their aggressive trading strategy acts as a market disciplining mechanism which helps limit the tunnelling activities of controlling shareholders.[123] Based on the above discussion, this study predicts a negative association between share price synchronicity and QFII ownership. *QFII* represents the proportion of qualified foreign institutional investor ownership of 'A' shares listed within the top ten shareholdings.[124]

XLIST

This study also controls for firms which are cross-listed in an overseas stock exchange. As cross-listed firms are required to follow international accounting

[123] Zhang et al. (2017), however, also find that small discreet trades by foreign institutional investors to maximize their trading profits facilitates tunneling activities by the controlling shareholders.

[124] CSMAR only report QFII if it is within the top ten shareholdings. This study, therefore, fails to capture smaller non-domestic stakes in Chinese companies.

standards and are subject to extensive reporting requirements, they are expected to have better information disclosures and a more transparent information environment (Boubaker et al., 2014). Based on this information, this study includes a dummy variable, *XLIST*, which takes a value of 1 for firms which are cross-listed internationally, and 0 otherwise. This study predicts a negative association between synchronicity and *XLIST*.

FIRM SIZE

Large firms generally attract greater media coverage and the attention of capital market participants. As these firms are subject to greater external scrutiny by analysts, they are documented to have more disclosures of inside information (Lin et al., 2016). Large Chinese listed firms are also documented to have higher quality information disclosure as they are less likely to receive modified audit opinions (MAOs) (Chen et al., 2016c). The issuance of modified audit opinion by a firm's auditor is a signal of low financial reporting quality or financial statements below the specific standards (Chen et al., 2016c). The issuance of a modified audit opinion also implies poor corporate governance and higher information asymmetry (Chen et al., 2016c).

These large firms are also subject to certain disclosure regulation which further brings them under greater public scrutiny (Cai et al., 2017).[125] Therefore, large firms are more likely to have lower information asymmetry (Gul et al., 2011). This study controls for firm size which is measured as the natural log of total assets (*LNTOTASSET*). This study predicts a negative association between share price synchronicity and *LNTOTASSET*.

LEVERAGE

Firms with high levels of debt are subject to greater scrutiny by creditors and are less likely to manage earnings (Hutton et al., 2012). Focusing on China, its

[125] Following 2008, corporate social responsibility disclosures became mandatory for large firms listed on the Shanghai Stock exchange corporate governance index and Shenzhen stock exchange 100 index (Cai et al., 2017).

banking sector is tightly controlled by the government and is dominated by four massive state-owned banks (Li et al., 2008, He et al., 2016a). Lending by these banks is mostly through connections. This is particularly true for state-owned firms, and state-owned banks have little incentive to monitor these state-owned listed firms (Li et al., 2008, He et al., 2016a). This reduces the pressure on firms to provide high-quality information which is essential for lending decisions and effective monitoring (He et al., 2016a). Based on the above information, this study predicts a positive association between share price synchronicity and *LEVERAGE*.

BIG4

This study controls for *BIG4* auditors. Firms audited by *BIG4* auditor are likely to have more credible, value-relevant information disclosure and stock prices of these firms are more likely to incorporate firm-specific information as compared to firms audited by local Chinese auditors (Gul et al., 2010, Gul et al., 2011).[126] This is because high-quality auditors require their client firms to disclose more detailed and better quality, firm-specific information in a timely manner. Based on the above discussion, this study expects a negative relationship between *BIG4* and synchronicity.

TRADING VOLUME

To capture the aspect of investor trading, this study controls for *TRADVOLUME*, which is measured as the natural log of annual trading volume (Feng et al., 2016). If trading of shares by investors incorporates more firm-specific information into stock prices, the R^2 will be lower. However, if the trading is unrelated to the fundamentals (irrational investors), then it will lead to a higher R^2 (Ashbaugh-Skaife et al., 2005). Chinese stock market is dominated by unsophisticated retail investors who lack high school education (Titman et al., 2017). Around 88.6% of daily trading volume from 2013 until 2015 belong to

[126] Big 4 auditors such as Ernst & Young, KPMG, PWC and Deloitte are required to launch a joint venture with local Chinese audit firms to provide auditing services (Chen et al., 2016c).

retail investors (Titman et al., 2017). Therefore, this study predicts a positive relationship between *TRADVOLUME* and share price synchronicity.

COVERAGE

I control for analyst coverage (*COVERAGE*), which is the number of analysts per firm issuing one-year ahead forecasts, made one month after the release of the previous years' financial statement. Due to the opaque information disclosure by Chinese listed firms, I predict that there will be an increase in the demand for firm-specific information by tradable shareholders (Healy and Palepu, 2001) and more pressure on firms by these tradable shareholders to disclose value-relevant information. This, in turn, will provide analysts with more firm-specific information. This study, therefore, expects a negative association between *COVERAGE* and the share price synchronicity measure.

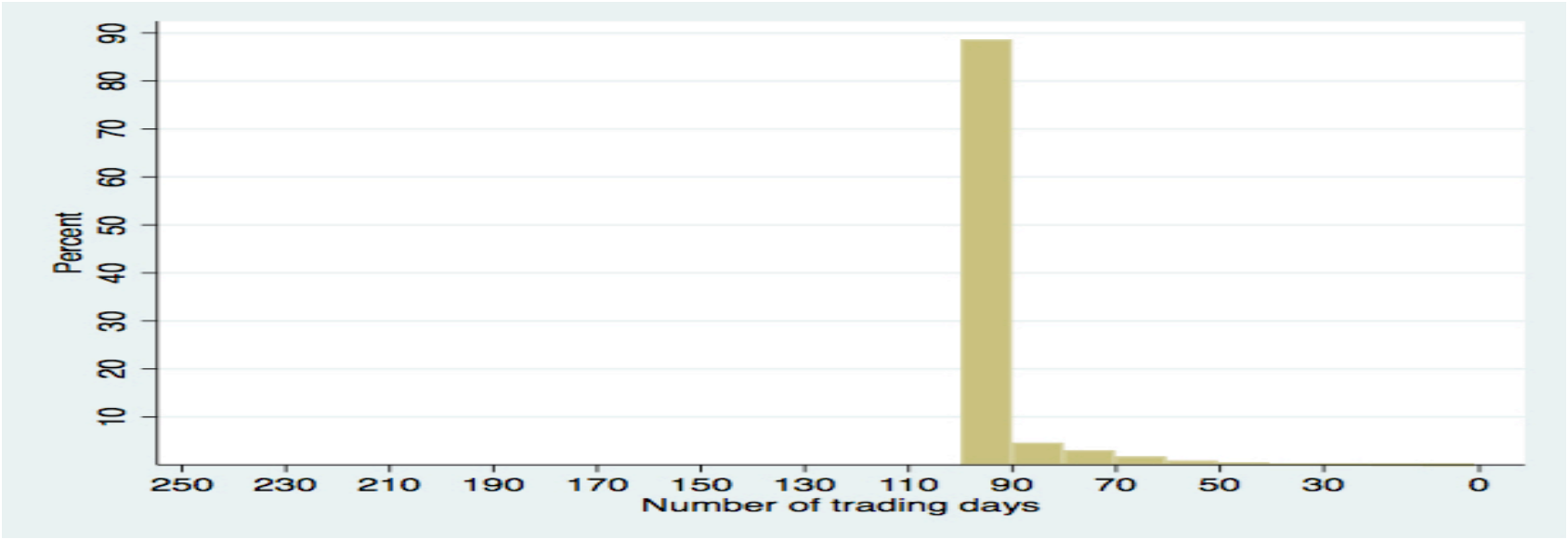
Table 5: Sample Selection Process

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2003-2014
Population	1378	1466	1461	1544	1658	1712	1860	2215	2449	2577	2621	2736	23,677
Step 1: Exclude financial firms	(27)	(27)	(27)	(32)	(40)	(40)	(42)	(47)	(50)	(51)	(51)	(52)	(486)
Non-Financial firms	1351	1439	1434	1512	1618	1672	1818	2168	2399	2526	2570	2684	23,191
Step 2: Exclude observations with no clear data on ownership	(659)	(216)	(229)	(239)	(256)	(248)	(430)	(405)	(368)	(315)	(328)	(326)	(4,019)
Step 3: Exclude missing ownership data	(0)	(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(1)
B-shares	0	1	0	0	0	0	0	0	0	0	0	0	
QFII	0	0	0	0	0	0	0	0	0	0	0	0	
Step 4: Exclude missing on control variables	(0)	(1)	(0)	(20)	(35)	(24)	(69)	(83)	(39)	(16)	(45)	(38)	(370)
LNTOTASSET	0	0	0	0	0	0	0	0	0	0	0	0	
ROA	0	0	0	0	1	0	0	1	0	0	0	0	
Leverage	0	0	0	0	0	0	0	0	0	0	0	0	
Trading volume	0	1	0	20	34	24	69	82	39	16	45	38	
Coverage	0	0	0	0	0	0	0	0	0	0	0	0	
Step 5: Exclude missing on synchronicity	(35)	(55)	(703)	(246)	(177)	(115)	(109)	(245)	(401)	(478)	(612)	(949)	(4,125)
Step 6: Exclude loss firms and ST firms	(84)	(168)	(120)	(104)	(117)	(209)	(139)	(119)	(124)	(173)	(149)	(134)	(1,640)
Step 7: Exclude reform firms from Jan-May	(0)	(0)	(0)	(0)	(0)	(0)	(4)	(0)	(0)	(0)	(0)	(0)	(4)
Final sample	573	998	382	903	1,033	1,076	1,067	1,316	1,467	1,544	1,436	1,237	13,032

Table 5 shows the sample selection criteria. Step 1 excludes financial firms. Step 2 classifies firms as state-owned if the ultimate controlling shareholder or/and the nature of share is related to the state, and excludes observations on firms with no clear information on ownership type. Step 3 excludes observations with missing ownership data. Step 4 excludes observations with missing data on control variables. Step 5 excludes observations with missing data on synchronicity measure. Step 6 excludes observations on loss firms and firms with 'ST' status. Step 7 excludes observations on firms

which started the split share structure reform process during Jan-May. This provides a final sample of 13,032 firm-year observations from 2003 until 2014.

Figure 5: Pooled observations on number of stock trading days (2003 until 2014)



The figure above shows the observations on the number of trading days (daily returns) of firms listed on the Shanghai stock exchange and the Shenzhen stock exchange for the time period from 2003 until 2014. It is observed that there are on average 88% of observations of daily returns more than 90 trading days. Given that there are substantial observations on the number of trading days, this study, therefore, excludes observations lower than 90 trading days. These observations are used to calculate the annual synchronicity for each firm.

Table 6: Sample Constituents by Year and by Firm Type

YEAR	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
Not-cross listed sample (x-list=0)													
A-share firms only	515	911	355	828	944	987	986	1218	1367	1442	1340	1143	12,036
A+B share firms only	35	59	15	47	50	51	45	53	53	52	49	48	557
Total non-cross listed firms	550	970	370	875	994	1,038	1,031	1,271	1,420	1,494	1,389	1,191	12,593
Cross-listed sample (x-list=1)													
A+H share firms	23	27	11	28	39	38	36	45	47	49	47	45	435
Other exchange listing	0	1	1	0	0	0	0	0	0	1	0	1	4
Total cross-listed firms	23	28	12	28	39	38	36	45	47	50	47	46	439
Total firm-year observations	573	998	382	903	1,033	1,076	1,067	1,316	1,467	1,544	1,436	1,237	13,032

Note: This table shows sample constituents by year and by firm type for firms listed on the Shanghai and the Shenzhen stock exchange. Cross-listed sample includes firms which are listed on the Hong Kong exchange and other international exchanges. The non-cross listed firms include A-share firms only and A+B share firms only.

Table 7: Sample Size And Share Structure (Average Values)

YEAR	N	*DSTATE*	*RDSTATE*	*DSTATE2NSOE*	*NONSOE*
2003	573	74%	60%	12.4%	21.8%
2004	998	73%	62%	10.7%	22.4%
2005	382	64%	56%	7.9%	32.2%
2006	903	68%	62%	9.2%	26.4%
2007	1,033	65%	60.1%	8.2%	28.9%
2008	1,076	63%	57.2%	8.3%	30.9%
2009	1,067	55%	51.2%	8%	37.3%
2010	1,316	50%	46.9%	6.8%	43.2%
2011	1,467	45.8%	43%	6.7%	47.3%
2012	1,544	44.8%	42%	7.1%	47.7%
2013	1,436	46.2%	43.8%	6.7%	46.7%
2014	1,237	50%	46.5%	5.9%	43.6%
Total	13,032	55.5%	50.8%	7.8%	38%

Table 7 shows the average values (%) of key ownership variables by year. *DSTATE* is a dummy variable which takes a value of 1 for firms which are state-owned, and 0 otherwise. *RDSTATE* is a dummy variable which takes a value of 1 for firms which remained state-owned during the time period of this study, and 0 otherwise. *DSTATE2NSOE* is a dummy variable which takes a value of 1 for firms which converted from state-owned to non-state owned due to split share reform, and 0 otherwise. Observing the structure of the dataset, it is noted that *DSTATE2NSOE* is reducing overtime. This is due to the missing values on key variables used in this study. *NONSOE* is a dummy variable which takes a value of 1 for firms which remained non-state during the time period of this study, and 0 otherwise.

5.4 Sample and Research Methodology for Value Relevance

5.4.1 Sample selection

This section provides details of the sample selection criteria and research methodology for the value relevance chapter. Table 8 presents the sample selection criteria. To enter the sample, firms must have data on all key variables. I first exclude 486 firm-year observations on financial firms. Next, I exclude 4,020 firm-year observations with no clear evidence on ownership type and missing ownership data. I next exclude 1,203 firm-year observations with missing data on market value and control variables, which include capital expenditure, capital contribution and stock dividends. Moreover, I also exclude 2,112 firm-years observations which relate to loss firms and ST firms. Firms which report two consecutive years of losses are categorized as ST firms (Peng et al., 2011, Chen et al., 2016c). Subsequently, their daily stock price fluctuation is reduced from 10% to 5%. A consecutive third-year loss for ST firm leads to suspension of trading of its share (Chen et al., 2016c). The firm is delisted if it reports a consecutive fourth-year loss (Peng et al., 2011). As loss firms and firms with 'ST' status are subject to different trading restrictions and have higher information asymmetry, these firms are also excluded from the sample (Dedman et al., 2015). This study next excludes 26 firm-year observations which report negative shareholder equity because this study uses shareholder' equity as a deflator.[127] The final sample consists of 15,829 firm-year observations from 2003 until 2014.

[127] This study also excludes observations if capital expenditure is less than 0. There is only one observations in 2003 which relates to this.

5.4.2 Research Methodology

This section provides details on the model development, followed by discussions of the 'scale' and the 'scale effect', and the most effective deflator choice. This section then provides the details of hypothesis testing.

Model Development

Value relevance studies start from a theoretical valuation model, such as that in Ohlson (1995), where market value is a linear function of book value and earnings (Shen and Stark, 2013):

$$MV_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 E_{it} + \tilde{\varepsilon}_{it} \quad (5.6)$$

Over the years, several value relevance studies have disaggregated book value and earnings to identify certain of their components which are associated with the market value. For instance, Rees (1997) includes dividends and capital expenditures for UK firms; Akbar and Stark (2003) include dividends and capital contributions for UK listed firms[128]; and Hand and Landsman (2005) include dividends, net capital contribution and "other information" for US firms. Moreover, Dedman et al. (2015) examine the value relevance of dividends in the context of Chinese listed firms. This in turns leads to an extended version of the empirical valuation model:

$$MV_{it} = \beta_0 + \beta_1 BV_{it} + \beta_2 E_{it} + \beta_3 CD_{it} + \beta_4 SD_{it} + \beta_5 CE_{it} + \beta_6 CC_{it} + \varepsilon_{it} \quad (5.7)$$

[128] Akbar and Stark (2003) also include the variable "other information" to investigate whether the dividends might be capturing some other information about future value relevant variables. Instead of using earnings forecasts as a proxy for "other information" (Ohlson, 2001), Akbar and Stark (2003) develop a different proxy which uses previous period "other information" OI_{t-1}.

This section now follows with a discussion of the above studies and also provides reasons as to why it is important to control for these additional variables in the Chinese context.

Rees (1997) examines the value relevance of dividends and capital expenditure in the UK context. Focusing on the time period from 1987 until 1995, Rees (1997) show that dividends are indeed positive and significantly related with market value. They are even more important signal of value for small firms which have more volatile earnings and high information asymmetry. The value relevance of capital expenditures is mainly associated with the signalling effect, which was previously investigated by McConnell and Muscarella (1985). McConnell and Muscarella (1985) show that the information contained in the announcements of capital expenditures by the firm is indeed captured in the market prices. The market reacts to the announcements of capital expenditures because firstly, these announcements contain information regarding the future investment opportunities and secondly, these announcements acts as a signal about the firm's current earnings from existing projects. This is because when existing projects generate larger than expected earnings, capital expenditures are increased and vice versa (McConnell and Muscarella, 1985).[129]

Covering the period from 1990 until 2001, Akbar and Stark (2003) further show changes in the coefficient when dividends and capital contribution are added together in regression, and when they are added in the regression model separately. Firstly, they find a negative coefficient when dividends and capital contribution are combined and included in the valuation model as net shareholder cash flow (*NSCF).* However, when dividends and capital contribution are included as separate variables, they find a positive coefficient with dividends and a negative coefficient with capital contribution.[130] They

[129] McConnell and Muscarella (1985) empirical results indicates that market participants respond positively to an increase in the capital expenditure, and negatively to capital expenditure decreases.

[130] Including dividends and capital contribution as separate variables in valuation model further increases the explanatory power of the model relative to only including them as *NSCF* (Akbar and Stark, 2003).

further document that when dividends are included as a separate variable in the valuation model, they tend to capture some of the effects of earnings and book value. Overall, their results raise the importance of including dividends and capital contribution as separate variables because they each contain incremental information about value.

Although Rees (1997) and Akbar and Stark (2003) provide evidence on the value relevance of dividends, capital expenditure and capital contribution for UK listed firms, it should also be taken into account that these results may not be similar in some other institutional environment (Akbar and Stark, 2003). This is due to differences in the institutional setting such as the number of listed companies, the nature of companies, the accounting standards and dividend policies (Akbar and Stark, 2003).

For instance, in the context of Chinese listed firms, cash dividends were preferred by non-tradable shareholders prior to the split share structure reform. This is because non-tradable shareholders could not sell their shares to benefit from capital gains. In turn, non-tradable shareholders pressure the management to pay cash dividends which ultimately reduce managerial discretion over the distribution of cash dividends (Dedman et al., 2015). Dedman et al. (2015) document a change in the value relevance of cash dividends during the period from 2003 until 2011. Dedman et al. (2015) show that prior to the split share reform, cash dividends were not value relevant, however, following the split share structure reform they document that cash dividends became value relevant. This is due to the removal of the restriction of non-tradability of shares as after the split share structure reform, non-tradable shareholders can sell their shares and benefit from capital gains. This, in turn, provided managers with the discretion over the distribution of cash dividends which increases their value relevance (Dedman et al., 2015).[131]

[131] Dedman et al. (2015) also show that stock dividends are value relevant in both time period (pre-and post-split share reform period).

Moreover, as capital contributions is value relevant in the context of UK firms and is an important signal for the firm's prospects, it is also likely that it will be value relevant in Chinese institutional environment as well. This is due to the regulation by the CSRC which requires Chinese listed firms to maintain an average ROE of no less than 6% for three consecutive years to become eligible to raise capital (Peng et al., 2011). Therefore, capital contribution acts as a signal of the sound financial condition of the firm to capital market participants as the firm is neither at the risk of delisting nor at the risk of losing share issuance right (Peng et al., 2011).

Based on the above discussion, this thesis, therefore, uses the regression model which is built on Akbar and Stark (2003), Dedman et al. (2015) and Shah et al. (2009), where market value is modelled as a linear function of book value, earnings, dividends, capital contribution and capital expenditures:[132]

$$MV_{it+1} = \beta_0 + \beta_1 BV_{it} + \beta_2 E_{it} + \beta_3 CD_{it} + \beta_4 SD_{it} + \beta_5 CE_{it} + \beta_6 CC_{it} + \varepsilon_{it} \quad (5.8)$$

Where the variables used in this study are defined as follows:

1. MV_{it+1} = is the market value of firm i measured four months after the financial year-end. The financial year-end of all Chinese listed firms is 31st December and the Chinese regulations require firms to publish their financial statements by the end of April (Barniv, 2009). Therefore, to ensure that the disclosed information is reflected in the share price, this study measures the share price at the end of April. (*CSMAR* item- total number of shares x stock price (closing)).

2. BV_{it} = is the book value of equity of firm i at the end of the financial year 't'. (CSMAR item- the sum of all shareholders' equity items)

[132] This study excludes research & development expenditure because they are only available from 2007 onwards for Chinese listed firms.

3. E_{it} = earnings for firm i at the end of financial year t. (*CSMAR* item- net profit attributable to owners)

4. CD_{it} = cash dividends paid for firm i at year t. This study excludes any delayed dividend announcement (i.e. after April of the next fiscal year) since such delayed announcements will have no impact on the firms' market value, which is calculate four months after the financial year-end (Cheng et al., 2009, Dedman et al., 2015) (*CSMAR* item- Dividends)

5. SD_{it} = stock dividend for firm i at year t. Following Dedman et al. (2015), this is a value measure of stock dividend and is calculated as number of bonus shares issued times share price[133] at the end of financial year t.

6. CE_{it} = is the capital expenditure for firm i at year t. (*CSMAR* item- Cash paid to acquire and construct fixed assets; intangible assets and other long-term assets)

7. CC_{it} = are the proceeds received from the sale of shares for firm i at year t. (*CSMAR* item- proceeds from issuing shares)

From observing the dataset, it can be seen that there are several missing values on proceeds received from the sale of shares and dividends on CSMAR. Investigating this issue with the annual reports of Chinese listed firms, I observe that in some instance when dividends are not reported in the annual reports or reported as 0 in the annual reports, CSMAR has recorded them as a missing value. For this study, missing values on proceeds from issuing shares and dividends are therefore assigned a value of 0.

[133] This study uses December share price since bonus shares are given to shareholders who owns the shares by the financial year-end 31st Dec.

Table 9: Variables Identified In Other Value Relevance Studies

	Book value	Earnings	Core earnings	Retained Earnings	Cash dividends	Stock dividends	CE	CC	R&D	NSCF	Total capital	Earnings forecast
Rees (1997)				✓	✓		✓				✓	
Akbar and Stark (2003)	✓	✓			✓			✓		✓		
Dedman *et al.* (2015)	✓	✓			✓	✓	✓	✓				
Hand and Landsman (2005)	✓		✓		✓			✓				✓

Note: This table shows the variables used in the value relevance studies discussed in this section.

Scale and the "scale effect"

Value relevance studies are found to have various econometric issues, for instance, coefficient bias and issues of heteroskedasticity. These issues can lead to inappropriate inferences from the regression results.[134] These issues arise when firms with different sizes are combined together in a sample, which in turn leads to regression results likely to be influenced by a small subset of very large firms (Easton and Sommers, 2003). This is known as the 'scale effect' which mainly occurs with undeflated valuation models. Using a sample of US firms from 1963 until 1999, Easton and Sommers (2003) show that this scale effect is mainly driven by market capitalization.[135] In such an instance, the regression output will only reflect the relations among variables for the largest firms as these firms are documented to have a significant influence on the regression results.

Given that the scale effect does indeed exist and it leads to statistical issues, it is important to find ways to mitigate this effect. The literature has highlighted two methods: deflation by a scale proxy (Easton and Sommers, 2003, Barth and Clinch, 2009, Shen and Stark, 2013), and inclusion of a scale proxy as an explanatory variable (Barth and Clinch, 2009).

Regarding the choice of which deflator is the most appropriate, there are several value relevance studies which put forward different accounting measures as deflators. For instance, Easton and Sommers (2003) show that using market capitalization as a deflator solves the issue of coefficient bias and heteroskedasticity.[136] On the other hand, Lo and Lys (2000) suggest the use of

---

[134] When errors are heteroskedastic, it can lead to underestimation of the coefficient standard errors (Shen and Stark, 2013). In other words, it can overestimate the *t*-value. This means that in the existence of heteroscedasticity, we are more likely to reject the null hypothesis due to significant results on coefficients. This is because OLS assumes that the errors are homoscedastic (Shen and Stark, 2013).

[135] Easton and Sommers (2003) also sort on book value and net income however the impact on the regression estimates is not severe.

[136] The patterns of studentized residuals, which are used to indicate significant influence, suggest that the deflated model does not suffer from the scale effect (Easton and Sommers, 2003). The

the opening market value which ensures that the starting values of the investments are the same at a point in time.

Focusing on China, the total market value is computed as the total number of shares outstanding multiply by its closing share price. The total number of shares outstanding includes both tradable shares and non-tradable shares. The issue arises in the computation of the total market value because the price of the tradable share is used in the overall calculation of the total market value of the firm. This ignores the fact the non-tradable shares did not have any market price before the share reform, and they were only priced at book value. Therefore, using the price of tradable shares for non-tradable shares artificially increases the size of the firm.

On the other hand, using data on Compustat firms, Barth and Clinch (2009) show that number of shares is an effective proxy for scale in the presence of scale effect out of all the other five model specifications they examine in their study.[137] Barth and Clinch (2009) argue that market value and book value, although directly related to the scale, are subject to economy-wide factors that are unrelated to scale effects. Variations in these variables may be associated with economic factors. The number of shares, however, does not change widely and are also less affected by variations unrelated to the scale effects (Barth and Clinch, 2009).

Although the number of shares may be an effective proxy, care must be taken when considering a different institutional environment. For instance, using the number of shares as a measure for size in the Chinese capital markets is questionable.[138] This is because stock dividends (or stock split) are very popular amongst Chinese listed firm (He et al., 2016b, Titman et al., 2017). Stock

observations for large firms do not have significant influence on the regression parameters (Easton and Sommers, 2003).

[137] They examine several different specifications such as undeflated model, book value deflated, lagged price deflated, return model and market value deflated.

[138] There are also Chinese studies which have used valuation model on per share basis such as Cheng and Wang (2004), Elshandidy (2014), Lee et al. (2013) and Liu et al., (2011).

dividends (or stock split) helps the listed company to increase the number of shares outstanding but also reduces the share price.[139] However, stock dividends (or stock split) do not cause any change in the firm value.

Moreover, stock splits were also used in the split share reform as part of the compensation paid to tradable shareholders. For instance, Beltratti et al. (2012) show that in 1,124 cases, tradable shareholders were compensated in the form of free distribution of bonus shares. Therefore, the changes in the number of shares are subject to opportunistic managerial decisions relating to stock dividends, and the changes are also subject to the compensation plan of the split share reform. This, in turn, indicates that the number of shares is not an accurate measure of the scale effect in the Chinese context.

As discussed above, prior studies provide different deflators to mitigate the scale effect, however, these studies have not reached a general agreement as to the most effective deflator overall (Shen and Stark, 2013).[140] Shen and Stark (2013) seek to solve the argument over the best choice of deflator. Shen and Stark (2013) base their choice of the best deflator on the mean valuation bias, measured by the mean proportional valuation error (PVE), and valuation accuracy, measured by the mean absolute proportional valuation error (APVE) and squared proportional valuation error (SPVE).[141]:

$$PVE_{it+1} = \frac{MV_{it+1}^{Est} - MV_{it+1}^{Act}}{MV_{it+1}^{Act}} \tag{5.9}$$

Using data on UK firms listed on the London Stock Exchange from 1990 until 2006, they first use historical data for each year from the start of the sample up to year *t*, and use deflated regression model to obtain the estimated coefficients.

[139] http://www.chinadaily.com.cn/business/2017-04/17/content_28953113.htm
[140] Using data on UK firms, Akbar and Stark (2003), however, show that using different deflators do not lead to different estimation results.
[141] PVEs closer to zero are less biased, whereas the smaller the APVE and SPVE, the more accurate is the forecast value.

Secondly, they use obtained estimated coefficients of year t to compute the estimated market value for year t+1:

$$MV_{it+1}^{Est} = \hat{\alpha}_{0t} + \sum_{j} \hat{\alpha}_{jt} AV_{jit+1} + \hat{\beta}_t \hat{\varepsilon}_{it} \quad (5.10)$$

Out of the five deflators they use in the models, the best deflator which stands out of the rest is the book value. Based on the above discussion, this study deflates equation (5.8) by the book value of equity. As all variables in equation (5.8) are deflated by book value, β_0 therefore is estimated on $^1/_{BV}$ and β_1, which is the book value coefficient, reduces to a constant (Garrod and Valentincic, 2005, Rees and Valentincic, 2013):

$$\frac{MV_{it}}{BV_{it}} = \beta_0 \frac{1}{BV_{it}} + \beta_1 + \beta_2 \frac{E_{it}}{BV_{it}} + \beta_3 \frac{CD_{it}}{BV_{it}} + \beta_3 \frac{SD_{it}}{BV_{it}} + \beta_3 \frac{CE_{it}}{BV_{it}} + \beta_6 \frac{CC_{it}}{BV_{it}} + \varepsilon_{it} \quad (5.11)$$

As extreme values of variables can influence the values of the estimated coefficients (Dedman et al., 2015), this study winsorize all continuous variable annually. The general strategy here is to rank each deflated variable and then winsorize at 1% and 99% each year.

To test *H9*, this study estimates equation (5.11) for *DSTATE2NSOE* firms only after separating firm years into two time periods: pre-reform (2003-2004) and post-reform period (2009-2014). The coefficient of interest is β_2 which is predicted to be positive and significant in the post-reform period. Moreover, an F-test is also used in this study to test statistically whether the coefficient β_2 in the pre-reform period is statistically different from that in the post-reform. This study also includes industry dummies to control for industry effects. This chapter uses OLS clustered standard error by firm and year (Petersen, 2009).

H10 predicts that following the split share structure reform, the value relevance of earnings will be greater for firms which switch from state control to non-state owned compared to firms which remained state-owned. To test *H10*, this study,

therefore, only focuses on the post-reform period and limits the sample to *RDSTATE* and *DSTATE2NSOE* firms only. This study estimates the following regression model:

$$\frac{MV_{it}}{BV_{it}} = \beta_0 \frac{1}{BV_{it}} + \beta_1 + \beta_2 \frac{E_{it}}{BV_{it}} + \beta_3 DSTATE2NSOE + \beta_4 DSTATE2NSOE * \frac{E_{it}}{BV_{it}} + \beta_5 \frac{CD_{it}}{BV_{it}} + \beta_6 \frac{SD_{it}}{BV_{it}} + \beta_7 \frac{CE_{it}}{BV_{it}} + \beta_8 \frac{CC_{it}}{BV_{it}} + \varepsilon_{it} \quad (5.12)$$

The interaction term in equation (5.12) shows the incremental relationship between market value and earnings for *DSTATE2NSOE* firms relative to *RDSTATE* firms. *H10* is supported if the coefficient of the interaction term, β_4, is positive and significant, which will indicate that the value relevance of earnings is greater for *DSTATE2NSOE* relative to *RDSTATE* firms.

This study also uses sales (operating revenue) as a deflator for robustness. However, Shen and Stark (2013) argue that choice has to be made here whether to include a constant term in the deflated equation or estimate without a constant term. For instance, if the 'size' measure is the source of heteroskedasticity and if it is also correlated with the included independent variables, then the true model will be as follows (Barth and Clinch, 2009, Shen and Stark, 2013):

$$MV_{it} = \beta_0 + \beta_1 BV_{it} + \beta_2 E_{it} + \beta_3 CD_{it} + \beta_4 SD_{it} + \beta_5 CE_{it} + \beta_6 CC_{it} + \gamma S_{it} + S_{it}\varepsilon_{it} \quad (5.13)$$

Where S_{it} is the source of heteroskedasticity for firm i at time t and also a correlated omitted variable. After deflation, the model will be as follows:

$$\frac{MV_{it}}{S_{it}} = \beta_0 \frac{1}{S_{it}} + \beta_1 \frac{BV_{it}}{S_{it}} + \beta_2 \frac{E_{it}}{S_{it}} + \beta_3 \frac{CD_{it}}{S_{it}} + \beta_3 \frac{SD_{it}}{S_{it}} + \beta_3 \frac{CE_{it}}{S_{it}} + \beta_6 \frac{CC_{it}}{S_{it}} + \gamma + \varepsilon_{it} \quad (5.14)$$

Hence, the above equation mitigates the problem of the omitted variable (size related), as well as heteroscedasticity. Garrod and Valentincic (2005) also deflate

their valuation model by book value and sales. When they deflate their empirical model by sales, the result shows that the constant is statistically insignificantly different from zero. This indicates that sales is not an issue of correlated omitted variable.

Table 8: Sample Selection Process

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2003-2014
Population	1378	1466	1461	1544	1658	1712	1860	2215	2449	2577	2621	2736	23,677
Step 1: Exclude financial firms	(27)	(27)	(27)	(32)	(40)	(40)	(42)	(47)	(50)	(51)	(51)	(52)	(486)
Non-Financial firms	1351	1439	1434	1512	1618	1672	1818	2168	2399	2526	2570	2684	23,191
Step 2: Exclude observations with no clear evidence on ownership type	(659)	(216)	(229)	(239)	(256)	(248)	(430)	(405)	(368)	(315)	(328)	(326)	(4,019)
Step 3: Exclude missing ownership data	(0)	(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(1)
A-shares	0	1	0	0	0	0	0	0	0	0	0	0	
B-shares	0	0	0	0	0	0	0	0	0	0	0	0	
QFII	0	0	0	0	0	0	0	0	0	0	0	0	
Step 4: Exclude missing on market value	(10)	(15)	(43)	(38)	(70)	(37)	(30)	(42)	(47)	(40)	(104)	(164)	(640)
Step 5: Exclude missing on control variables	(2)	(4)	(23)	(43)	(52)	(9)	(62)	(73)	(41)	(30)	(85)	(139)	(563)
Capital expenditure	1	3	8	7	0	0	2	1	0	0	0	0	
Capital contribution	0	0	0	0	0	0	0	0	0	0	0	0	
Stock dividends	1	1	15	36	52	9	60	72	41	30	85	139	
Step 6: Exclude loss firms and ST firms	(92)	(182)	(222)	(173)	(146)	(250)	(161)	(134)	(151)	(212)	(196)	(193)	(2,112)
Step 7: Exclude if shareholders equity is less than 0	(1)	(1)	(2)	(0)	(1)	(2)	(6)	(7)	(6)	(0)	(0)	(0)	(26)
Step 8: Exclude if capital expenditure is less than 0	(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(1)

Final sample	586	1020	915	1019	1093	1126	1129	1507	1786	1929	1857	1862	15,829

Table 8 shows the sample selection criteria for sample firms listed on the Shanghai stock exchange and the Shenzhen stock exchange from 2003 until 2014. Step 1 excludes financial firms. Step 2 classifies firms as state-owned if the ultimate controlling shareholder or/and the nature of share is related to the state, and excludes observations on firms with no clear evidence on type of ownership. Step 3 excludes observations with missing ownership data. Step 4 excludes observations with missing data on market value. Step 5 excludes observations with missing data on control variables. Step 6 excludes observations on loss firms and firms with 'ST' status. Step 7 excludes observations if shareholders equity is less than 0. Step 8 excludes observations if capital expenditure is less than 0. The final sample obtained is 15,829 firm-year observations from 2003 until 2014.

Chapter 6 Analysis and Discussion

6.1 Introduction

This chapter provides the descriptive statistics, correlation analysis and regression analysis for the three main topics included in this thesis: (1) analyst forecast properties; (2) share price synchronicity; and (3) the value relevance of earnings. This chapter is organized as follows: section 6.2 includes the analysis and discussion for analysts' forecast properties; section 6.3 includes the analysis and discussion for share price synchronicity; and section 6.4 includes the analysis and discussion for value relevance test.

6.2 Analysis and Discussion For Analyst Forecast Properties

This section is organized as follows. Section 6.2.1 provides the descriptive statistics. Section 6.2.2 presents the correlation analysis, followed by section 6.2.3 which provides regression analysis on analysts coverage, forecast error and dispersion. Section 6.2.4 present the findings and discussion on control variables. Section 6.2.5 provides the robustness results.[142] The following hypotheses are empirically tested in this section:

Pre-reform hypotheses:

H1: Prior to the split share structure reform, analyst coverage will be negatively associated with state controlled firms, ceteris paribus.

H2: Prior to the split share structure reform, analyst forecast errors will be positively associated with state controlled firms, ceteris paribus.

H3: Prior to the split share structure reform, analyst forecast dispersion will be positively associated with state controlled firms, ceteris paribus.

[142] The appendix, which includes additional tests, is provided at the end of this chapter.

Post-reform hypotheses:

H5: Split share structure reform will be associated with an increase in analyst coverage in firms which transferred from state control to non-state-owned firms relative to firms which remained state-controlled, ceteris paribus.

H6: Split share structure reform will be associated with a decrease in analyst forecast errors for firms which transferred from state control to non-state owned firms relative to firms which remained state-controlled, ceteris paribus.

H7: Split share structure reform will be associated with a decrease in analyst forecast dispersion for firms which transferred from state control to non-state owned firms relative to firms which remained state-controlled, ceteris paribus.

6.2.1 Descriptive statistics

Figure 6 provides an overview of the change in the average analyst coverage of Chinese listed firms from 2003 until 2014. The average analyst coverage had increased from less than 1 in 2003 to 1.35 in 2014. A significant increase is documented following 2007- the time period when most of the non-tradable shares become tradable after the expiration of the lock-up period for most Chinese listed firms. Therefore, an increase in analyst coverage of Chinese listed firms in this period indicates that analyst caters to the demand for information about firms by tradable shareholders (Chen et al., 2016b). Moreover, the period from 2003 onwards reflects a growth in the financial analyst profession in China (Chen et al., 2016c).

Figure 6: Average analyst coverage of Chinese listed firms from 2003 until 2014

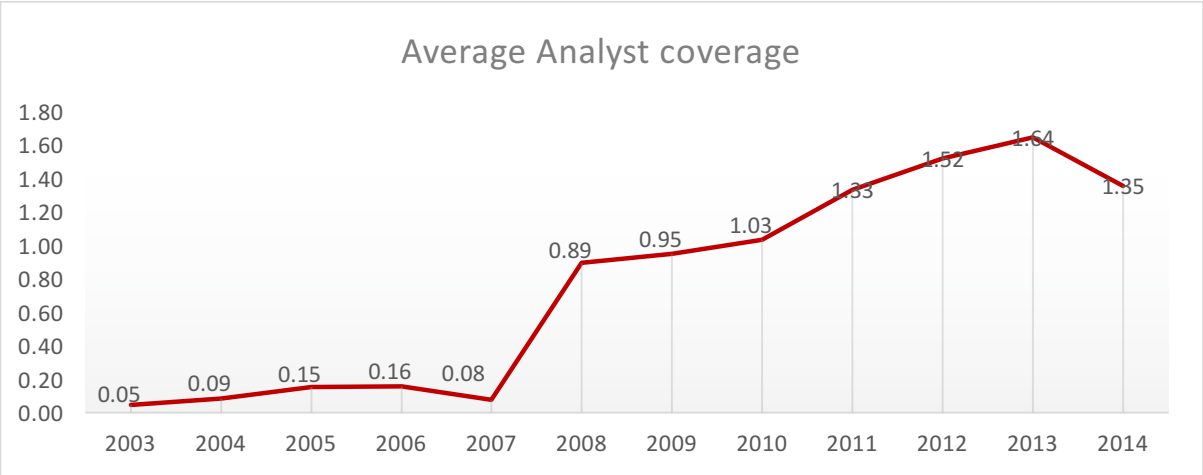


Table 10 panel A presents the descriptive statistics for sample firms for this chapter. It shows that on average, 8.7% of sample firms transform from state-owned to non-state owned following to the split share structure reform.[143] Interestingly, a majority of state-owned firms remain state-owned. This is represented by the variable, *RDSTATE*, which shows that around 45% of sample firms remain state-owned. This supports the argument that the state wishes to retain control of key strategic industries and therefore maintains significant control over these firms (Cai et al., 2017). For instance, Table 10 panel B shows that *RDSTATE* firms mainly belong to key sectors such as mining, utilities, construction, transportation, wholesale and retail trade. Therefore, despite these state-owned firms completing the reform process, they remain subject to substantial state control.

It is further documented in Table 10 panel A that Qualified Foreign Institutional Investors hold a tiny average proportion (0.08%) of equity in Chinese companies, with even the largest stake held by QFII only being 4.6%. This is consistent with DeFond et al. (2019) who also documents a very tiny ownership proportion of QFII in Chinese listed firms.[144] Average profitability (*ROA*) of sample firms is

[143] These firms are categorized as *DSTATE2NSOE* throughout this study.
[144] The time period of their study is from 2005 until 2008.

3.2%, with a maximum of 43% indicating that Chinese listed firms are generally not very profitable. Moreover, only 2.9% of Chinese listed firms on average are cross-listed in overseas stock exchanges. This is consistent with Lin et al. (2016), who also document a very low proportion of Chinese listed firms listed overseas.[145] On average, 19% of reported assets are financed by debt. Moreover, the average size of Chinese listed firms, measured by total assets (log asset) is RMB 6,326 million (7.77).

Table 11 panel A shows average forecast errors and dispersion by year. Two spikes periods are observed. The first one is in 2008, and the second one is in 2012. Firstly, the substantial increase in forecast error and dispersion in 2008 is due to the following reasons: (1) issues associated with the adoption to new converged accounting standards; and (2) uncertainty caused by the global financial crisis. The adoption of new converged IFRS accounting standards caused some difficulties for both analysts and accountants. This is perhaps because domestic Chinese analysts are mainly familiar with the old accounting standards and require training to get familiar with the new converged Chinese accounting standards (Wang et al., 2012). Using data on Chinese listed firms from 2002 until 2008, Wang et al. (2012) document an increase in the forecast errors of local Chinese analysts whereas they document a decrease in the forecast errors of foreign analysts following Chinese listed firms. They argue that as foreign analysts are generally familiar with IFRS relative to local Chinese analysts, the convergence improves the forecast accuracy for foreign analysts.

Moreover, interviews conducted by Nie et al. (2013) with 10 Chinese professors highlights the issues during the implementation of the new accounting standards. These issues include, for instance, the lack of adequate technical training of accountants, guidance towards the application of principles such as fair value concept under IFRS, and an understanding of the theory and concept of the new principle-based accounting standards (Nie et al., 2013). These issues

[145] Lin et al. (2016) time period starts from 2004 until 2007.

further explain an increase in analyst dispersion in 2008, as information is interpreted in different ways amongst analysts.[146]

In the year 2012, the second spike in forecast error is observed. This sudden increase is due to a slowdown of the Chinese economy, leading to uncertainty regarding China's economy prospects. Several factors have been identified which led to the slowdown of the Chinese economy in 2012, which in turn adversely affected firms' performance. Firstly, the EU debt crisis affected China's exports since the EU is one of the biggest export markets of China.[147] In addition to the decline in export orders, the low domestic demand and tight financing policies dented Chinese firms hard to the extent that these firms were struggling.[148] Hence, there was high uncertainty regarding the performance of Chinese listed firms.

Table 11 panel B presents the univariate tests for the information environment variables between the pre- and post-split share structure reform for all sample firms, *RDSTATE* firms and *DSTATE2NSOE* firms. Overall, the results of the univariate tests indicate that the increase in coverage from the pre- to the post-reform period is greater for *RDSTATE* firms relative to *DSTATE2NSOE* firms. This further shows analysts' preference to follow firms which remained under state control.[149]

Moreover, given that China is a relationship-based economy and business transactions rely on network relationships (Wong, 2016), this study further classifies an analyst as a "*constant analyst*" if s/he followed the firm from the pre- to the post-lockup period. These constant analysts are predicted to have an

---

[146] Table 11 show very few observations on forecast errors and dispersion in 2003 and 2004, which are on per year basis. In regressions however, this study adopts the lead-lag approach which therefore provides more observations for these dependent variables.

[147] https://www.reuters.com/article/us-china-economy-pmi/china-june-official-pmi-hits-7-month-low-idUSBRE86004O20120701

[148] https://www.reuters.com/article/us-china-economy/china-economy-shows-unexpected-signs-of-weakness-idUSBRE84A08Z20120511

[149] Table 11 panel B do not find significant difference in dispersion amongst *RDSTATE* and *DSTATE2NSOE* in the post-reform period, however forecast error is found to be weakly significant (0.06*).

advantage of private internal communication over new analysts. Constant analysts will benefit from old ties with the firm, and the private interaction with the management is predicted to result in lower forecast errors relative to new analysts.[150]

Table 12 provides the univariate comparison of constant vs new analyst forecast error. Firstly, it documents that there are 1,907 constant analysts who have followed the firm from the pre- to the post-lockup period.[151] It is predicted that, over the course of their career, these analysts will have built strong networks with the firms they follow and will have access to private information (Li et al., 2016). This will likely enable them to provide more accurate forecasts over new analysts.

Table 12 shows that in the post-reform period, the mean (median) forecast error for constant analysts is 0.08 (0.236) whereas the mean forecast error for new analysts is 1.075 (0.347). The difference between these groups of analysts is statistically significant (mean difference: -0.99, *p*-value=<0.01***). These results show that new analysts are making more errors relative to constant analysts, providing support to the prediction made in this study that constant analysts benefit due to their private network link within the firm (Li et al., 2016).

Moreover, details of analysts obtained from CSMAR for this study uncovers analysts' preference to work for state-owned brokerage institutions. Table D1 shows that state-owned brokerage institutions employ on average 48 analysts, whereas non-state owned brokerage firms employ on average 16 analysts.[152] Also, it is worth noting that most of the constant analysts belong to state-owned

[150] New analysts include both: (1) the new analysts coming into the market; and (2) those who switched their coverage to other firms.
[151] These constant analysts also include those analysts which provide coverage for more than one firm from the pre to the post-lock up period.
[152] This data on brokerage institutions is from 2003 until 2014. In cases where data is not available for 2014, information until year 2013 is included. The data on analyst employment is observed for these institutions. It is noted that there is an increase in the employment of analyst for state-brokerage firms, whereas there is a decrease in the employment of analyst for non-state owned brokerage firms. The statistics are provided in Appendix D Table D1.

brokerage institutions.[153] Overall, connected analysts have greater incentives to provide coverage because they benefit from commissions and reputation enhancements in terms of providing accurate earnings predictions (Li et al., 2016).

[153] There are 44 brokerage institutions which have constant analysts, where 23 of these brokerage institutions are state-owned brokerage institutions. Appendix D Table D2 provides the details on these brokerage institutions.

Table 10: Descriptive Statistics

Panel A: Full Sample Observations (2003-2014)

VARIABLES	N	Mean	Median	Sd	Min	Max
COVERAGE	19,146	0.938	0	2.357	0	18
$COVERAGE_{t+1}$	19,146	1.128	0	2.532	0	17
QFII	19,146	0.000875	0	0.00381	0	0.0460
TOTASSET (RMB mill)	19,146	6,326	2,066	15,946	85.66	157,437
LNTOTASSET	19,146	7.77	7.634	1.240	4.450	11.97
ROA	19,146	0.0321	0.0324	0.0715	-0.846	0.429
LEVERAGE	19,146	0.187	0.165	0.161	0	1.145
TOTALSHARES (mill)	19,146	678.2	319.9	1,435	55.20	12,892
XLIST	19,146	0.029	0	0.169	0	1
TIME	19,146	7.5	8	3.3	1	12
RDSTATE	19,146	0.45	0	0.497	0	1
DSTATE2NSOE	19,146	0.087	0	0.282	0	1
NONSOE	19,146	0.34	0	0.47	0	1
DSTATE	19,146	0.512	1	0.500	0	1
$FORERROR_{t+1}$	3,990	1.170	0.40	2.915	0.00	55.071
$DISPERSION_{t+1}$	3,990	0.089	0.048	0.124	0.00	0.947

Table 10 panel A presents the descriptive statistics of variables used in this study from period 2003 until 2014. *COVERAGE* is the number of analysts per firm issuing one-year ahead forecasts, made one month after the release of the previous years' financial statement. $COVERAGE_{t+1}$ is the lead term. *QFII* is the proportion of QFII (Qualified Foreign Institutional Investor) ownership out of total shares. *TOTASSET* (*LNTOTASSET*) is the size measure, which is calculated as the (natural log of) total assets in RMB million. *ROA* is NETPROFIT/TOTASSET. *LEVERAGE* is (short term debt + long term debt)/total assets. *TOTALSHARES* is the total number of shares in million and is the sum of non-tradable shares and tradable shares. *XLIST* is a dummy variable which takes value 1 for cross-listed firms, 0 otherwise. *TIME* represents the time trend with values from 1-12 representing years 2003 -2014. *RDSTATE* is a dummy variable which takes a value of 1 for firms which remained state-owned during the time period of this study, and 0 otherwise.

DSTATE2NSOE is a dummy variable which takes a value of 1 for firms which converted from state-owned to non-state owned due to split share reform, and 0 otherwise. *NONSOE* is a dummy variable which takes a value of 1 for firms which remained non-state during the time period of this study, and 0 otherwise. *DSTATE* is a dummy variable which takes a value of 1 for firms which are state-owned, and 0 otherwise. $FORERROR_{t+1}$ is the absolute value of the difference between the $mean\ analyst\ forecast_{i,t+1}$ minus $actual\ earnings\ per\ share_{i,t+1}$, deflated by the absolute value of $actual\ earnings\ per\ share_{i,t+1}$. The mean analyst forecast is the one-year ahead forecasts for firm i made one month after the release of the previous years' financial statement. *DISPERSION* is calculated as the absolute of $\sigma(Analyst\ forecast_{i,t})/mean(Analyst\ forecast_{i,t})$. $DISPERSION_{t+1}$ is the lead term.

Panel B: Distribution of Sample Firms By Industry

	N	*RDSTATE*	*DSTATE2NSOE*	*NONSOE*
Agricuture, forestry, farming and fishery	296	29%	7%	40%
Mining	656	63%	14%	18%
Food and beverage	757	46%	13%	31%
Textiles and apparel	497	22%	11%	67%
Timber and furnishings	108	17%	11%	63%
Paper and printing	338	32%	15%	47%
Petrochemicals	1879	48%	7%	35%
Electronics	2941	38%	5%	37%
Metals and Non-metals	1611	49%	11%	31%
Machinery	1389	29%	6%	48%
Pharmaceuticals	1130	35%	9%	43%
Automobile manufacturing	801	38%	7%	40%
Utilities	1707	62%	7%	14%
Construction	519	51%	6%	30%
Transportation	723	84%	4%	5%
Information technology	895	21%	3%	42%
Whole sale and Retail Trade	1285	57%	15%	24%
Real estate	1245	40%	16%	33%
Industry of culture and arts	42	0%	52%	36%
Accomodation and Catering	101	65%	0%	35%
Congl	226	49%	9%	32%
Total	19146	45%	9%	33%

Panel B presents the firm-year observations by industry. The industry classification is according to the Guidelines for the Industry Classification of Listed Companies (2012 Revision). *RDSTATE* is a dummy variable which takes a value of 1 for firms which remained state-owned during the time period of this study, and 0 otherwise. *DSTATE2NSOE* is a dummy variable which takes a value of 1 for firms which converted from state-owned to non-state owned due to split share reform, and 0 otherwise. *NONSOE* is a dummy variable which takes a value of 1 for firms which remained non-state during the time period of this study, and 0 otherwise.

Table 11 Panel A: Average Values of Variables By Year

YEAR	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Observations=	690	1,216	1,198	1,273	1,359	1,423	1,388	1,762	2,030	2,211	2,239	2,357
COVERAGE	0.05	0.09	0.15	0.16	0.08	0.89	0.95	1.03	1.33	1.52	1.64	1.35
Observations=	3	8	10	11	34	188	208	279	375	423	373	399
FORERROR	0.36	0.53	0.45	0.36	0.41	2.30	0.72	0.65	0.62	1.18	0.57	0.96
Observations=	0	5	4	4	15	144	155	219	302	337	329	315
DISPERSION	-	0.03	0.01	0.02	0.04	0.11	0.099	0.091	0.093	0.093	0.065	0.064

Table 11 panel A shows the average values of information environment variables used in this chapter by year. This chapter measures the information environment by coverage, forecast error and dispersion. *COVERAGE* is the number of analysts per firm issuing one-year ahead forecasts, made one month after the release of the previous years' financial statement. *FORERROR* is the absolute value of the difference between mean one-year ahead eps analyst forecast minus the actual eps in year *t*, deflated by the absolute value of actual eps in year *t*. The mean one-year ahead eps analyst forecast is defined as for instance analysts' earnings forecast reported in April 2010 for financial year-end 2010. *DISPERSION* is calculated as the absolute of $\sigma(Analyst\ forecast_{i,t})/mean(Analyst\ forecast_{i,t})$. Observing the structure of the dataset, it is noted that there is no observation for dispersion in year 2003.

Panel B: Univariate Results of Sample Firms Divided By Time Period

INFORMATION ENVIRONMENT VARIABLES	Pre-reform period (2003-2004)	Post-reform period (2009-2014)	Test of difference *p*-value for T-test Mann-Whitney test (*p*-value)	Difference between *RDSTATE* and *DSTATE2NSOE* in post-reform
	(A)	(B)	(B)-(A)	(C)
	Mean (Median)	Mean (Median)		
Observations for all sample firms				
	n=1,906	*n*=11,987		
COVERAGE	0.071	1.340	0.000 ***	
	(0.00)	(0.00)	0.000 ***	
	n=11	*n*=2,057		
FORERROR	0.479	0.805	0.631	
	(0.426)	(0.272)	0.784	
	n=5	*n*=1,657		
DISPERSION	0.027	0.082	0.235	
	(0.009)	(0.048)	0.09 *	
Observations for RDSTATE				
	n=1,090	*n*=4,501		
COVERAGE	0.099	1.575	0.000 ***	
	(0.00)	(0.00)	0.001 ***	
	n =9	*n* =902		
FORERROR	0.538	0.745	0.791	
	(0.473)	(0.214)	0.221	
	n=4	*n*=748		

DISPERSION	0.013	0.091	0.198	
	(0.004)	(0.055)	0.023 **	
Observations for DSTATE2NSOE				
	n=241	*n*=837		
COVERAGE	0.033	0.820	0.000 ***	0.000***
	(0.00)	(0.00)	0.000 ***	0.000***
	-	*n* =87		
FORERROR	-	0.792		0.856
	-	(0.308)		0.06*
	-	*n*=68		
DISPERSION	-	0.085		0.67
	-	(0.049)		0.88

Table 11 panel B shows the univariate test results of key variables for the pre-reform (2003-04) and the post-reform (2009-14) period. The sample includes all firms listed on the Shanghai stock exchange and the Shenzhen stock exchange. The univariate tests are provided for all sample firms, *RDSTATE* firms and *DSTATE2NSOE* firms separately. '*Test of difference'* columns report the *p*-value for the differences in mean between the time periods, and the *p*-value for the differences in median between the time periods. Column C provides the univariate test between *RDSTATE* and *DSTATE2NSOE* firms in the post-reform period for the information environment variables used in this study. This chapter measures the information environment by coverage, forecast error and dispersion. *COVERAGE* is the number of analysts per firm issuing one-year ahead forecasts, made one month after the release of the previous years' financial statement. *FORERROR* is the absolute value of the difference between mean one-year ahead eps analyst forecast minus the actual eps in year *t*, deflated by the absolute value of actual eps in year *t.* The mean one-year ahead eps analyst forecast is defined as for instance analysts' earnings forecast reported in April 2010 for financial year-end 2010. *DISPERSION* is calculated as the absolute of $\sigma(Analyst\ forecast_{i,t})/mean(Analyst\ forecast_{i,t})$.

Table 12: Constant Vs New Analysts' Univariate Analysis

		Post-lock up period	
	Obs	Mean	Median
Constant Analyst Forecast Error	2,632	0.08	0.236
New Analyst Forecast Error	16,173	1.075	0.347
Difference		-0.995	-0.111
p-value for mean test		<0.01***	
Man-Whitney test for median test			<0.01 ***

Table 12 shows the univariate analysis of constant vs new analysts' forecast errors in the post-reform period (2009-2014). This study documents 1,907 constant analysts which have followed the firm from the pre- to the post-lock up period. These constant analysts also include those analysts which provide coverage for more than one firm from the pre- to the post-lock up period. New analysts include both the new analysts coming into the market and those who switched their coverage to other firms. Constant Analyst Forecast Errors is calculated as the absolute value of the difference between constant analyst forecast of one-year ahead eps minus the actual eps in year *t*, deflated by the absolute actual eps in year *t.* The one-year ahead eps analyst forecast is defined as for instance analysts' earnings forecast reported in April 2010 for financial year-end 2010. New Analyst Forecast Errors is calculated as the absolute value of the difference between new analyst forecast of one-year ahead eps minus the actual eps in year *t*, deflated by the absolute actual eps in year *t.* This table also reports the *p*-value for the differences in mean between constant vs new analysts' forecast error, and the *p*-value for the differences in median between constant vs new analysts' forecast error in the post-reform period.

6.2.2 Pairwise correlation analysis

Table 13 panel A provides the pairwise correlation results for the analyst coverage sample. No problem of multicollinearity is found between the key variables of this study. The results show that analysts follow cross-listed firms (*XLIST*), profitable firms (*ROA*) and larger firms (*LNTOTASSET*). A negative correlation between coverage and *DSTATE2NSOE* indicates that analysts are less inclined towards providing coverage for firms which transformed from the state to non-state firms. These firms are also found to be relatively small in size, which is shown by a negative association between *LNTOTASSET* and *DSTATE2NSOE*.

A positive correlation between *XLIST* and *LNTOTASSET* implies that large firms are more likely candidates to cross-list in overseas stock exchanges, consistent with the findings of Lin et al. (2016). As expected, a positive correlation between coverage and *TIME* further provide support to earlier findings on China which reflects an increase in financial analysts' profession in China over time (Chen et al., 2016c).

Panel B shows the pairwise correlation results for the error and dispersion sample. No problem of multicollinearity is found in panel B. Profitable firms are found to have lower forecasts errors, lower dispersion and greater analyst coverage which implies that these firms are more willing to improve corporate transparency and have a better information environment. This result is also consistent with Haß et al. (2014). Moreover, as predicted, highly leveraged firms are documented to have a poor information environment, which is shown by a positive correlation between leverage and analyst forecast properties (forecast errors and dispersion). A negative correlation between *TIME* and analyst forecast properties (forecast errors and dispersion) indicates an improvement in

the overall information environment of Chinese listed firms.[154] Overall, this part of the study does not show any problem of multicollinearity.

[154] Correlation between *TIME* and $FORERROR_{t+1}$ is however not significant.

Table 13: Pairwise Correlation Table

Panel A: (Coverage Sample)

	1	2	3	4	5	6	7	8	9	10	11
1.COVERAGE$_{t+1}$	1										
2.SSR	**0.13**	1									
3.DSTATE	**-0.03**	**-0.13**	1								
4.RDSTATE	0.004	**-0.07**	**0.92**	1							
5.DSTATE2NSOE	**-0.07**	**-0.04**	**-0.09**	**-0.34**	1						
6.QFII	**0.09**	**0.06**	**0.04**	**0.05**	**-0.03**	1					
7.LNTOTASSET	**0.33**	**0.13**	**0.27**	**0.32**	**-0.14**	**0.08**	1				
8.ROA	**0.22**	**0.08**	**-0.08**	**-0.02**	**-0.09**	**0.08**	**0.11**	1			
9.LEVERAGE	**-0.13**	**-0.10**	**0.12**	**0.08**	**0.08**	**-0.02**	**0.14**	**-0.38**	1		
10.XLIST	**0.15**	-0.001	**0.13**	**0.14**	**-0.05**	**0.03**	**0.31**	**0.03**	-0.003	1	
11.TIME	**0.21**	**0.59**	**-0.23**	**-0.15**	**-0.07**	**-0.04**	**0.25**	**0.10**	**-0.20**	-0.005	1

Table 13 panel A provides the correlation results for variables used in regression for analyst coverage using sample from 2003 until 2014. *COVERAGE* is the number of analysts per firm issuing one-year ahead forecasts, made one month after the release of the previous years' financial statement. *COVERAGE$_{t+1}$* is the lead term. *SSR* is a dummy variable which indicates the period of the split share structure reform and equals to 1 for firm-year observations in the post-reform period (2005 and onwards), and 0 for observations before the share reform. *DSTATE* is a dummy variable which takes a value of 1 for firms which are state-owned, and 0 otherwise. *RDSTATE* is a dummy variable which takes a value of 1 for firms which remained state-owned during the time period of this study, and 0 otherwise. *DSTATE2NSOE* is a dummy variable which takes a value of 1 for firms which converted from state-owned to non-state owned due to split share reform, and 0 otherwise. *QFII* is the proportion of QFII (Qualified Foreign Institutional Investor) ownership out of total shares. *LNTOTASSET* is the size measure, which is calculated as the natural log of total assets. *ROA* is NETPROFIT/TOTASSET. *LEVERAGE* is (short term debt + long term debt)/total assets. *TIME* represents the time trend with values from 1-12 representing years 2003 -2014. *XLIST* is a dummy variable which takes value 1 for cross-listed firms, 0 otherwise. Figures in bold are significant at 5%.

Panel B: (Error And Dispersion Sample)

	1	2	3	4	5	6	7	8	9	10	11	12	13
1.FORERROR$_{t+1}$	1												
2.DISPERSION$_{t+1}$	**0.10**	1											
3.COVERAGE	**-0.05**	0.0003	1										
4.QFII	0.03	-0.03	**0.06**	1									
5.LNTOTASSET	0.01	**0.08**	**0.30**	0.03	1								
6.ROA	**-0.09**	**-0.19**	**0.18**	**0.04**	**-0.22**	1							
7.LEVERAGE	**0.10**	**0.15**	**-0.13**	-0.02	**0.24**	**-0.46**	1						
8.XLIST	-0.01	**0.08**	**0.11**	0.004	**0.46**	**-0.06**	**0.05**	1					
9.DSTATE	-0.01	0.03	**0.07**	**0.05**	**0.42**	**-0.15**	**0.15**	**0.23**	1				
10.DSTATE2NSOE	-0.009	0.02	-0.02	-0.001	**-0.08**	0.01	**0.09**	**-0.07**	**-0.18**	1			
11.RDSTATE	-0.004	0.03	**0.07**	**0.06**	**0.43**	**-0.14**	**0.14**	**0.23**	**0.98**	**-0.24**	1		
12.TIME	-0.01	**-0.04**	**0.24**	**-0.07**	**0.11**	**-0.07**	**-0.17**	**-0.05**	**-0.19**	-0.01	**-0.18**	1	
13.SSR	0.02	0.01	**0.08**	0.01	0.01	0.01	**-0.06**	**-0.04**	**-0.06**	0.001	**-0.04**	**0.38**	1

Table 13 panel B provides the pairwise correlation amongst the variables used in regression of forecast error and dispersion from 2003 until 2014. *FORERROR*$_{t+1}$ is the absolute value of the difference between the *mean analyst forecast*$_{i,t+1}$ minus *actual earnings per share*$_{i,t+1}$, deflated by the absolute value of *actual earnings per share*$_{i,t+1}$. The mean analyst forecast is the one-year ahead forecasts for firm *i* made one month after the release of the previous years' financial statement. *DISPERSION* is calculated as the absolute of $\sigma\left(Analyst\ forecast_{i,t}\right)/mean\left(Analyst\ forecast_{i,t}\right)$. *DISPERSION*$_{t+1}$ is the lead term. *COVERAGE* is the number of analysts per firm issuing one-year ahead forecasts, made one month after the release of the previous years' financial statement. *QFII* is the proportion of QFII (Qualified Foreign Institutional Investor) ownership out of total shares. *LNTOTASSET* is the natural log of total assets in million RMB. *ROA* is NETPROFIT/TOTASSET. *LEVERAGE* is (short term debt + long term debt)/total assets. *XLIST* is a dummy variable which takes value 1 for cross-listed firms, 0 otherwise. *DSTATE* is a dummy variable which takes a value of 1 for firms which are state-owned, and 0 otherwise. *RDSTATE* is a dummy variable which takes a value of 1 for firms which remained state-owned during the time period of this study, and 0 otherwise. *DSTATE2NSOE* is a dummy variable which takes a value of 1 for firms which converted from state-owned to non-state owned due to split share reform, and 0 otherwise. *TIME* represents the time trend with values from 1-12 representing years 2003 -2014. *SSR* is a dummy variable which indicates the period of the split share structure reform and equals to 1 for firm-year observations in the post-reform period (2005 and onwards), and 0 for observations before the share reform. Figures in bold are significant at 5%.

6.2.3 Regression results

The results for *H1*, *H2* and *H3* are provided in Table 14 panel A in model (1), (3) and (5) respectively. Table 14 panel A model (1) shows that *DSTATE* has a significantly negative coefficient with coverage (β_1=-0.10, t=-3.60), consistent with *H1*.[155] This finding is consistent with evidence from existing empirical studies, which shows that firms in which the largest shareholder is the state are characterized as opaque firms with manipulated information disclosures (Gul et al., 2010, Firth et al., 2011, Hou et al., 2016). Therefore, the manipulated earnings and information opacity reduces analysts' willingness to follow these firms (Lang et al., 2004), which is represented by the significantly negative *DSTATE* coefficient with coverage in the pre-reform period. The coefficient on *DSTATE* in model (3) and (5) is not significant.[156]

Table 14 panel A model (2), (4) and (6) further provides the results after disaggregating state-controlled firms into those which remained state-owned throughout the time period of this study (*RDSTATE*), and those firms which switch from being state-controlled to being outside of state control (*DSTATE2NSOE*). Model (2) shows that the coefficient on both, *DSTATE2NSOE* and *RDSTATE*, is negatively significant in coverage model which shows that these firms had lower coverage in the post-reform period relative to firms which remained non-state owned throughout the time period of this study. Moreover, model (6) further show that *RDSTATE* firms had lower dispersion in the post-reform period relative to firms which remained non-state throughout the time period of this study.

This study also runs a pooled regression model, incorporating the split share reform dummy variable and its interaction term with *DSTATE2NSOE*.

[155] This coefficient on *DSTATE* is also significant at 1% in a one-tailed test.
[156] The coefficient on *DSTATE*, however, is significant (*p*-value: 0.069) for dispersion model in one-tailed test which supports *H3*.

Table 14 panel B model (1), (3) and (5) includes non-state owned firms as the benchmark sample, whereas model (2), (4) and (6) includes *RDSTATE* firms as the benchmark sample. For the testing of hypotheses *H5*, *H6* and *H7*, the focus is on model (2), (4) and (6) which includes *RDSTATE* as the benchmark firms. Firstly, it is observed that *DSTATE2NSOE* has a significantly positive coefficient with coverage (β_1=0.558, t=6.74) and dispersion (β_1=0.118, t=2.59), and a significantly negative coefficient with forecast error (β_1=-0.59, t=-1.87). However, it is observed that the coefficient on the interaction term, *SSR*DSTATE2NSOE*, is significantly negative with coverage (β_3=-0.374, t=-3.26) and dispersion (β_3=-0.104, t=-2.18) in model (2) and model (6) respectively.[157] The explanation for these results is as follows.

The positive coefficient on *DSTATE2NSOE* (β_1=0.558, t=6.74) in Table 14 panel B model (2) indicates that these firms had a higher coverage in the pre-reform period relative to *RDSTATE* firms. The interaction term in model (2), *SSR*DSTATE2NSOE,* captures the difference in the effect of the reform on analyst coverage between *DSTATE2NSOE* firms and *RDSTATE* firms.[158] The negative coefficient on the interaction term in Table 14 panel B model (2) shows that the reform leads to a decrease in the number of analyst following for firms which converted into NSOEs relative to firms which remained SOEs. These findings open up some interesting questions for future study. For instance, it will be interesting to examine whether analysts with private communication channels with the management or controlling shareholder help to improve the overall information environment of Chinese listed firms. However, as the split share structure reform initiates changes in the ownership structure of Chinese listed firms, future researchers are encouraged to explore on the impact of the reform on the private network relationship between connected analysts and Chinese listed firms.

[157] The coefficient on the interaction term, *DSTATE2NSOE*SSR*, for dispersion model is also significant at 5% in one-tailed test.
[158] This study predicts that the coefficient on the interaction term will be positive i.e an increase in analyst coverage for *DSTATE2NSOE* firms relative to *RDSTATE* firms due to the split share structure reform.

Table 14: Regression Results for Analysts Forecast Properties

Panel A: Regression for pre-reform (2003-2004) and post-reform (2009-2014) periods separately

	$COVERAGE_{t+1}$		$FORERROR_{t+1}$		$DISPERSION_{t+1}$	
	Pre-reform	Post-reform	Pre-reform	Post-reform	Pre-reform	Post-reform
	(1)	(2)	(3)	(4)	(5)	(6)
DSTATE	-0.10***		-0.360		0.047	
	(-3.60)		(-1.35)		(1.51)	
DSTATE2NSOE		-0.247*		-0.095		0.013
		(-1.66)		(-0.56)		(1.09)
RDSTATE		-0.557***		-0.127		-0.015**
		(-5.77)		(-1.19)		(-2.27)
XLIST	0.192*	1.074***	-0.223	-0.273	-0.041	0.03*
	(1.66)	(2.71)	(-0.89)	(-1.58)	(-1.38)	(1.86)
QFII	17.24	80.52***	30.45	-19.48***	3.709 *	-0.545
	(1.23)	(5.82)	(0.76)	(-3.41)	(1.74)	(-1.36)
LNTOTASSET	0.127***	0.856***	-0.031	-0.042	-0.019 **	0.001
	(6.86)	(16.51)	(-0.43)	(-0.93)	(-2.24)	(0.29)
ROA	0.305***	10.72***	2.25	-6.34***	-0.269	-0.561***
	(3.04)	(11.97)	(0.96)	(-5.45)	(-0.64)	(-7.02)
LEVERAGE	-0.041	-2.34***	1.672	1.32***	0.011	0.079***
	(-0.60)	(-8.00)	(1.52)	(3.46)	(0.09)	(3.03)
TIME	0.032	-0.08***	-0.203	0.083***	-0.031	-0.005***
	(1.50)	(-4.74)	(-0.99)	(3.01)	(-1.02)	(-3.28)
COVERAGE			0.021	0.011	0.006	0.002**
			(0.12)	(1.14)	(0.49)	(2.12)
Intercept	-0.701***	-4.34***	0.785	0.650	0.22 **	0.171***
	(-5.87)	(-12.11)	(1.00)	(1.44)	(2.26)	(6.30)
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	1,763	9,915	59	2,686	59	2,686
R-Squared	0.105	0.208	0.34	0.052	0.319	0.078

Table 14 panel A shows the regression results for analyst forecast properties for the sample firms from both the Shanghai and the Shenzhen stock exchange for the pre-reform period (2003-2004) and the post-reform period (2009-2014) separately. The sample firms for regression analysis include firms which remained state-owned during the time period of this study, firms which converted from state-owned to non-state owned due to split share reform, and firms which remained non-state during the time period of this study. *COVERAGE* is the number of analysts per firm issuing one-year ahead forecasts, made one month after the release of the previous years' financial statement. $COVERAGE_{t+1}$ is the lead term. $FORERROR_{t+1}$ is the absolute value of the difference between the $mean\ analyst\ forecast_{i,t+1}$ minus $actual\ earnings\ per\ share_{i,t+1}$, deflated by the absolute value of $actual\ earnings\ per\ share_{i,t+1}$. The mean analyst forecast is the one-year ahead forecasts for firm i made one month after the release of the previous years' financial statement. *DISPERSION* is calculated as the absolute of $\sigma(Analyst\ forecast_{i,t})/mean(Analyst\ forecast_{i,t})$. $DISPERSION_{t+1}$ is the lead term. *DSTATE* is a dummy variable which takes a value of 1 for firms which are state-owned, and 0 otherwise. This study further disaggregates *DSTATE* into *RDSTATE* firms and *DSTATE2NSOE* firms in the post-reform period regressions. *RDSTATE* is a dummy variable which takes a value of 1 for firms which remained state-owned during the time period of this study, and 0 otherwise. *DSTATE2NSOE* is a dummy variable which equals to 1 for state-owned firms which converted into non-SOEs during the time period of this study, and 0 otherwise. *XLIST* is a dummy variable which takes a value of 1 for firms which are cross-listed internationally, and 0 otherwise. *QFII* is the proportion of QFII (Qualified Foreign Institutional Investor) ownership out of total shares. *LNTOTASSET* is the size measure, which is calculated as the natural log of total assets in RMB million. *ROA* is NETPROFIT/TOTASSET. *LEVERAGE* is (short term debt + long term debt)/total assets. *TIME* represents the time trend with values from 1-12 representing years 2003-2014. The regression results include industry dummies. All continuous variables are winsorized each year at 1% and 99%. Standard errors are cluster by firm. *, **, *** denote coefficient is significantly different from zero at 10%, 5%, 1% level, respectively. *t*-statistics are presented in parentheses.

Panel B: Pooled regression results with the split share structure reform interaction term

	$COVERAGE_{t+1}$		$FORERROR_{t+1}$		$DISPERSION_{t+1}$	
	(1)	(2)	(3)	(4)	(5)	(6)
DSTATE2NSOE	-0.113	0.558***	-1.05**	-0.599*	0.096**	0.118 **
	(-1.23)	(6.74)	(-2.42)	(-1.87)	(2.02)	(2.59)
SSR	0.025	0.238***	0.459	0.993***	0.037**	0.049 **
	(0.31)	(4.86)	(1.09)	(3.23)	(2.09)	(2.54)
*SSR*DSTATE2NSOE*	-0.158	-0.374***	0.84*	0.505	-0.094*	-0.104 **
	(-1.24)	(-3.26)	(1.83)	(1.53)	(-1.90)	(-2.18)
RDSTATE	-0.682***		-0.451		-0.0234	
	(-9.39)		(-1.22)		(-0.98)	
*SSR*RDSTATE*	0.202**		0.372		0.013	
	(2.12)		(1.00)		(0.53)	
XLIST	0.812***	0.794***	-0.239	-0.373	0.026*	0.03 *
	(2.88)	(2.70)	(-0.89)	(-1.30)	(1.74)	(1.87)
QFII	33.08***	33.67***	18.71	34.83	-0.701**	-0.256
	(4.82)	(3.99)	(0.68)	(0.83)	(-2.33)	(-0.68)
LNTOTASSET	0.656***	0.62***	0.029	0.072	0.002	0.002
	(16.19)	(12.62)	(0.57)	(1.02)	(0.94)	(0.81)
ROA	4.66***	4.84***	-4.75***	-3.26	-0.469***	-0.610 ***
	(9.61)	(7.24)	(-3.61)	(-1.65)	(-6.94)	(-6.57)
LEVERAGE	-1.57***	-1.52***	1.398**	1.78*	0.0686***	0.078 ***
	(-8.11)	(-6.20)	(2.27)	(1.96)	(3.12)	(2.81)
TIME	0.052***	0.05***	-0.022	-0.039	-0.004***	-0.004 ***
	(6.69)	(5.62)	(-0.77)	(-1.11)	(-3.55)	(-2.78)
COVERAGE			-0.015	-0.0289	0.001**	0.002 **
			(-1.13)	(-1.50)	(2.05)	(2.33)
Intercept	-3.96***	-4.37***	0.537	-0.42	0.103***	0.081 ***
	(-14.16)	(-11.66)	(0.90)	(-0.60)	(3.88)	(2.62)
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	16,602	10,193	3,385	1,912	3,385	1,912
R-Squared	0.184	0.202	0.028	0.03	0.064	0.094

Table 14 panel B presents the regression results for analyst forecast properties for firms listed on the Shanghai and the Shenzhen stock exchange from 2003 until 2014. The benchmark sample in model (1), (3) and (5) includes firms which remained non-state during the time period of this study. The benchmark sample in model (2), (4) and (6) includes firms which remained state-owned during the time period of this study. *COVERAGE* is the number of analysts per firm issuing one-year ahead forecasts, made one month after the release of the previous years' financial statement. $COVERAGE_{t+1}$ is the lead term. $FORERROR_{t+1}$ is the absolute value of the difference between the *mean analyst forecast*$_{i,t+1}$ minus *actual earnings per share*$_{i,t+1}$, deflated by the absolute value of *actual earnings per share*$_{i,t+1}$. The mean analyst forecast is the one-year ahead forecasts for firm *i* made one month after the release of the previous years' financial statement. *DISPERSION* is calculated as the absolute of $\sigma(Analyst\ forecast_{i,t})/mean(Analyst\ forecast_{i,t})$. $DISPERSION_{t+1}$ is the lead term. *DSTATE2NSOE* is a dummy variable which equals to 1 for state-owned firms which converted into non-SOEs during the time period of this study, and 0 otherwise. *SSR* is a dummy variable which indicates the period of the split share structure reform and equals to 1 for firm-year observations in the post-reform period (2005 and onwards), and 0 for observations before the share reform. *SSR*DSTATE2NSOE* is the interaction term between *SSR* and *DSTATE2NSOE*. *RDSTATE* is a dummy variable which takes a value of 1 for firms which remained state-owned during the time period of this study, and 0

otherwise. *SSR*RDSTATE* is the interaction term between *SSR* and *RDSTATE*. *XLIST* is a dummy variable which takes a value of 1 for firms which are cross-listed internationally, and 0 otherwise. *QFII* is the proportion of QFII (Qualified Foreign Institutional Investor) ownership out of total shares. *LNTOTASSET* is the size measure, which is calculated as the natural log of total assets in RMB million. *ROA* is NETPROFIT/TOTASSET. *LEVERAGE* is (short term debt + long term debt)/total assets. *TIME* represents the time trend with values from 1-12 representing years 2003-2014. The regression results include industry dummies. All continuous variables are winsorized each year at 1% and 99%. Standard errors are cluster by firm. *, **, *** denote coefficient is significantly different from zero at 10%, 5%, 1% level, respectively. *t*-statistics are presented in parentheses.

The negatively significant relationship between the interaction term and dispersion in model (6) suggests improvement in the information environment for these firms due to the split share structure reform. The F-test further shows that the coefficient on the interaction term, *SSR*DSTATE2NSOE*, is statistically significant (F-value= 4.75, p-value=0.029). The improvement in the information environment of Chinese listed firms is through two channels: (i) the economic incentives associated with the split share structure reform; and (ii) the change in the ultimate controlling shareholder due to the split share structure reform from the state to non-state.

As the split share structure reform removes the tradability restriction of state shares, controlling state shareholders can now benefit from capital gains by selling their shares in the stock market. Therefore, the greater the share price, the more the benefit they will gain by selling their shares. This, in turn, changes controlling state shareholders' motives from expropriating firm resources towards maximizing firm wealth, which also corresponds with the objective of minority tradable shareholders (Hou et al., 2012).

To further support the controlling state shareholders, CSRC issued new regulation that includes the use of equity incentive plans to motivate the firm's management towards maximizing firm wealth. During the period from 2000 until 2014, an increase in the use of executive remuneration and equity incentive plans have been documented in state-controlled firms that is used to incentivize managers to work towards maximizing share returns (Hou et al., 2016, Liu, 2017). Also, SASAC issued regulations in 2005 which stipulate that the performance assessment of the state-controlling shareholders will be evaluated on the market value of the state-owned firm.[159] Such incentives have resulted in improvement in SOEs performance as documented by Liao et al. (2014).

Along with these developments in the post-reform period, there are other developments documented in the post-reform period which contribute towards

[159] http://www.fdi.gov.cn/1800000121_39_705_0_7.html

improvement in state-owned firms' transparency. This other development is associated with a change in the controlling state shareholder's behaviour towards the CEOs' fraudulent activity (Chen et al., 2016a). CEOs' fraud activities in Chinese listed firms include manipulation of financial statements to cover up poor performance due to expropriation or bad decisions. Such manipulation of financial statements, in turn, leads to higher information asymmetry. Identification of CEOs' fraudulent activities by the regulatory institution leads to a decline in the market value which became a greater concern for state shareholders in the post-reform period.[160] Using data on 818 firm-year observations from 1999 until 2008, Chen et al. (2016a) show that after the implementation of the split share structure reform, there is an increase in CEO turnover for state-owned firms. Therefore, the economic incentives associated with the split share structure reform further strengthens controlling state shareholders behaviour towards the accountability of CEOs fraudulent activities and promote high quality accounting information.

The second channel which leads to lower analysts' dispersion, which in turn reduces the information asymmetry is the change in the ultimate controlling shareholder from the state to non-state. This change in the ultimate controlling shareholder removes the preferential treatment for these firms to obtain external financing from the government that was previously available when the controlling shareholder was the state (Liu et al., 2017). Therefore, this provides them with greater incentive to further improve their transparency which will help them reduce information asymmetry and raise external capital at low cost.

Chen et al. (2016b) argue that non-SOEs are more concerned about analysts' opinion because firstly, analysts have an influence over investors' confidence and secondly, these firms have a greater need for external capital relative to SOEs. Hence, these firms are also concerned about the reputation of the firm in the capital market. Enforcement action against these firms relating to fraudulent

[160] Hou et al. (2016) also document that state-controlling shareholders care more about share prices after the split share structure reform.

activities will likely lead to a decline in the share prices for these firms and raise cost to obtain external financing (Chen et al., 2016b). Using data on 8,274 firm-year observations, which include a total of 409 fraud cases from 2003 until 2008, Chen et al. (2016b) show that when non-SOEs are followed by analysts, they are less likely to commit fraud and more likely to respond to analysts' queries. This is because these firms have greater need for external capital and therefore, these firms are more cautious about their reputation in the capital market (Chen et al., 2016b).

Based on the discussion above, it is evident that after the split share structure reform, *DSTATE2NSOE* firms have become more concerned about their market value and reputation in the capital market. This, in turn, provides incentives for these firms to have more transparent disclosures which ultimately reduces the uncertainty amongst analysts.

6.2.4 Findings and discussion on control variables

With regard to the discussion of the control variables, this study focuses on Table 14 panel B model (1), (3) and (5) as these models include all firms (*RDSTATE*, *DSTATE2NSOE* and non-SOEs). The positive coefficient on QFII in model (1) supports the prediction of this study that QFII ownership in Chinese listed firms leads to an increase in the demand for analyst information, which in turn increases analysts' incentives to provide greater coverage for Chinese listed firms. The benefit for analysts to respond to the demand by foreign institutional investors includes enhanced reputation and rewards by brokerage firms (Barniv, 2009). Moreover, it further provides them with an opportunity to compete with each other (Barniv, 2009). The evidence here further indicates that analysts respond to the increased demand for information by foreign institutional investors. The demand for analyst information by foreign institutional investors is due to lack of familiarity with the Chinese language, lack of familiarity and the uncertain nature of Chinese capital market, and also lack of knowledge about Chinese institutional environment (Barniv, 2009, Li et al., 2015). The

finding is also consistent with Barniv (2009) who also document an increase in the analyst coverage of 72 A-share firms due to the demand for information by the qualified foreign institutional investors.[161]

This study also finds greater analyst coverage for cross-listed Chinese listed firms, which is shown by the positive coefficient on *XLIST* in Table 14 panel B model (1). The positive coefficient on *XLIST* indicates that Chinese cross-listed firms attract greater analysts' coverage. This is because investors rely on professional advisors, analysts and brokers to obtain information on cross-listed firms.[162] Moreover, there is also a growing interest of investors in the Hong Kong IPO's of Chinese firms.[163] Overall, Chinese stocks attract interest from both US as well as investors from Asia.[164]

The recent scandals involving misrepresentation of financial reporting has made corporate and individual investors more cautious about the information being disclosed by these cross-listed firms. This has further increased investors due diligence and the demand for analyst reports.[165] This further motivates analysts to conduct investigations and provide coverage for these cross-listed firms.

Generally, Chinese listed firms cross-list in Hong Kong stock exchange (Ke et al., 2015), while a few listed firms choose to cross-list in other advanced overseas markets such as the US, London or Singapore.[166] Firms choose to cross-list on Hong Kong exchange because firstly it has similarities with domestic Chinese markets based on language and distance (Hung et al., 2007). Secondly, Hong Kong has greater expertise in Chinese companies and thirdly, there is a massive

[161] Barniv (2009) results are computed using data during the period from 2001 until 2004.
[162] https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/how-they-fell-the-collapse-of-chinese-cross-border-listings
[163] https://www.reuters.com/article/us-asia-ipo-analysis/hong-kong-ipo-surge-challenges-new-york-in-battle-for-china-listings-idUSKBN1DG264
[164] https://www.reuters.com/article/us-asia-ipo-analysis/hong-kong-ipo-surge-challenges-new-york-in-battle-for-china-listings-idUSKBN1DG264
[165] https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/due-diligence-in-china-art-science-and-self-defense
[166] Table 3 shows that around 98.7% of cross-listed firms in this study are cross-listed on Hong Kong stock exchange.

pool of retail investors who only aim to maximize share return.[167] More recently, Hong Kong has changed its stock market rules in order to attract tech firms for listing.[168]

These cross-listed Chinese firms are required to follow high quality accounting standards of the overseas exchange where they are listed in and are also subject to increased scrutiny by regulatory institutions of the overseas exchange (Sami and Zhou, 2008). Sami and Zhou (2008) argue that the increased requirement of accounting disclosure and greater scrutiny will likely lead to a reduction in information asymmetry for Chinese listed firms cross-listed in Hong Kong exchange.[169]

However, a series of recent scandals have been brought to light regarding Chinese cross-listed firms.[170] These fraud cases involved misrepresentation of financial reporting, falsification of documents, shady firms and non-compliance with accounting standards.[171] These fraud cases would not have been discovered by a regular audit.[172] For instance, Securities and Exchange Commission (SEC) in 2013 charged a China-based company, China MediaExpress, with fraudulently misleading investors regarding its financial condition.[173] Since its listing on the US stock exchange in 2009, the company consistently manipulated its reported earnings, financial condition and exaggerated the quality and size of its assets. The firm also misrepresented the nature of its business relationships with other firms and information regarding its business operations.[174] This is one of several cases of fraudulent activities brought to light by regulatory

[167] https://www.reuters.com/article/us-asia-ipo-analysis/hong-kong-ipo-surge-challenges-new-york-in-battle-for-china-listings-idUSKBN1DG264
[168] https://www.bbc.com/news/business-43985543
[169] They measure firms' information environment through bid-ask spread.
[170] https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/how-they-fell-the-collapse-of-chinese-cross-border-listings
[171] https://www.marketwatch.com/story/after-china-fraud-boom-nasdaq-steps-up-scrutiny-of-shady-listings-2016-06-20
[172] https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/how-they-fell-the-collapse-of-chinese-cross-border-listings
[173] https://www.sec.gov/news/press-release/2013-2013-115htm
[174] https://www.ft.com/content/257ddfa3-a077-39a8-9c15-2907eb42f418

authorities regarding Chinese cross-listed firms. The above discussion further supports the positive association in Table 14 panel B model (5) between *XLIST* and dispersion.

This study documents a negative association between *LEVERAGE* and coverage in Table 14 panel B model (1), and a positive association between *LEVERAGE* and analyst forecast properties (forecast error and dispersion) in model (3) and model (5) respectively. These results suggest that Chinese listed firms with high leverage have poor information environment. Liu and Tian (2012) show that the controlling shareholders of Chinese listed firms raise more debt in order to benefit themselves through intercorporate loans and related party transactions. Controlling shareholders use these tunnelling channels to extract the wealth of the firm for their own private benefits (Jiang et al., 2010a). It has been documented by Jiang et al. (2010a) that this, in turn, worsens the financial conditions of these firms and these firms become more likely candidates for delisting due to poor performance (Jiang et al., 2010a).

For reasons such as to show better performance, to provide confidence to creditors and to hide the extraction of funds, controlling shareholders resort to activities which involves falsification of financial statements (Firth et al., 2011). Firth et al. (2011) further document that Chinese listed firms with high leverage are also more likely to restate their financial statements. These firms are also documented to withhold inside information regarding their financially distressed condition as the disclosure of such sensitive information could have a negative market reaction (Lin et al., 2016). Based on the above discussion, when firms are opaque and information is hard to verify, this reduces analysts' willingness to follow these firms (Lang et al., 2004). This explain the negative association between leverage and coverage, as well as the positive association between leverage and analysts' forecast properties (forecast error and dispersion).

Table 14 panel B model (1), (3) and (5) shows that more profitable firms have greater coverage and have lower forecast errors and dispersion. These results

suggest that more profitable Chinese listed firms are therefore more transparent and have a better information environment. This is because less profitable and loss-making firms are less willing to disclose private information in a timely manner, which is mostly bad news, and therefore prefer to remain opaque (Lin et al., 2016).

A significantly positive coefficient on *LNTOTASSET* in model (1) indicates that large firms have greater analyst coverage. This result is consistent with the prediction of this study and is also consistent with the existing Chinese studies by Haß et al. (2014) and Huang and Boateng (2016). However, no significant relationship has been found between *LNTOTASSET* and analyst forecast properties (forecast error and dispersion). Table 14 panel B model (5) further show that *COVERAGE* is positively associated with dispersion which suggests that analysts are applying different forecasting models to the disclosed information due to which they are interpreting information differently. Moreover, the *TIME* variable further indicates improvement in the information environment. This is reflected by the significantly positive coefficient in coverage model (1), and a significantly negative coefficient in dispersion model (5).

6.2.5 Robustness results

As a robustness check, I replace *DSTATE* and *DSTATE2NSOE* dummy variable with the ownership of the ultimate controlling shareholder (*DSTATEOWN* and *DSTATE2NSOEOWN*). Prior to the split share structure reform, shares held by the ultimate controlling shareholders were mainly non-tradable. Therefore, the concentrated share ownership, along with the non-tradability aspect of shares made firm value maximization objective unattractive for ultimate controlling shareholders and they were more interested to benefit themselves through extraction of firm wealth. However, this study predicts that, as the reform eliminates the non-tradability aspect of shares, this will change the behaviour of the ultimate controlling shareholder and will help align the interest of ultimate controlling shareholder with the minority shareholders (Hou et al., 2012).

Firstly, with respect to the main variable of interest (*DSTATEOWN*) for hypotheses *H1-H3*, the findings of the robustness test in Table 15 model (1), (3) and (5) are consistent with the findings in Table 14 model (1), (3) and (5).[175] Next, this study provides the robustness test for *H5-H7* in Table 15 model (2), (4) and (6).[176] With the exception of model (2) in Table 15, the results on the interaction term in forecast error and dispersion model is consistent with the main findings reported in Table 14. The results on all control variables, including the time trend variable, remain substantially the same with the same sign and statistical significance level.

[175] With the exception of *XLIST* in model (1) and *QFII* in model (5), all control variables are consistent with the findings in Table 14 model (1), (3) and (5).
[176] The benchmark sample in model (2), (4) and (6) includes *RDSTATE* firms only.

Table 15: Robustness regression results for Analysts Forecast Properties

	$COVERAGE_{t+1}$		$FORERROR_{t+1}$		$DISPERSION_{t+1}$	
	Pre-reform (2003-2004)	Pooled regression with interaction term	Pre-reform (2003-2004)	Pooled regression with interaction term	Pre-reform (2003-2004)	Pooled regression with interaction term
	(1)	(2)	(3)	(4)	(5)	(6)
DSTATEOWN	-0.142***		-0.224		0.067	
	(-2.70)		(-0.43)		(1.22)	
DSTATE2NSOEOWN		1.22***		-1.77*		0.345**
		(5.62)		(-1.69)		(2.16)
SSR		0.212***		0.996***		0.049**
		(4.33)		(3.23)		(2.52)
*SSR*DSTATE2NSOEOWN*		-0.511		1.44		-0.328*
		(-1.33)		(1.27)		(-1.95)
XLIST	0.184	0.796***	-0.252	-0.373	-0.033	0.03*
	(1.59)	(2.71)	(-1.04)	(-1.30)	(-1.16)	(1.88)
QFII	18.07	33.76***	34.58	34.84	3.343	-0.263
	(1.27)	(4.00)	(0.82)	(0.83)	(1.52)	(-0.70)
LNTOTASSET	0.127***	0.62***	-0.052	0.072	-0.021**	0.002
	(6.85)	(12.74)	(-0.60)	(1.03)	(-2.11)	(0.64)
ROA	0.303***	4.84***	2.78	-3.26	-0.381	-0.604***
	(2.96)	(7.24)	(1.04)	(-1.65)	(-0.92)	(-6.48)
LEVERAGE	-0.048	-1.51***	1.72	1.77**	0.007	0.082***
	(-0.68)	(-6.17)	(1.53)	(1.97)	(0.06)	(2.98)
TIME	0.033	0.06***	-0.172	-0.039	-0.037	-0.004***
	(1.53)	(5.76)	(-0.84)	(-1.13)	(-1.19)	(-2.68)
COVERAGE			0.022	-0.0289	0.008	0.002**
			(0.12)	(-1.50)	(0.60)	(2.32)
Intercept	-0.723***	-4.33***	0.641	-0.43	0.264**	0.084***
	(-6.04)	(-11.71)	(0.78)	(-0.61)	(2.48)	(2.73)
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	1,763	10,193	59	1,912	59	1,912

R-Squared	0.102	0.202	0.32	0.03	0.303	0.093

Table 15 presents the robustness regression results for analyst forecast properties for firms listed on the Shanghai and the Shenzhen stock exchange for the pre-reform period (2003-2004) in model (1), (3) and (5), and the pooled regression results (2003-2014) with the split share structure reform interaction term in model (2), (4) and (6). The sample firms in model (1), (3) and (5) include firms which remained state-owned during the time period of this study, firms which converted from state-owned to non-state owned due to split share reform, and firms which remained non-state during the time period of this study. The benchmark sample in model (1), (3) and (5) includes firms which remained non-state during the time period of this study. The benchmark sample in model (2), (4) and (6) includes firms which remained state-owned during the time period of this study. *COVERAGE* is the number of analysts per firm issuing one-year ahead forecasts, made one month after the release of the previous years' financial statement. $COVERAGE_{t+1}$ is the lead term. $FORERROR_{t+1}$ is the absolute value of the difference between the $mean\ analyst\ forecast_{i,t+1}$ minus $actual\ earnings\ per\ share_{i,t+1}$, deflated by the absolute value of $actual\ earnings\ per\ share_{i,t+1}$. The mean analyst forecast is the one-year ahead forecasts for firm *i* made one month after the release of the previous years' financial statement. *DISPERSION* is calculated as the absolute of $\sigma(Analyst\ forecast_{i,t})/mean(Analyst\ forecast_{i,t})$. $DISPERSION_{t+1}$ is the lead term. For robustness results, this study replaces *DSTATE* dummy variable by *DSTATEOWN* in model (1), (3) and (5), which is the ownership of the ultimate controlling shareholder in *DSTATE* firms. In model (2), (4) and (6), this study replaces *DSTATE2NSOE* dummy variable by *DSTATE2NSOEOWN*, which is the ownership of the ultimate controlling shareholder in *DSTATE2NSOE* firms. *SSR* is a dummy variable which indicates the period of the split share structure reform and equals to 1 for firm-year observations in the post-reform period (2005 and onwards), and 0 for observations before the share reform. *XLIST* is a dummy variable which takes a value of 1 for firms which are cross-listed overseas, and 0 otherwise. *QFII* is the proportion of QFII (Qualified Foreign Institutional Investor) ownership out of total shares. *LNTOTASSET* is the size measure, which is calculated as the natural log of total assets in RMB million. *ROA* is NETPROFIT/TOTASSET. *LEVERAGE* is (short term debt + long term debt)/total assets. *COVERAGE* is the number of analysts per firm issuing one-year ahead forecasts, made one month after the release of the previous years' financial statement. *COVERAGE* is also used as a control variable in forecast error and dispersion models. *TIME* represents the time trend with values from 1-12 representing years 2003-2014. The regression results include industry dummies. All continuous variables are winsorized each year at 1% and 99%. Standard errors are cluster by firm. *, **, *** denote coefficient is significantly different from zero at 10%, 5%, 1% level, respectively. *t*-statistics are presented in parentheses.

6.2.6 Appendix (additional tests)

This study performs the following additional tests to check the robustness of the main findings. The results are provided in Table 15(I) panel A and B.

Controlling for the real economic firm activity

To control for the direct impact of the real economic activity of the firm on the dependent variables, this study incorporates capital expenditure, which is calculated a capital expenditure divided by total assets (Liu and Tian, 2012). Table 15(I) panel A shows that *CAPEX* is positively significant in *COVERAGE* (model (1) and (2)), and *DISPERSION* model (6). Overall, the main results are robust after controlling for the real economic activity of the firm.

Incorporating domestic BIG6 auditors

During the time period of this study, another important development in China's institutional environment was the change in the structure of the Chinese audit market due to the implementation of the new audit regulation, mostly known as Document 56. This new regulation was aimed to improve the audit quality of domestic audit firms and presumably, might also affect the information environment of Chinese listed firms

Therefore, taking into consideration the recent developments in the audit industry, this study controls for the audit quality of *BIG4* and *BIG6* audit firms. *BIG4* audit firms include the foreign Big 4, whereas *BIG6* includes top 6 domestic audit firms. The rankings for these top domestic audit firms are revised yearly and are available at CICPA website. Due to the high correlation amongst *XLIST* and *BIG4*, this study combines *BIG4* and *BIG6* into a new variable, *TOP10*, which represents the top ten audit firms in China audit market. *TOP10* is a dummy variable which takes a value of 1 for firms which are audited by an audit firm in the top 10 category, and 0 otherwise. The results in Table 15(I) panel A does not show any significant influence of top 10 audit firms on analyst forecast properties.

IFRS convergence impact

During the period after the split share structure reform, there were other changes in China's institutional environment that have the potential to affect the information environment such as the convergence of IFRS with Chinese accounting standards. This convergence of IFRS may have a significant effect on the information environment in China as well.

Therefore, taking into consideration the impact of the convergence of IFRS with the Chinese accounting standards in 2007 on analyst forecast properties, this study further incorporates IFRS regime dummy variable which equals to 1 for the year 2007 and onwards, and 0 otherwise.[177] Table 15(I) panel A model (4) and model (6) shows that IFRS dummy variable is positive and significantly associated with forecast error and dispersion.[178] This result is consistent with Ding et al. (2017) who also document that IFRS adoption leads to a reduction in analyst forecast accuracy.[179]

The intent of the Chinese government to converge the Chinese accounting standards (CAS) with the IFRS was that it will help to increase foreign investment in Chinese listed firms by making financial reporting more comparable with international standards (DeFond et al., 2019). However, some challenges remain due to the switch from CAS to converged-IFRS accounting standards. Firstly, over a long period of time, Chinese accountants and analyst were accustomed to working with rules-based accounting standards. Hence, they lack the necessary education and professional expertise to interpret and make appropriate judgements under IFRS-converged accounting standards (ICAS, 2010). Lack of skills and adequate training of fair value measurement will likely lead to more errors in valuation or management influence over fair value appraisal (Ding et al., 2017).

---

[177] Due to high collinearity between time trend and IFRS in the analyst coverage sample (0.79), IFRS is only controlled for in forecast error and dispersion models.
[178] The main results, however, did not change after controlling for the IFRS impact.
[179] Ding et al. (2019) period, however, is from 2004 until 2007.

The issue is also with the translation of some IFRS concepts from English to Chinese (Xinyun, 2016). It becomes even more difficult when the exact accounting terminology does not exist in Chinese. This may lead to misunderstanding amongst users of Chinese version IFRS such as analysts and investors to understand accounting concepts in a different way from the English-version of IFRS (Xinyun, 2016).

Lag analyst coverage in analyst coverage regression

An analyst decision to follow a firm in any given year is also likely to be influenced by decisions in the recent past. For instance, an analyst who has covered a firm last year may also cover the same firm this year. Hence, analyst coverage is not independent between years. Therefore, to address the potential issue of endogeneity which may stem from the fact that financial analysts do not follow listed firms randomly, this study follows Chang et al. (2006) and uses a one-year lagged value of the number of analysts following the firm in the analyst coverage model.[180] The main results on *DSTATE* and *SSR*DSTATE2NSOE* in Table 15(I) panel A model (1) and (2) remain unchanged after the inclusion of the lagged value of analyst coverage.[181]

Firm-fixed effects

This study also carries out additional tests using firm-fixed effects. The regression results using firm-fixed effects are provided in Table 15(I) panel B model (1), (2) and (3) for coverage, forecast error and dispersion respectively. Due to the collinearity of some variables with firm-fixed effects in the pre-reform period, which results to the issue of omitted variables, this study only provides the results under firm-fixed effects for the pooled sample.[182] These results for the firm fixed effects are provided using additional variables such as top 10 auditors,

[180] Chang et al. (2006) used three-year lagged value of analyst coverage.
[181] It is, however, observed that after the inclusion of lag analyst coverage, the time trend variable in Table 15(I) panel A model (2) becomes insignificant.
[182] The issue of collinearity in the pre-reform period was observed in forecast error and dispersion sample only.

capital expenditure, lag analyst coverage and IFRS. Moreover, results under firm-fixed effects do not include the treatment group variable, *DSTATE2NSOE*, as including the treatment group dummy variable along with firm-fixed effects will result in the multicollinearity problem. The coefficient on the interaction term under firm fixed effects models is negative, however, not significant.

Table 15(I): Additional tests for Analyst Forecast Properties

Panel A: Regression results for the pre-reform period (model 1) and the Pooled-OLS regression from 2003 until 2014 (model 2) separately using additional variables.

	$COVERAGE_{t+1}$		$FORERROR_{t+1}$		$DISPERSION_{t+1}$	
	Pre-reform (2003-2004)	Pooled regression with interaction term	Pre-reform (2003-2004)	Pooled regression with interaction term	Pre-reform (2003-2004)	Pooled regression with interaction term
	(1)	(2)	(3)	(4)	(5)	(6)
DSTATE	-0.092***		-0.343		0.045	
	(-3.44)		(-1.21)		(1.34)	
DSTATE2NSOE[183]	—	0.307***	—	-0.715**	—	0.117**
		(6.05)		(-2.12)		(2.55)
SSR	—	0.279***	—	0.112	—	-0.002
		(7.62)		(0.48)		(-0.10)
*SSR*DSTATE2NSOE*	—	-0.20***	—	0.630*	—	-0.101**
		(-2.85)		(1.79)		(-2.11)
XLIST	0.123	0.599***	-0.146	-0.526**	-0.047	0.029*
	(1.06)	(3.43)	(-0.53)	(-1.79)	(-1.16)	(1.73)
QFII	15.86	17.69***	30.15	36.29	3.52	-0.135
	(1.10)	(3.02)	(0.70)	(0.86)	(1.55)	(-0.36)
LNTOTASSET	0.109***	0.327***	-0.022	0.074	-0.019*	0.002
	(6.22)	(11.54)	(-0.25)	(1.04)	(-1.85)	(0.78)
ROA	0.181*	2.83***	2.09	-3.45*	-0.279	-0.644***
	(1.88)	(7.08)	(0.87)	(-1.74)	(-0.61)	(-6.93)
LEVERAGE	-0.094	-0.922***	1.68	1.73*	-0.009	0.058**
	(-1.46)	(-6.28)	(1.57)	(1.86)	(-0.07)	(2.07)
TOP10	0.033	-0.074	-0.089	0.252	0.01	0.002
	(0.80)	(-1.51)	(-0.50)	(1.43)	(0.28)	(0.25)
CAPEX	0.717***	1.05**	-0.236	-0.288	0.069	0.149**
	(3.59)	(2.52)	(-0.22)	(-0.24)	(0.55)	(2.23)

[183] As model (1), (3) and (5) test the pre-reform hypotheses, therefore, *DSTATE2NSOE* is not included in these regression models.

IFRS	—	—	—	1.14***	—	0.063***
				(2.86)		(3.96)
TIME	0.023	0.009	-0.185	-0.078*	-0.034	-0.005***
	(1.08)	(1.42)	(-0.88)	(-1.69)	(-1.08)	(-3.38)
COVERAGE	0.125*	0.489***	0.013	-0.029	0.007	0.002**
	(1.85)	(22.70)	(0.07)	(-1.52)	(0.47)	(2.00)
Intercept	-0.619***	-2.30***	0.714	-0.380	0.226**	0.073**
	(-5.40)	(-10.58)	(0.79)	(-0.55)	(2.19)	(2.22)
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	1,755	10,183	58	1,911	58	1,911
R-Squared	0.118	0.374	0.34	0.04	0.313	0.104

Table 15(I) panel A presents the regression results using additional variables for analyst forecast properties for firms listed on the Shanghai and the Shenzhen stock exchange for the pre-reform period (2003-2004) in model (1), (3) and (5), and the pooled regression results (2003-2014) with the split share structure reform interaction term in model (2), (4) and (6). The sample firms in model (1), (3) and (5) include firms which remained state-owned during the time period of this study, firms which converted from state-owned to non-state owned due to split share reform, and firms which remained non-state during the time period of this study. The benchmark sample in model (1), (3) and (5) includes firms which remained non-state during the time period of this study. The benchmark sample in model (2), (4) and (6) includes firms which remained state-owned during the time period of this study (*RDSTATE*). *COVERAGE* is the number of analysts per firm issuing one-year ahead forecasts, made one month after the release of the previous years' financial statement. $COVERAGE_{t+1}$ is the lead term. $FORERROR_{t+1}$ is the absolute value of the difference between the $mean\ analyst\ forecast_{i,t+1}$ minus $actual\ earnings\ per\ share_{i,t+1}$, deflated by the absolute value of $actual\ earnings\ per\ share_{i,t+1}$. The mean analyst forecast is the one-year ahead forecasts for firm *i* made one month after the release of the previous years' financial statement. *DISPERSION* is calculated as the absolute of $\sigma\left(Analyst\ forecast_{i,t}\right)/mean\left(Analyst\ forecast_{i,t}\right)$. $DISPERSION_{t+1}$ is the lead term. *DSTATE* is a dummy variable which takes a value of 1 for firms which are state-owned, and 0 otherwise. *DSTATE2NSOE* is a dummy variable which equals to 1 for state-owned firms which converted into non-SOEs during the time period of this study, and 0 otherwise. *SSR* is a dummy variable which indicates the period of the split share structure reform and equals to 1 for firm-year observations in the post-reform period (2005 and onwards), and 0 for observations before the share reform. *XLIST* is a dummy variable which takes a value of 1 for firms which are cross-listed overseas, and 0 otherwise. *QFII* is the proportion of QFII (Qualified Foreign Institutional Investor) ownership out of total shares. *LNTOTASSET* is the size measure, which is calculated as the natural log of total assets in RMB million. *ROA* is NETPROFIT/TOTALASSETS. *LEVERAGE* is (short term debt + long term debt)/total assets. *TOP10* is a dummy variable which takes a value of 1 for a firm which is audited by an auditor in top 10 category, and 0 otherwise. *TOP10* comprise of BIG4 auditors and BIG6 domestic auditors. *CAPEX* is capital expenditure, computed as capital expenditure divided by total assets. *IFRS* is a regime dummy variable which equals to 1 for the year 2007 and onwards, and 0 otherwise. *COVERAGE* is the one-year lag of the number of analysts per firm issuing one-year ahead forecasts, made one month after the release of the previous years' financial statement. It is used as a control variable in coverage model, forecast error and dispersion models. *TIME* represents the time trend with values from 1-12 representing years 2003-2014. The regression results include industry dummies. All continuous

variables are winsorized each year at 1% and 99%. Standard errors are cluster by firm. *, **, *** denote coefficient is significantly different from zero at 10%, 5%, 1% level, respectively. *t*-statistics are presented in parentheses.

Panel B: Regression results using firm fixed effects

	$COVERAGE_{t+1}$ (1)	$FORERROR_{t+1}$ (2)	$DISPERSION_{t+1}$ (3)
SSR	0.289***	-0.272	0.002
	(3.89)	(-0.35)	(0.06)
*SSR*DSTATE2NSOE*	-0.181	-0.555	-0.076
	(-1.25)	(-0.27)	(-0.87)
QFII	-2.38	66.90***	0.308
	(-0.45)	(4.13)	(0.47)
LNTOTASSET	0.484***	0.557*	-0.013
	(10.61)	(1.80)	(-0.76)
ROA	1.91***	6.58**	-0.988 ***
	(5.25)	(2.16)	(-5.59)
LEVERAGE	-0.585***	-3.21*	-0.045
	(-2.80)	(-2.39)	(-0.65)
TOP10	-0.175***	0.103	-0.004
	(-3.24)	(0.44)	(-0.37)
CAPEX	0.253	-0.813	0.179
	(0.58)	(-0.38)	(1.64)
IFRS[184]	—	0.836	0.053 **
		(1.60)	(2.60)
TIME	0.025***	-0.107	-0.002
	(2.64)	(-1.55)	(-0.45)
COVERAGE	0.224***	-0.010	0.000
	(20.99)	(-0.44)	(0.36)
Intercept	-3.38***	-3.47	0.231
	(-10.28)	(-1.44)	(1.83)
Firm fixed effect	Yes	Yes	Yes
Industry Dummies	No	No	No
N	10,183	1,911	1,911

[184] IFRS is not included in coverage model as it is highly correlated with time trend.

R-Squared	0.49	0.41	0.516

Table 15(I) panel B presents the regression results using firm-fixed effects for analyst forecast properties for firms listed on the Shanghai and the Shenzhen stock exchange for the pooled regression results (2003-2014) with the split share structure reform interaction term. The benchmark sample in model (1), (2) and (3) includes firms which remained state-owned during the time period of this study (*RDSTATE*). *COVERAGE* is the number of analysts per firm issuing one-year ahead forecasts, made one month after the release of the previous years' financial statement. $COVERAGE_{t+1}$ is the lead term. $FORERROR_{t+1}$ is the absolute value of the difference between the $mean\ analyst\ forecast_{i,t+1}$ minus $actual\ earnings\ per\ share_{i,t+1}$, deflated by the absolute value of $actual\ earnings\ per\ share_{i,t+1}$. The mean analyst forecast is the one-year ahead forecasts for firm *i* made one month after the release of the previous years' financial statement. *DISPERSION* is calculated as the absolute of $\sigma\left(Analyst\ forecast_{i,t}\right)/mean\left(Analyst\ forecast_{i,t}\right)$. $DISPERSION_{t+1}$ is the lead term. *DSTATE* is a dummy variable which takes a value of 1 for firms which are state-owned, and 0 otherwise. *DSTATE2NSOE* is a dummy variable which equals to 1 for state-owned firms which converted into non-SOEs during the time period of this study, and 0 otherwise. *SSR* is a dummy variable which indicates the period of the split share structure reform and equals to 1 for firm-year observations in the post-reform period (2005 and onwards), and 0 for observations before the share reform. *XLIST* is a dummy variable which takes a value of 1 for firms which are cross-listed overseas, and 0 otherwise. *QFII* is the proportion of QFII (Qualified Foreign Institutional Investor) ownership out of total shares. *LNTOTASSET* is the size measure, which is calculated as the natural log of total assets in RMB million. *ROA* is NETPROFIT/TOTALASSETS. *LEVERAGE* is (short term debt + long term debt)/total assets. *TOP10* is a dummy variable which takes a value of 1 for a firm which is audited by an auditor in top 10 category, and 0 otherwise. *TOP10* comprise of BIG4 auditors and BIG6 domestic auditors. *CAPEX* is capital expenditure, computed as capital expenditure divided by total assets. *IFRS* is a regime dummy variable which equals to 1 for the year 2007 and onwards, and 0 otherwise. *COVERAGE* is the one-year lag of the number of analysts per firm issuing one-year ahead forecasts, made one month after the release of the previous years' financial statement. It is used as a control variable in coverage model, forecast error and dispersion models. *TIME* represents the time trend with values from 1-12 representing years 2003-2014. The regression results include industry dummies. All continuous variables are winsorized each year at 1% and 99%. Standard errors are cluster by firm. *, **, *** denote coefficient is significantly different from zero at 10%, 5%, 1% level, respectively. *t*-statistics are presented in parentheses.

6.3 Analysis and Discussion for Share Price Synchronicity

This section is organized as follows. Section 6.3.1 provides the descriptive statistics and section 6.3.2 presents the correlation analysis. Next, section 6.3.3 provides regression analysis on share price synchronicity, followed by section 6.3.4 which present the findings and discussion on control variables. Section 6.3.5 provides the robustness results.[185] The following hypotheses are empirically tested in this section:

Pre-reform hypothesis:
H4: Prior to the split share reform, share price synchronicity will be positively associated with state controlled firms, ceteris paribus.

Post-reform hypothesis:
H8: Split share structure reform will be associated with a decrease in share price synchronicity for firms which transferred from state control to non-state owned firms relative to firms which remained state-controlled, ceteris paribus.

6.3.1 Descriptive statistics

This section provides the descriptive statistics for variables used in the share price synchronicity study. Figure 7 below shows the trend of the mean values of share price synchronicity from 2003 until 2014 for all firms, firms which remain under state control throughout the study period *(RDSTATE)* and firms which switch from being state-controlled to being outside of state control (*DSTATE2NSOE)*. This study predicts that average share price synchronicity will be lower after the split share structure reform 2005 because of improvements in the information environment. Although no significant trend is observed over these years, two spikes periods in share price synchronicity are noted.

[185] The appendix, which include additional tests, is included at the end of this chapter.

The first period runs from 2006 until 2008. This was the period where the Shanghai index soared to unprecedented levels, and Chinese stocks were far from their fundamentals (Yao and Luo, 2009). The total market capitalization of the Shanghai index increased by five times to $2.6 trillion in less than two years. The surge started in the second half of 2006 when the Shanghai index started to accelerate and reach its peak at 6,124 by the end of 2007 (Yao and Luo, 2009). Yao and Luo (2009) highlight three reasons for this bullish performance: (1) the listing of three large state-owned banks[186] (2) listing of other large SOEs[187] and (3) Beijing 2008 Olympics. The listing of the large state-owned enterprises sent a strong signal of the move towards privatization.

Much of the investment came from middle-class individuals and the Chinese government was worried that the stock market would collapse and cause an upset.[188] The Chinese stock market is characterized by individuals, who account for 80% of the transactions.[189] Eventually, the Chinese stock market crashed, starting from Oct 2007 to Oct 2008, dropping by 70% from historically high levels (Yao and Luo, 2009, Jiang et al., 2010b) . Trading volume reduced in June 2008 by 50%. The higher average synchronicity during this period indicates that there is a general disconnection between Chinese stock markets and firm fundamentals.

[186] Industrial and Commercial Bank of China (ICBC), China Construction Bank (CCB) and Bank of China (BOC).
[187] Petro China, Sinopec, China Railway, China Life and China Mobile.
[188] https://www.wsj.com/articles/SB117977112134309796
[189] http://www.reuters.com/article/us-china-markets-retail-idUSKCN0US0JS20160114

Figure 7: Trend of SSE A-share composite index (avg. closing index value) and avg. share price synchronicity

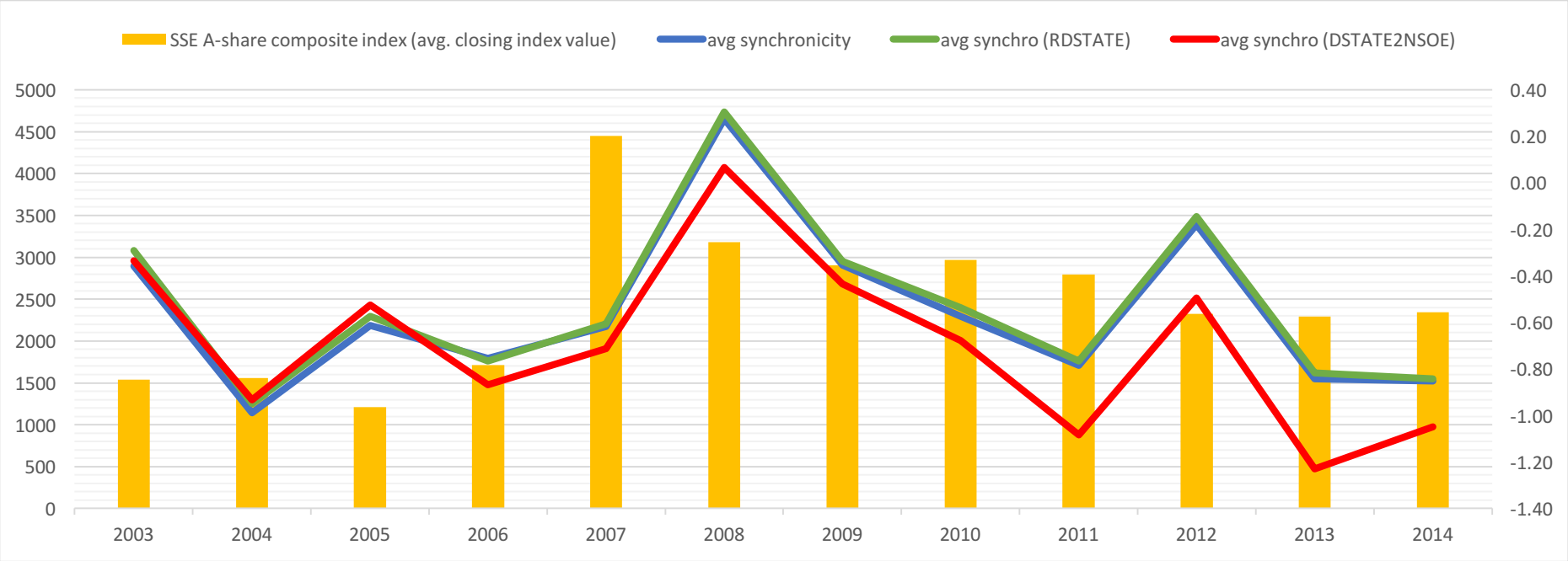


Figure 7 also provides some important observations on synchronicity measure after the categorizing firms into *RDSTATE* and *DSTATE2NSOE*. Firstly, it is noted that prior to the split share structure reform, the average synchronicity of *RDSTATE* and *DSTATE2NSOE* is mostly the same. This is because before the split share structure reform, the state was the controlling shareholder in these firms and had greater incentives to withhold and manipulate key accounting information to conceal the expropriation of resources (Gul et al., 2010, Hou et al., 2012).

However as predicted in this study, average synchronicity is lower for *DSTATE2NSOE* firms relative to *RDSTATE* firms following the split share reform. This improvement in the information environment is argued to be due to: (i) the economic incentives associated with the split share structure reform; and (ii) the change in the ultimate controlling shareholder from the state to non-state shareholder for *DSTATE2NSOE* firms. For instance, the economic incentives, which includes the option to benefit from capital gains by selling shares and the measures introduced by the CSRC and SASAC in 2005 to support reform firms[190], incentivizes the controlling shareholder of *DSTATE2NSOE* to reduce their expropriation behaviour and fraudulent activities, and focus more towards maximizing firm value (Hou et al., 2016, Chen et al., 2016a).

Moreover, the change in the ultimate controlling shareholder from the state to non-state reduces the benefit for these firms in terms of obtaining external financing through political connection (Liu et al., 2017). Therefore, providing high-quality information disclosures becomes more important for these firms to lower the cost of raising external capital (Chen et al., 2016b). Studies by Hou et al. (2012), Chen et al. (2016a) and Hou et al. (2016) provide evidence that following the split share structure reform, controlling state shareholders care

[190] These include "*The Measures Governing Equity Incentive Plans of Listed Companies" and "Issues Concerning the Administration of the Stock Rights of State-owned Shares in the Share Trading Reform of Listed Companies".*

more about share prices and firm performance which in turn reduces their incentive to tunnel firm wealth and conceal firm-specific information. This leads to the disclosure of more firm-specific information, which is reflected as lower synchronicity for *DSTATE2NSOE* firms in the post-reform period.[191]

Figure 7 also shows that firms which remained state-owned throughout the time period, *RDSTATE*, have high synchronicity and in some years, slightly higher than the average of all sample firms. These firms, which belong to key sectors such as power generation and distribution, oil and petrochemicals, telecommunications, coal, aviation and shipping as well as other sectors, are required to maintain absolute state control in their respective industries to serve state strategic objectives.[192] Table 16 panel C further provide information on *RDSTATE* firms and *DSTATE2NSOE* firms by industry. Hou et al. (2016) argue that the elimination of the trading restriction of shares will not influence the incentives of controlling state shareholders of these firms as these firms are not expected to reduce the state control. Covering the period from 2000 until 2007, Hou et al. (2016) find no effect of the reform on these firms.

Descriptive statistics and univariate statistics of sample firms are presented in Table 16, panel A and panel B respectively. *SYNC* has mean (median) value of -0.55 (-0.489) respectively. Panel A further shows that only 4% of the sample firms are audited by *BIG4* auditors. This is due to the following two reasons. Firstly, Chinese listed firms which cross-list in overseas stock exchanges tend to appoint these Big 4 audit firms. This is because these Big 4 audit firms have the expertise in regulations and market practices in several jurisdictions, which enables cross-listed Chinese firms to raise capital in those jurisdictions.[193] However, there are only 3.4% of Chinese listed firms which are cross-listed in overseas stock exchanges. Secondly, these Big 4 audit firms lack political

[191] Table 16 panel B further provides the breakdown between the pre-split share reform and the post-split share reform for the full sample, *RDSTATE* firms and *DSTATE2NSOE* firms. It can be seen from panel B that the mean and median values of synchronicity for *DSTATE2NSOE* firms has decreased relative to their pre-reform level.
[192] https://www.export.gov/apex/article2?id=China-State-Owned-Enterprises
[193] http://www.chinadaily.com.cn/business/2013-08/26/content_16920845.htm

connections, which is essential in Chinese economy context because greater importance is on protecting the interests of the state.[194]

Table 16 panel A also shows that the average percentage of *QFII* holdings in the top ten shareholdings of Chinese listed firms is 0.1%, with the largest ownership stake of 5.3%. The QFII investment quota has been regularly updated over the years. From Feb 2014 onwards, the limit on QFII shareholdings in Chinese listed companies has been raised to 30%, and a single QFII ownership in the A-shares of a Chinese listed firm is restricted to 10%. QFII has been the main channel of foreign investment in Chinese listed companies.[195] Their ownership proportion indicates that they are not the block holders in Chinese listed firms.

[194] https://www.reuters.com/article/us-china-auditors-risks-idUSBRE8491J220120510
[195] https://www.reuters.com/article/uk-china-foreigninvestment-stocks/shanghai-stock-exchange-raises-shareholding-limit-for-foreign-investors-idUKBREA2J04H20140320

Table 16: Descriptive Statistics

Panel A: All Firm-Years (2003-14)

VARIABLES	N	Mean	Median	SD	Min	Max
SYNC	11,003	-0.55	-0.489	0.790	-4.698	1.413
R^2	11,003	0.384	0.380	0.158	0.009	0.804
$SYNC_{t+1}$	13,032	-0.568	-0.510	0.770	-4.068	1.418
COVERAGE	13,032	1.105	0	2.594	0	20
BIG4	13,032	0.042	0	0.201	0	1
XLIST	13,032	0.034	0	0.180	0	1
QFII	13,032	0.001	0	0.004	0	0.053
TOTASSET (RMB mill)	13,032	7,921	2,519	20,891	231.5	246,253
LNTOTASSET	13,032	7.995	7.832	1.21	5.445	12.414
LEVERAGE	13,032	0.182	0.167	0.145	0	0.589
TIME	13,032	7.384	8	3.255	1	12
TRADINVOLUME	13,032	20.608	20.675	1.134	16.725	23.860
RDSTATE	13,032	0.508	1	0.50	0	1
DSTATE2NSOE	13,032	0.078	0	0.268	0	1
NONSOE	13,032	0.380	0	0.485	0	1
NSOE2DSTATE	13,032	0.020	0	0.141	0	1

Table 16 panel A shows the descriptive statistics of variables from 2003 until 2014. The sample includes firms listed on the Shanghai and Shenzhen stock exchange from 2003 until 2014. R^2 is from the market model equation (5.3) which measures the fraction of variations in firm *i*'s share return relative to the market-wide variations and is measured using daily share returns from January to May for each firm in each year. *SYNC* is the share price synchronicity measure calculated as log (R^2/1 – R^2). $SYNC_{t+1}$ is the lead term of *SYNC*. *COVERAGE* is the number of analysts per firm issuing one-year ahead forecasts, made one month after the release of the previous years' financial statement. *BIG4* is a dummy variable that equals 1 if a firm is audited by a Big 4 auditor, and 0 otherwise. *XLIST* is a dummy variable which takes value 1 for cross-listed firms, 0 otherwise. *QFII* is the proportion of QFII (Qualified Foreign Institutional Investor) ownership out of total shares. *TOTASSET* (*LNTOTASSET*) is the size measure, which is calculated as the (natural log) total assets in RMB million. *LEVERAGE* is calculated as total debt/total assets. *TIME* represents the time trend with values from 1-12 representing years 2003 -2014. *TRADINVOLUME* is measured as the natural log of the annual trading volume. *RDSTATE* is a dummy variable which takes a value of 1 for firms which remained state-owned during the time period of this study, and 0 otherwise. *DSTATE2NSOE* is a dummy

variable which takes a value of 1 for firms which converted from state-owned to non-state owned due to split share reform, and 0 otherwise. *NONSOE* is a dummy variable which takes a value of 1 for firms which remained non-state during the time period of this study, and 0 otherwise. *NSOE2DSTATE* is dummy variable which takes a value of 1 for firms which converted from non-state owned to state-owned firms during the time period of this study, and 0 otherwise.

Panel B: Univariate results of sample firms divided by time period

INFORMATION ENVIRONMENT VARIABLES	Pre-reform period (2003-2004)	Post-reform period (2009-2014)	*Test of difference* *p*-value for T-test Mann-Whitney test (*p*-value)
	(A)	(B)	(B)-(A)
	Mean (Median)	Mean (Median)	
Observations for all sample firms	*n*=1,418	*n*=7,134	
R^2	0.348 (0.349)	0.372 (0.370)	0.000*** 0.000***
SYNC	-0.753 (-0.624)	-0.597 (-0.533)	0.000*** 0.000***
Observations for RDSTATE	*n*=880	*n*=3,381	
R^2	0.355 (0.359)	0.378 (0.376)	0.000*** 0.001***
SYNC	-0.713 (-0.579)	-0.572 (-0.509)	0.000*** 0.001***
Observations for DSTATE2NSOE	*n*=171	*n*=503	
R^2	0.363 (0.356)	0.330 (0.320)	0.014** 0.006***
SYNC	-0.689 (-0.593)	-0.818 (-0.754)	0.08* 0.006***

Table 16 panel B shows the univariate test results of key variables for the pre-reform (2003-04) and the post-reform (2009-14) period. The table provides the univariate test results of key variables for all sample firms, *RDSTATE* firms and *DSTATE2NSOE* firms. R^2 is from the market model equation (5.3)

which measures the fraction of variations in firm *i*'s share return relative to the market-wide variations and is measured using daily share returns from January to May for each firm in each year. It is the average of all firm-years observations. *SYNC* is the share price synchronicity measure calculated as log $(R^2/1 - R^2)$. '*Test of difference*' columns report the *p*-value for the differences in mean between the time periods, and the *p*-value for the differences in median between the time periods.

Panel C: Distribution of sample firms by industry

	N	*RDSTATE*	*DSTATE2NSOE*	*NONSOE*
Agricuture, forestry, farming and fishery	189	35%	8%	47%
Mining	441	73%	11%	12%
Food and beverage	545	48%	11%	36%
Textiles and apparel	394	20%	8%	71%
Timber and furnishings	85	16%	12%	71%
Paper and printing	261	32%	14%	54%
Petrochemicals	1,298	51%	6%	42%
Electronics	1,831	45%	4%	48%
Metals and Non-metals	1,156	52%	10%	35%
Machinery	935	33%	6%	55%
Pharmaceuticals	776	40%	7%	51%
Automobile manufacturing	519	44%	6%	50%
Utilities	1,090	72%	7%	14%
Construction	368	60%	2%	32%
Transportation	595	90%	3%	5%
Information technology	451	35%	4%	60%
Whole sale and Retail Trade	996	61%	15%	21%
Real estate	871	46%	14%	34%
Industry of culture and arts	11	0%	45%	55%
Accomodation and Catering	66	76%	0%	24%
Congl	154	55%	8%	34%
Total	13,032	51%	8%	38%

Table 16 panel C presents the firm-year observations by industry. The industry classification is according to the Guidelines for the Industry Classification of Listed Companies (2012 Revision). *RDSTATE* is a dummy variable which takes a value of 1 for firms which remained state-owned during the time period of this study, and 0 otherwise. *DSTATE2NSOE* is a dummy variable which takes a value of 1 for firms which converted from state-owned to non-state owned due to split share reform, and 0 otherwise. *NONSOE* is a dummy variable which takes a value of 1 for firms which remained non-state during the time period of this study, and 0 otherwise.

Table 17: Pairwise correlation

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. $SYNC_{t+1}$	1													
2. FR^2	**0.98**	1												
3.DSTATE	**0.05**	**0.05**	1											
4.RDSTATE	**0.05**	**0.05**	**0.94**	1										
5.DSTATE2NSOE	**-0.06**	**-0.05**	**-0.11**	**-0.31**	1									
6.XLIST	**0.06**	**0.06**	**0.14**	**0.15**	**-0.05**	1								
7.QFII	0.01	0.01	**0.04**	**0.05**	**-0.02**	**0.03**	1							
8.LNTOTASSET	**0.09**	**0.10**	**0.27**	**0.30**	**-0.09**	**0.34**	**0.07**	1						
9.LEVERAGE	0.01	0.01	**0.13**	**0.11**	**0.08**	0.003	-0.01	**0.20**	1					
10.BIG4	**0.04**	**0.05**	**0.15**	**0.15**	**-0.04**	**0.73**	**0.02**	**0.27**	**0.03**	1				
11.TRADVOLUME	**0.14**	**0.14**	**0.16**	**0.19**	**-0.03**	**0.16**	**0.05**	**0.58**	**0.11**	**0.07**	1			
12.COVERAGE	-0.02	-0.02	-0.003	**0.02**	**-0.05**	**0.14**	**0.08**	**0.35**	**-0.11**	**0.09**	**0.17**	1		
13.TIME	**-0.14**	**-0.14**	**-0.211**	**-0.14**	**-0.05**	0.00	**-0.04**	**0.26**	**-0.19**	**-0.09**	**0.39**	**0.25**	1	
14. SSR	**0.06**	**0.06**	**-0.15**	**-0.09**	**-0.05**	0.002	**0.07**	**0.15**	**-0.11**	**-0.09**	**0.43**	**0.14**	**0.65**	1

Table 17 shows the pairwise correlation of variables used in this study. The sample includes *DSTATE2NSOE* firms, *RDSTATE* firms and Non-SOEs. $SYNC_{t+1}$is the lead term of share price synchronicity. FR^2 is the lead term of R^2. R^2 is calculated from the market model equation (5.3) which measures the fraction of variations in firm *i*'s share return relative to the market-wide variations and is measured using daily share returns from January to May for each firm in each year. *DSTATE* is a dummy variable which takes a value of 1 for firms which are state-owned, and 0 otherwise. *RDSTATE* is a dummy variable which takes a value of 1 for firms which remained state-owned during the time period of this study, and 0 otherwise. *DSTATE2NSOE* is a dummy variable which takes a value of 1 for firms which converted from state-owned to non-state owned due to split share reform, and 0 otherwise. *XLIST* is a dummy variable which takes a value of 1 for cross-listed firms, and 0 otherwise. *QFII* is the proportion of QFII (Qualified Foreign Institutional Investor) ownership out of total shares. *LNTOTASSET* is the size measure, which is calculated as the natural log of total assets. *LEVERAGE* is calculated as total debt/total assets. *BIG4* is a dummy variable that equals 1 if a firm is audited by a Big 4 auditor, and zero otherwise. *TRADVOLUME* is measured as the natural log of the annual trading volume. *COVERAGE* is the number of

analysts per firm issuing one-year ahead forecasts, made one month after the release of the previous years' financial statement. *TIME* represents the time trend with values from 1-12 representing years 2003 -2014. *SSR* is a dummy variable which indicates the period of the split share structure reform and equals to 1 for firm-year observations in the post-reform period (2005 and onwards), and 0 for observations before the share reform. Figures in bold represent correlations which are significant at 5%.

6.3.2 Pairwise Correlation analysis

The correlation analysis is conducted to check for the problem of multicollinearity amongst variables. Table 17 presents the pairwise correlation for all variables used in the regression model. Over time, synchronicity is reducing, as shown its negative correlation with *TIME*. It is also observed from the high positive correlation coefficient value of 0.73 that BIG4 auditors mostly cover cross-listed firms. Overall, no issue of severe multicollinearity is observed between the key variables used in this study.

6.3.3 Regression results

This section provides the regression results for the hypotheses on share price synchronicity.

Results on hypothesis 4 (*H4*)[196] and 8 (*H8*)[197]

Firstly, this study provides the results and explanation of *H4*.
Table 18 panel A model (1) reports the estimated coefficients and associated '*t*' statistics for *H4*. Hypothesis 4 focuses on the pre-reform period (2003-04) and predicts a positive association between share price synchronicity and *DSTATE*. Table 18 panel A model (1) shows that the coefficient on *DSTATE* is positive, however, it is not significant in the pre-reform period (β_1=0.031, t=0.61).[198]

Next, this study predicts that the split share structure reform will be associated with a decrease in share price synchronicity for firms which converted from

[196] *H4: Prior to the split share reform, share price synchronicity will be positively associated with state controlled firms, ceteris paribus.*
[197] *H8: Split share structure reform will be associated with a decrease in share price synchronicity for firms which transferred from state control to non-state owned firms relative to firms which remained state-controlled, ceteris paribus.*
[198] This result is also not significant in one-tailed test.

state-owned firms to non-state owned firms (*DSTATE2NSOE*) relative to firms which remained state-controlled (*RDSTATE*).

Table 18: Regression Results for Share Price Synchronicity

Dependent variable: $SYNC_{t+1}=\log\left(\frac{R^2_{it+1}}{1-R^2_{it+1}}\right)$

Panel A: Regression results for the pre-reform (2003-2004) and the post-reform period (2009-2014) separately

VARIABLES	Predicted sign of association	Pre-reform (1)	Predicted sign of association	Post-reform (2)
DSTATE	+ve	0.031		
		(0.61)		
DSTATE2NSOE			-ve	-0.244 ***
				(-5.23)
RDSTATE			?	-0.099 ***
				(-3.80)
XLIST	-ve	-0.125	-ve	-0.111
		(-1.06)		(-1.30)
QFII	-ve	-13.78	-ve	-10.91 ***
		(-1.12)		(-3.72)
LNTOTASSET	-ve	-0.001	-ve	0.131 ***
		(-0.04)		(10.54)
LEVERAGE	+ve	-0.326 **	+ve	-0.439 ***
		(-2.17)		(-5.62)
BIG4	-ve	-0.098	-ve	0.20 **
		(-1.26)		(2.38)
TRADVOLUME	+ve	0.241 ***	+ve	0.018
		(7.57)		(1.50)
COVERAGE	-ve	-0.176 ***	-ve	-0.008 **
		(-3.70)		(-2.12)
TIME	+ve	0.316 ***	-ve	-0.102 ***
		(9.00)		(-20.65)
Intercept		-5.84 ***		-0.995 ***
		(-11.53)		(-4.30)

Industry Dummies	Yes	Yes
N	1,489	7.806
R-squared	0.149	0.075

Table 18 panel A shows the result of the sample firms from both the Shanghai and the Shenzhen stock exchange for the pre-reform period (2003-2004) and the post-reform period (2009-2014). The sample firms for regression analysis include firms which remained state-owned during the time period of this study, firms which converted from state-owned to non-state owned due to split share reform, and firms which remained non-state during the time period of this study. Model (1) and (2) provide the results for the pre-reform and the post-reform period respectively. R^2 is calculated from the market model equation (5.3) which measures the fraction of variations in firm *i*'s share return relative to the market-wide variations and is measured using daily share returns from January to May for each firm in each year. *SYNC* is the share price synchronicity measure calculated as log $(R^2/1 - R^2)$. The dependent variable, $SYNC_{t+1}$, is the lead dependent variable. *DSTATE* is a dummy variable which takes a value of 1 for firms which are state-owned, and 0 otherwise. Model (2) further disaggregate *DSTATE* firms into *RDSTATE* and *DSTATE2NSOE* firms. *RDSTATE* is a dummy variable which takes a value of 1 for firms which remained state-owned during the time period of this study, and 0 otherwise. *DSTATE2NSOE* is a dummy variable which equals to 1 for state-owned firms which converted into non-SOEs during the time period of this study, and 0 otherwise. *XLIST* is a dummy variable which takes a value of 1 for cross-listed firms, and 0 otherwise. *QFII* is the proportion of QFII (Qualified Foreign Institutional Investor) ownership out of total shares. *LNTOTASSET* is the size measure, which is calculated as the natural log of total assets. *LEVERAGE* is calculated as total debt/total assets. *BIG4* is a dummy variable that equals 1 if a firm is audited by a Big 4 auditor, and 0 otherwise. *TRADVOLUME* is measured as the natural log of the annual trading volume. *COVERAGE* is the number of analysts per firm issuing one-year ahead forecasts, made one month after the release of the previous years' financial statement. *TIME* represents the time trend with values from 1-12 representing years 2003-2014. The regression results include industry dummies. All continuous variables are winsorized each year at 1% and 99%. Standard errors are cluster by firm. *, **, *** denote coefficient is significantly different from zero at 10%, 5%, 1% level, respectively. *t*-statistics are presented in parentheses.

Panel B: Pooled regression results with the split share structure reform interaction term

	(1)	(2)
DSTATE2NSOE	0.089	0.117*
	(1.25)	(1.95)
SSR	0.609***	0.385***
	(12.08)	(11.27)
*SSR*DSTATE2NSOE*	-0.324***	-0.237***
	(-4.20)	(-3.62)
RDSTATE	-0.008	
	(-0.15)	
*SSR*RDSTATE*	-0.102*	
	(-1.84)	
XLIST	0.09	0.055
	(1.33)	(0.75)
QFII	-5.76***	-3.22*
	(-3.46)	(-1.65)
LNTOTASSET	0.077***	0.068***
	(7.33)	(5.26)
LEVERAGE	-0.362***	-0.159**
	(-5.78)	(-2.14)
BIG4	-0.103*	-0.085
	(-1.80)	(-1.37)
TRADVOLUME	0.108***	0.189***
	(10.81)	(13.73)
COVERAGE	-0.009**	-0.004
	(-2.34)	(-0.87)
TIME	-0.094***	-0.095***
	(-30.80)	(-24.75)
Intercept	-3.08***	-4.658***
	(-17.25)	(-19.40)
Industry Dummies	Yes	Yes
N	12,580	7,631
R-Squared	0.103	0.144

Table 18 panel B shows the pooled regression results of the sample firms from both the Shanghai and the Shenzhen stock exchange from 2003 until 2014. The benchmark sample in model (1) includes non-SOEs. The benchmark sample in model (2) includes *RDSTATE* firms only. R^2 is calculated from the market model equation (5.3) which measures the fraction of variations in firm *i*'s share return relative to the market-wide variations and is measured using daily share returns from January to May for each firm in each year. *SYNC* is the share price synchronicity measure calculated as log ($R^2/1 - R^2$). The dependent variable, $SYNC_{t+1}$, is the lead dependent variable. *RDSTATE* is a dummy variable which takes a value of 1 for firms which remained state-owned during the time period of this study, and 0 otherwise. *DSTATE2NSOE* is a dummy variable which equals to 1 for state-owned firms which converted into non-SOEs during the time period of this study, and 0 otherwise. *SSR* is a dummy variable which indicates the period of the split share structure reform and equals to 1 for firm-year observations in the post-reform period (2005 and onwards), and 0 for observations before the share reform. *SSR*DSTATE2NSOE* is the interaction term between *SSR* and *DSTATE2NSOE*. *SSR*RDSTATE* is the interaction term between *SSR* and *RDSTATE*. *XLIST* is a dummy variable which takes a value of 1 for cross-listed firms, and 0 otherwise. *QFII* is the proportion of QFII (Qualified Foreign Institutional Investor) ownership out of total shares. *LNTOTASSET* is the size measure, which is calculated as the natural log of total

assets. *LEVERAGE* is calculated as total debt/total assets. *BIG4* is a dummy variable that equals 1 if a firm is audited by a Big 4 auditor, and 0 otherwise. *TRADVOLUME* is measured as the natural log of the annual trading volume. *COVERAGE* is the number of analysts per firm issuing one-year ahead forecasts, made one month after the release of the previous years' financial statement. *TIME* represents the time index with values from 1-12 representing years 2003-2014. The regression results include industry dummies. All continuous variables are winsorized each year at 1% and 99%. Standard errors are cluster by firm. *, **, *** denote coefficient is significantly different from zero at 10%, 5%, 1% level, respectively. *t*-statistics are presented in parentheses.

Table 18 panel A model (2) provides the post-reform results after categorizing state-controlled firms into those which remained state-owned throughout the time period of this study (*RDSTATE*), and those firms which switch from state-control firms into non-state owned (*DSTATE2NSOE*). The results in model (2) show that *DSTATE2NSOE* firms and *RDSTATE* firms have significant negative coefficient which indicates that these firms have greater disclosure of firm-specific information in the post-reform period relative to firms which remained non-state throughout the time period of this study.

To test *H8*, this study runs a pooled regression, which includes the split share reform dummy variable and its interaction term with *DSTATE2NSOE* firms. The benchmark sample for this regression includes *RDSTATE* firms. Firstly, Table 18 panel B model (2) show that the coefficient on *DSTATE2NSOE* is positive and significant (β_1=0.117, t=1.95), which indicates that these firms had less-firm specific information incorporated into stock prices before the share reform relative to firms which remained state-owned throughout the time period of this study. This result is also consistent with other Chinese studies such as Gul et al. (2010) and Hou et al. (2012), which examines the impact of government ownership on share price synchronicity. Using 6,120 firm-year observations from 1996 until 2003, Gul et al. (2010) show that, when the controlling shareholder is the state, it has less incentive to disclose value relevant firm-specific information to market participants. This, in turn, increases the information acquisition cost for investors. With less firm-specific information available to market participants, share prices of these firms reflect more market-wide information (higher synchronicity). Also focusing on the pre-reform period, Hou et al. (2012) document that state ownership in Chinese listed firms is associated with low corporate transparency.

The general conclusion from Gul et al. (2010) and Hou et al. (2012) studies is that the higher share price synchronicity of state-owned firms is due to the conflict of interest between controlling state shareholders and minority tradable shareholders. Controlling state shareholders and politicians have objectives

which are more towards fulfilling political goals and maximizing their private benefits (Piotroski and Wong, 2012). Their interests are also different than minority shareholders' firm value maximization objective. The firm wealth is tunnelled towards achieving political goals (Peng et al., 2011).

For instance, Peng et al. (2011) provide evidence on the extraction of funds from the listed firms through connected transaction by the controlling state shareholder. A connected transaction is a transaction which is between a firm or any of its subsidiaries and a connected person.[199] Given the non-tradability of state shares, controlling state shareholders and politicians care more about benefiting themselves at the expense of minority shareholders. Covering the period from 1998 until 2004, Peng et al. (2011) show that when the firm is performing better, the announcement of a connected transaction has a negative impact on the share returns because investors perceive the connected transaction will have a negative impact on firm performance. This is because the incentives of controlling state shareholders to tunnel through connected transaction are greater when the firm is in sound financial condition (Peng et al., 2011). Therefore, to hide such expropriations, these controlling state shareholders have greater incentives to manipulate and selectively disclose information (Gul et al., 2010). This, in turn, leads to an opaque information environment, characterized by higher share price synchronicity in the pre-reform period.

Next, Table 18 panel B model (2) shows that the coefficient on the interaction term is negatively significant (β_3=-0.237, t=-3.62), which provide support for *H8*.[200] The F-statistics further shows that the coefficient on the interaction term, *SSR*DSTATE2NSOE*, is statistically significant (F-value= 13.11, p-value=0.000). The result shows greater incorporation of firm-specific information for *DSTATE2NSOE* due to the share reform relative to *RDSTATE* firms. Based on these results, this study contributes to the existing literature by providing evidence of a positive impact of the split share structure reform on the

[199] A connected person is a large shareholder, director or chief executive.
[200] This result is also significant in a one-tailed test.

improvement of the information environment of *DSTATE2NSOE* firms relative to *RDSTATE* firms.

Using a sample of 9,871 firm-year observations from 2001 until 2008, Hou et al. (2012) show that after the split share structure reform, firms with higher state ownership incorporates more firm-specific information into stock prices. They argue that the elimination of the non-tradability of state shares acts as a key factor which changes the behaviour of the controlling shareholders towards corporate reporting. This is because as state shares become more sensitive to share price movements after the reform, it provides them with greater incentives to improve corporate governance and maximize share return performance, thereby reducing the need to withhold and manipulate reported information (Hou et al., 2012). This, in turn, shows that the split share structure reform plays an incentive alignment effect between controlling state shareholders and minority tradable shareholders (Hou et al., 2012). However, the time period of their study ends in 2008, and therefore, they were unable to test the real impact of the reform when the lock-up period expires for most Chinese listed firms. My study contributes to the literature by taking into account the period 2009 and onwards, i.e. when most of the non-tradable shares became tradable.

By following *DSTATE2NSOE* firms from the pre-reform period to the post-reform period, this study shows that when the controlling shareholder of these firms is the state in the pre-reform period, these firms have poor information environment. However, the transfer of control from the state to non-state shareholder due to the split share structure reform improves the information environment of these firms. The logic for the improvement in the information environment of these firms relative to firms which remained under state control is explained as follows.

Firstly, prior to the split share structure reform, the controlling shareholder of these firms was the state. Therefore, these firms receive preferential treatment from the central government in terms of easy access to equity and credit market (Chen et al., 2016b). Hence, these firms are under less pressure to reduce

information asymmetry. However, after the split share structure reform, the benefit of easy access to external financing reduces for *DSTATE2NSOE* firms as the ultimate controlling shareholder is no longer the state. This in turns makes it necessary for these firms to reduce the information asymmetry which exists between ultimate controlling shareholders and minority shareholders by providing more reliable and complete information disclosures (Lin et al., 2016). Providing more reliable and transparent information will also help these firms in reducing the cost of raising external capital (Chen et al., 2016b).

These arguments are supported by Chen et al. (2016b) study on Chinese listed firms. Using a sample of 9,844 firm-year observations from 2003 until 2009, Chen et al. (2016b) show that, as NSOEs are under pressure to raise external capital at lower cost, they are more likely to respond to financial intermediaries' enquiry and provide high-quality information disclosures. Overall, my study contributes by providing evidence that the reform incentivizes the ultimate controlling shareholder of *DSTATE2NSOE* firms to improve the information environment. This study emphasizes that the period after 2009 is associated with significant changes in the ownership structure of Chinese listed firms as firms are now free to sell their non-tradable shares. These significant changes in the ownership structure are likely to change the behaviour of controlling shareholder towards corporate reporting. Therefore, the result in Table 18 panel B model (2) provides evidence which supports the beneficial impact of the split share structure reform on the information environment for firms which switch from being state-controlled to being outside of the state control (*DSTATE2NSOE*).

Secondly, this study shows that firms which switch from being state-controlled to being outside of state control (*DSTATE2NSOE*) had greater improvement in the information environment relative to firms which remain under state control throughout the study period (*RDSTATE*). This result is consistent with Hou et al. (2016) and Chen et al. (2016a), who also find that the impact of the split share structure reform is not uniform across all state-owned Chinese listed firms. This is because *RDSTATE* firms, which belong to key sectors such as power

generation and distribution, oil and petrochemicals, telecommunications, coal, aviation and shipping as well as other sectors, are required to maintain absolute state control in their respective industries. Moreover, the *Guiding Opinions Concerning the Advancement of Adjustments of State Capital and the Restructuring of State-Owned Enterprises* issued in 2006, further promote the enhancement and expansion of SOEs in these strategic industries.[201]

Hou et al. (2016) argue that as these firms are expected to maintain state control in strategically important sectors, the controlling state shareholders of these firms will be less likely to sell their shares and will not be incentivized by the split share structure reform to monitor and ensure firm value maximization. Covering the period from 2000 until 2007, Hou et al. (2016) find no effect of the split share structure reform on the association between executive remuneration and stock return performance of these firms.

Moreover, Chen et al. (2016a) argue that the impact of the split share structure reform may not be equal across all state-owned listed firms because there are some state-owned firms which are more dependent on financial assistance from the state, and some state-owned firms are under greater political influence. Chen et al. (2016a) argue that those state-owned firms which are willing to bring improvements in their governance will be more willing to offer higher compensation to tradable shareholders as part of the split share reform, and would want a shorter share reform negotiation period. Using data on 818 firm-year observations from 1999 until 2008, firstly their result shows that there is no accountability of CEO after committing fraud in SOE listed firms prior to the split share structure reform. However, following the split share structure reform, they find that the CEOs accountability for fraud amongst SOEs is mostly concentrated in state-controlled firms that are more willing to pay higher compensation to tradable shareholders, and want a shorter split share reform negotiation period.

[201] https://www.state.gov/e/eb/rls/othr/ics/2018/eap/281490.htm

6.3.4 Findings and discussion on control variables

With regard to the discussion of the control variables, this study focuses on Table 18 panel B model (1) as this model include all firms (*RDSTATE, DSTATE2NSOE* and non-SOEs). Focusing on the control variables, the coefficient on QFII is negative and significant, which is consistent with Huang and Zhu (2015), Li et al. (2015) and Zhang et al. (2017) who also document QFII role towards improvement in the information environment. Li et al. (2015) show that QFII ownership in the top ten shareholdings of Chinese listed firms is associated with greater incorporation of firm-specific information into stock prices of A-shares. This is because foreign institutional investors have the relevant skills for financial statement analyses and incorporate their obtained information into the stock prices of A-shares through their trading activities (Li et al., 2015).

Moreover, studies by Huang and Zhu (2015) and Zhang et al. (2017) provide direct and indirect influence of QFII on corporate governance of Chinese listed firms respectively. Huang and Zhu (2015) show that QFII played a positive role in negotiating higher compensation for tradable shareholders during the split share structure reform process. Therefore, the direct intervention of QFII during the split share structure reform process further indicates that they are less prone to political pressure from state shareholders and are more likely to perform better monitoring function (Huang and Zhu, 2015).

Zhang et al. (2017) further argue that QFII are informed investors who can indirectly influence corporate governance through their trading activities. The logic is as follows. Informed trades by institutional investors incorporate their obtained information into stock prices which drives the stock prices close to their fundamental value (Gallagher et al., 2013). This, in turn, makes stock prices more sensitive to corporate actions, for instance, negative information regarding tunnelling by controlling shareholders will likely be punished by the market in terms of a severe decline in share prices. Using 1,006 firm-year observations from 2003 until 2011, Zhang et al. (2017) find that when foreign institutional investors engage in large and frequent transactions. This, in turn, drives the

stock prices close to their fundamental value. Their aggressive trading strategy acts as a market disciplining mechanism which helps limit the tunnelling activities of controlling shareholders.

Table 18 panel B model (1) further show that the coefficient on *BIG4* is negative and significant. This result is consistent with recent Chinese studies, which also find that firms with high-quality auditor have more firm-specific information disclosures (Gul et al., 2010, Gul et al., 2011). The primary role of an auditor is to ensure the credibility of the information contained in those reports (Gul et al., 2010). However, Gul et al. (2010) argue that the amount of firm-specific information incorporated into the stock prices will vary across Chinese listed firms, subject to the firm's auditor. For instance, high-quality auditors, such as the Big 4 auditors, require their client firms to disclose more detailed and better quality firm-specific information in a timely manner. Therefore, Gul et al. (2010) argue that there will be more firm-specific information disclosures for Chinese listed firms with Big 4 auditors relative to firms with domestic non-Big 4 auditors. Using data on 6,120 firm-year observations from 1996 until 2003, Gul et al. (2010) find evidence of lower share price synchronicity for Chinese listed firms with Big 4 auditors. Their result implies that Chinese listed firms with Big 4 auditors provide more credible firm-specific information, which in turn leads to an improvement in the information environment for these firms.

Moreover, Gul et al. (2011) argue that a firm's choice of auditor acts as a signal to the market participants regarding the quality of its financial reports. For instance, as Chinese listed firms are extensively monitored by their high-quality auditors, these firms, therefore, will likely restrain from the misuse of corporate resources. Thus, these firms will have less incentive to withhold information, which in turn will lead to greater disclosure of firm-specific information to the market. Using a sample of 1,227 firm-year observations on Chinese listed firms from 2001 until 2005, Gul et al. (2011) show that Chinese listed firms with top ten auditors are associated with lower misuse of corporate resources relative to firms with low-quality auditors. They also find that as top ten auditors

discourage excessive perk consumptions of their client firms, these firms have more firm-specific information disclosures.

Although this study finds that Big 4 firms contribute towards the improvement in the information environment of Chinese listed firms, which is also consistent with existing Chinese studies, it is also important to take into consideration the institutional environment when using the *BIG4* dummy variable in a regression model.[202]

Moreover, taking account of the recent developments in China's audit market, the Ministry of Finance announced new rules in 2012 which were aimed to substantially restructure the Big 4 audit firms operating in mainland China.[203] Under the new rules, Big 4 audit firms operating in China are required to replace at least 60% of their existing foreign qualified accountants with local Chinese citizens having Chinese accounting qualification.[204] Therefore, the new rules are likely to affect the audit quality as local Chinese auditors may not have similar international experience as foreign auditors. The importance of having international working experience of individual auditors is further highlighted by Chen et al. (2017). Covering the period from 2001 until 2012, Chen et al. (2017) show that the international working experience of auditors do improve their audit quality. The international working experience equips individual auditors with the skills to detect financial statement frauds and help them understand complex operations (Chen et al., 2017).

[202] For instance, Ke et al. (2015) show that the audit quality of Big 4 audit firms in not similar across different institutional environment. Their study compares the audit quality of financial statements of Chinese listed firms which are cross-listed in Hong Kong versus Chinese listed firms which are only listed in mainland China (A-share and AB share firms only). Using a sample of 1,280 A-share audits by Big 4 from 1995 until 2012, their results show that Big 4 audit firms assign less experienced partners and put in less effort to audit non-cross listed Chinese listed firms i.e A share firms only and AB share firms.

[203] https://www.reuters.com/article/us-china-auditors/china-orders-big-four-auditors-to-restructure-idUSBRE84905R20120510

[204] https://www.telegraph.co.uk/finance/china-business/9111160/Big-trouble-in-China-for-Big-Four-auditors.html

It is also observed from the *TIME* trend variable that synchronicity is reducing over time, which indicates improvement in the information environment of Chinese listed firms. Contrary to the expectation made in this study, there is a positive and significant association between firm size (*LNTOTASSET*) and share price synchronicity. This result raises additional issues for future research.

Table 18 panel B model (1) shows a positive and significant coefficient on *TRADVOLUME*. This result is consistent with the prediction of this study and is also consistent with existing Chinese studies (Hu and Wang, 2013, Ma et al., 2017). For instance, Hu and Wang (2013) analyze the trading behaviours of Chinese retail investors. Using monthly share returns data from 2005 until 2009, Hu and Wang (2013) firstly show that Chinese retail investors take high positions and have high trading volume for large-cap stocks relative to small-cap stocks. For instance, the trading volume for large-cap stock accounts for 30% of total trades. Overall, they find that retail investors show high speculation for small-cap stocks in the short-run, while they hold large-cap stock in the long-term. This speculative trading by Chinese retail investors is expected, given their lack of experience and education background (Mei et al., 2005). The results of their study indicate that the trading behaviour of Chinese retail investors are systematically correlated with each other.

Moreover, using data on all stocks listed on the Shanghai and the Shenzhen stock exchange from 1995 until 2016, Ma et al. (2017) results show that Chinese stock markets are highly volatile. Ma et al. (2017) document higher trading activity when the market is up relative to when the market is down, which is consistent with the "disposition effect". A "disposition effect" is when investors tend to hold loser stocks longer than the winner stocks. This kind of trading behaviour is more represented by unsophisticated retail investors (Ma et al., 2017).

This study documents a negatively significant association between *COVERAGE* and share price synchronicity, which is consistent with the prediction made in this study. The result implies that analyst coverage helps to incorporate more firm-specific information into stock prices of Chinese listed firms. This result is consistent with recent Chinese studies which also find that analyst coverage of Chinese listed firms improve corporate transparency and the information environment (Chen et al., 2016b, Chen et al., 2016c).

Chinese analysts' research reports carry significant importance to investors for decision making purpose due to the following two reasons. Firstly, they are an important information intermediary in China as they perform monitoring function to discipline managers (Chen et al., 2016c). Secondly, as there are limited information disclosure channels available in Chinese capital market, there is an increase in the demand for analysts' information by investors, which in turn increases analysts' influence on investors' confidence (Chen et al., 2016b).

Chen et al. (2016c) examine the impact of coverage on the financial reporting quality of firms during the period from 2003 until 2009. Chen et al. (2016c) measure the financial reporting quality through the issuance of modified audit opinion by firm's auditor, which is a signal of low financial reporting quality or financial statements below the specified standards. The issuance of a modified audit opinion also implies poor corporate governance and higher information asymmetry. Chen et al. (2016c) argue that analysts' scrutiny and monitoring will help restrict the expropriation of firm's wealth which, in turn, will lead to better corporate transparency and will also lower the propensity of the firm receiving modified audit opinion.

Using 9,844 firm-year observations from 2003 until 2009, Chen et al. (2016c) show that analyst coverage of Chinese listed firms reduces the chances for firms to receive audit opinions from their auditors which indicates the beneficial role of analysts towards improving corporate transparency by limiting managers expropriation behaviour. Chen et al. (2016c) further show that as NSOEs are more dependent on the capital market to finance their operations, they are more

likely to respond to analysts queries as it helps reduce information asymmetry between the firm and market participants. Therefore, these firms have greater incentives to provide high-quality information.

Moreover, there is also evidence from China which shows that analysts' monitoring and scrutiny helps to restrict fraudulent activities in Chinese listed firms. Using data on 409 fraud cases from 2003 until 2008, Chen et al. (2016b) find that when analyst covers non-state owned firms, these firms are less likely to commit fraud. This is because these firms are greatly dependent on external capital and are also more concerned about the reputation in the market as the discovery of fraudulent activity will negatively impact their ability to raise external capital and reduce their share price (Chen et al., 2016b).

Overall, the results from Chen et al. (2016b) and Chen et al. (2016c) highlight the importance of analysts as financial intermediaries towards improving the information environment by responding to analysts' queries, by limiting firm's potential to commit fraud, which in turn leads to firms providing high quality financial information. This provides analysts with more firm-specific information, which explains the negatively significant association between *COVERAGE* and share price synchronicity in this study.

6.3.5 Robustness results

For robustness, this study includes an alternative proxy for *DSTATE* and *DSTATE2NSOE*. This study replaces *DSTATE* and *DSTATE2NSOE* dummy variable in equation (5.4) and equation (5.5) by the ownership of the ultimate controlling shareholder in these firms (*DSTATEOWN* and *DSTATE2NSOEOWN*). *DSTATEOWN* is the ownership of the ultimate controlling shareholder in *DSTATE* firms, whereas *DSTATE2NSOEOWN* is the ownership of the ultimate controlling shareholder in *DSTATE2NSOE* firms. The robustness results are provided in Table 19 model (1) for *H4* and model (2) for *H8*. The results show that the coefficient on *DSTATEOWN* is positive but not significant, which is consistent with the previous finding in Table 18 panel A model (1).

Moreover, the results in model (2) show that the coefficient on *DSTATE2NSOEOWN* in (model 1) is positive but not significant. However, in line with the previous finding in Table 18 panel B model (2), the interaction term, *SSR*DSTATE2NSOEOWN* is negatively statistically significant. The F-test further confirms that the difference between the coefficients from pre- and post-reform is statistically significant (F-value= 10.24, p-value=0.0014). All control variables, including the time index variable, remain substantially the same with the same sign and statistical significance level.[205]

[205] QFII, however, is not significant in model (2).

Table 19: Robustness Regression results for Share Price Synchronicity

Dependent variable: $SYNC_{t+1}=\log\left(\frac{R^2_{it+1}}{1-R^2_{it+1}}\right)$

VARIABLES	Predicted sign of association	Pre-reform (2003-2004) (1)	Predicted sign of association	Pooled regression (2003-2014) (2)
DSTATEOWN	+ve	0.038		
		(0.43)		
DSTATE2NSOEOWN			+ve	0.228
				(1.39)
SSR			-ve	0.378***
				(11.17)
*SSR*DSTATE2NSOEOWN*			-ve	-0.654***
				(-3.20)
XLIST	-ve	-0.125	-ve	0.056
		(-1.06)		(0.77)
QFII	-ve	-14.17	-ve	-3.21
		(-1.16)		(-1.64)
LNTOTASSET	-ve	-0.001	-ve	0.069***
		(-0.05)		(5.51)
LEVERAGE	+ve	-0.323**	+ve	-0.169**
		(-2.12)		(-2.28)
BIG4	-ve	-0.095	-ve	-0.088
		(-1.22)		(-1.41)
TRADVOLUME	+ve	0.241***	+ve	0.188***
		(7.56)		(13.61)
COVERAGE	-ve	-0.176***	-ve	-0.004
		(-3.69)		(-0.85)
TIME	+ve	0.316***	-ve	-0.095***
		(8.99)		(-24.76)
Intercept		-5.84***		-4.624***
		(-11.54)		(-19.22)
Industry Dummies		Yes		Yes

N	1,489	7,631
R-squared	0.149	0.144

Table 19 presents robustness results of the sample firms from both the Shanghai and the Shenzhen stock exchange for the pre-reform period (2003-2004) in model (1), and the pooled regression results (2003-2014) with the split share reform interaction term in model (2). The benchmark sample in model (1) includes non-SOEs. The benchmark sample in model (2) includes *RDSTATE* firms only. R^2 is calculated from the market model equation (5.3) which measures the fraction of variations in firm *i*'s share return relative to the market-wide variations and is measured using daily share returns from January to May for each firm in each year. *SYNC* is the share price synchronicity measure calculated as log $(R^2/1-R^2)$. The dependent variable, $SYNC_{t+1}$, is the lead dependent variable. For robustness results, this study replaces *DSTATE* dummy variable by *DSTATEOWN* in model (1), which is the ownership of the ultimate controlling shareholder in *DSTATE* firms. In model (2), this study replaces *DSTATE2NSOE* dummy variable by *DSTATE2NSOEOWN*, which is the ownership of the ultimate controlling shareholder in *DSTATE2NSOE* firms. *SSR* is a dummy variable which indicates the period of the split share structure reform and equals to 1 for firm-year observations in the post-reform period (2005 and onwards), and 0 for observations before the share reform. *XLIST* is a dummy variable which takes a value of 1 for cross-listed firms, and 0 otherwise. *QFII* is the proportion of QFII (Qualified Foreign Institutional Investor) ownership out of total shares. *LNTOTASSET* is the size measure, which is calculated as the natural log of total assets. *LEVERAGE* is calculated as total debt/total assets. *BIG4* is a dummy variable that equals 1 if a firm is audited by a Big 4 auditor, and zero otherwise. *TRADVOLUME* is measured as the natural log of the annual trading volume. *COVERAGE* is the number of analysts per firm issuing one-year ahead forecasts, made one month after the release of the previous years' financial statement. *TIME* represents the time index with values from 1-12 representing years 2003 -2014. The regression results include industry dummies. All continuous variables are winsorized each year at 1% and 99%. Standard errors are cluster by firm. *, **, *** denote coefficient is significantly different from zero at 10%, 5%, 1% level, respectively. *t*-statistics are presented in parentheses.

6.3.6 Appendix (additional tests)

This study performs several additional tests to check the robustness of the main findings. Overall, the main results are robust to the following considerations: (1) controlling for the real economic firm activity (*CAPEX*); (2) controlling for the *BIG6* domestic auditor impact; and (3) the IFRS-convergence.

Controlling for the real economic firm activity

Following Liu and Tian (2012), this study also controls for the real economic activity of the firm by including capital expenditure, which is computed as capital expenditure divided by total assets. Table 19(I) panel A and panel B shows that *CAPEX* is significantly associated with share price synchronicity.[206] However, the main results on *DSTATE* and *SSR*DSTATE2NSOE* remain unchanged after controlling for real economic activity of the firm.

Incorporating domestic BIG6 dummy variable

Taking into consideration the recent developments in the audit industry, such as Document 56, which aimed towards improving the audit quality of domestic audit firms, this study controls for the audit quality of domestic top 6 audit firms. The rankings for these top domestic audit firms is revised yearly and are available at CICPA website. This study, therefore, includes a dummy variable, *BIG6*, which takes a value of 1 for firms which are audited by an audit firm in the domestic top 6 category, and 0 otherwise.

This study documents a negative and significant coefficient on *BIG6* for the pooled regressions only in Table 19(I) panel A model (2) and panel B model (2). These results indicate that domestic top 6 auditors are more effective in the monitoring the firm, leading to greater disclosure of firm-specific information and reducing information asymmetry. These results are also consistent with Gul et al. (2011), who also document that high-quality auditors improve firm transparency and information disclosure. These firms are strictly monitored by

[206] *CAPEX*, however, is not significant in the pre-form period in Table 19(I) panel A model (1).

high-quality auditors, such as domestic top 6 auditors, which not only enhances the credibility but also increases the disclosure of firm-specific information in the financial statements. This further reflect that the developments in the audit market are in fact working in the right direction, i.e. upgrading the audit quality of domestic top 6 auditors. These domestic *BIG6* are becoming the major players in China's audit market.

IFRS convergence impact

Taking into consideration the 2007 IFRS-convergence with the Chinese accounting standards, this study further incorporates IFRS regime dummy variable which equals to 1 for the year 2007 and onwards, and 0 otherwise. This study documents a positive and significant coefficient on IFRS dummy variable in Table 19(I) panel A and panel B. These results on IFRS indicate that IFRS convergence with the Chinese accounting standards does not help towards incorporation of firm-specific information into stock prices. This unintended consequence of IFRS convergence is also documented by recent studies on China (DeFond et al., 2019).

Dou (2008) found that this unintended consequence of IFRS is due to accountants' inadequate understanding of IFRS principles, leading to repetition of information and no incremental information being disclosed by the firm (see Ding et al., 2017, p.1109). The inadequate understanding of the new standard is due to lack of familiarity of IFRS-converged accounting standards, as well as the practical experience of using professional judgement for fair value appraisal (Nie et al., 2013). Under CAS, which was rules-based accounting standard, professional judgement was of less importance in many decisions. However, IFRS, which is a principles-based standard, places more emphasis on exercising professional judgement in many key decisions (Nie et al., 2013).

Firm-fixed effects

This study also carries out additional tests using firm-fixed effects. The regression results using firm-fixed effects are provided in Table 19(I) panel B model (1) for the pre-reform period (*H4*) and model (2) for pooled OLS with firm fixed effects (*H8*) respectively. In model (2), this study does not include the treatment group variable, *DSTATE2NSOE*, since the firm fixed effects play the role that a dummy for the treatment group would play. Including the treatment group dummy variable along with firm fixed effects will result in the multicollinearity problem.

Overall, the main results on *DSTATE* and *SSR*DSTATE2NSOE* are robust under firm fixed effects. Firstly, this study documents that *DSTATE* is negatively associated with share price synchronicity, however, it remains insignificant as in the main result in Table 18 panel A model (1). Next, the coefficient on the interaction term in Table 19(I) panel B model (2) is negative and significant which is also consistent with the main result in Table 18 panel B model (2).

Table 19(I): Additional Tests For Share Price Synchronicity

Dependent variable: $SYNC_{t+1}=\log\left(\frac{R^2_{it+1}}{1-R^2_{it+1}}\right)$

Panel A: Regression results for the pre-reform period (model 1) and the Pooled-OLS regression from 2003 until 2014 (model 2) separately using additional variables

VARIABLES	Predicted sign of association	Pre-reform (2003-04) (1)	Predicted sign of association	Pooled-OLS regression (2)
DSTATE[207]	+ve	0.033		—
		(0.63)		
DSTATE2NSOE[208]		—	+ve	0.116 *
				(1.95)
SSR		—	-ve	0.189 ***
				(5.73)
*SSR*DSTATE2NSOE*		—	-ve	-0.232 ***
				(-3.60)
XLIST	-ve	-0.139	-ve	-0.009
		(-1.19)		(-0.14)
QFII	-ve	-13.51	-ve	-1.33
		(-1.09)		(-0.71)
LNTOTASSET	-ve	-0.0012	-ve	0.089 ***
		(-0.04)		(7.00)
LEVERAGE	+ve	-0.341 **	+ve	-0.203 ***
		(-2.25)		(-2.76)
BIG4	-ve	-0.099	-ve	-0.027
		(-1.27)		(-0.45)
BIG6	-ve	-0.0546		-0.067 ***
		(-0.60)		(-2.88)
TRADVOLUME	+ve	0.24 ***	+ve	0.141 ***
		(7.53)		(9.72)

[207] *DSTATE* is not included in regression model (2) since this regression tests the impact of the SSR on state-owned firms which transformed into non-state owned due to the share reform.

[208] As model (1) test the pre-reform hypotheses, therefore, *DSTATE2NSOE* is not included in these regression models.

COVERAGE	-ve	-0.179 ***	-ve	-0.009 *
		(-3.72)		(-1.81)
CAPEX	?	0.078		0.369 **
		(0.26)		(2.14)
IFRS[209]		—		0.649 ***
				(23.34)
TIME	+ve	0.319 ***	-ve	-0.139 ***
		(9.12)		(-30.98)
Intercept		-5.83 ***		-3.823 ***
		(-11.47)		(-15.37)
Industry Dummies		Yes		Yes
N		1,487		7,629
R-squared		0.149		0.188

Table 19(I) panel A shows the regression result (using additional variables) of the sample firms from both the Shanghai and the Shenzhen stock exchange for the pre-reform period (2003-2004) and the pooled regression results (2003-2014) respectively. The sample firms for regression analysis include firms which remained state-owned during the time period of this study, firms which converted from state-owned to non-state owned due to split share reform, and firms which remained non-state during the time period of this study. The benchmark sample in model (1) includes non-SOEs. The benchmark sample in model (2) includes *RDSTATE* firms only. R^2 is calculated from the market model equation (5.3) which measures the fraction of variations in firm *i*'s share return relative to the market-wide variations and is measured using daily share returns from January to May for each firm in each year. *SYNC* is the share price synchronicity measure calculated as log (R^2/1 − R^2). The dependent variable, $SYNC_{t+1}$, is the lead dependent variable. *DSTATE* is a dummy variable which takes a value of 1 for firms which are state-owned, and 0 otherwise. *DSTATE2NSOE* is a dummy variable which equals to 1 for state-owned firms which converted into non-SOEs during the time period of this study, and 0 otherwise. *XLIST* is a dummy variable which takes a value of 1 for cross-listed firms, and 0 otherwise. *QFII* is the proportion of QFII (Qualified Foreign Institutional Investor) ownership out of total shares. *LNTOTASSET* is the size measure, which is calculated as the natural log of total assets. *LEVERAGE* is calculated as total debt/total assets. *BIG4* is a dummy variable that equals 1 if a firm is audited by a Big 4 auditor, and 0 otherwise. *BIG6* is a dummy variable that equals 1 if a firm is audited by domestic top 6 auditor, and 0 otherwise. *TRADVOLUME* is measured as the natural log of the annual trading volume. *COVERAGE* is the number of analysts per firm issuing one-year ahead forecasts, made one month after the release of the previous years' financial statement. *CAPEX* is capital expenditure, computed as capital expenditure divided by total assets. *IFRS* is a regime dummy variable which equals to 1 for the year 2007 and onwards, and 0 otherwise. *TIME* represents the time trend with values from 1-12 representing years 2003-2014. The regression results include industry dummies. All continuous variables are winsorized each year at 1% and 99%. Standard errors are cluster by firm. *, **, *** denote coefficient is significantly different from zero at 10%, 5%, 1% level, respectively. *t*-statistics are presented in parentheses.

[209] IFRS is not included in pre-reform regression model (1) since it is a dummy variable which takes a value of 1 for years 2007 and onwards, and 0 otherwise.

Panel B: Regression results using firm-fixed effects

	Pre-reform (2003-2004) (1)	Pooled-OLS with fixed effects (2)
DSTATE[210]	-0.23	—
	(-0.80)	
SSR	—	0.143***
		(4.13)
*SSR*DSTATE2NSOE*	—	-0.177***
		(-2.89)
QFII	-36.98	1.18
	(-1.40)	(0.61)
LNTOTASSET	0.036	0.153***
	(0.16)	(6.78)
LEVERAGE	-1.01*	-0.294***
	(-1.82)	(-3.02)
BIG4[211]	—	-0.088
		(-1.43)
BIG6	-0.023	-0.092***
	(-0.14)	(-4.06)
TRADVOLUME	0.292***	0.152***
	(3.82)	(10.95)
COVERAGE	-0.247***	0.007***
	(-3.47)	(1.79)
CAPEX	1.30**	-0.449*
	(2.03)	(-2.51)
IFRS[212]	—	0.611***
		(19.09)
TIME	0.278***	-0.153***
	(4.97)	(-29.71)
Intercept	-6.71***	-4.36***
	(-3.23)	(-14.96)
Firm Fixed effects	Yes	Yes
Industry Dummies	No	No
N	1,487	7,629
R-Squared	0.824	0.409

Table 19(I) panel B shows the regression results using firm-fixed effects of the sample firms from both the Shanghai and the Shenzhen stock exchange for the pre-reform period (2003-2004) and the pooled regression results (2003-2014) respectively. The sample firms for regression analysis include firms which remained state-owned during the time period of this study, firms which converted from state-owned to non-state owned due to split share reform, and firms which remained non-state during the time period of this study. The benchmark sample in model (1) includes non-SOEs. The benchmark sample in model (2) includes *RDSTATE* firms only. R^2 is calculated from the market model equation (5.3) which measures the fraction of variations in firm

[210] *DSTATE* is not included in regression model (2) since this regression tests the impact of the SSR on state-owned firms which transformed into non-state owned due to the share reform.
[211] *BIG4* is omitted as it is collinear with firm-fixed effects.
[212] *IFRS* is not included in pre-reform regression model (1) since it is a dummy variable which takes a value of 1 for years 2007 and onwards, and 0 otherwise.

i's share return relative to the market-wide variations and is measured using daily share returns from January to May for each firm in each year. *SYNC* is the share price synchronicity measure calculated as log $(R^2/1 - R^2)$. The dependent variable, $SYNC_{t+1}$, is the lead dependent variable. *DSTATE* is a dummy variable which takes a value of 1 for firms which are state-owned, and 0 otherwise. *DSTATE2NSOE* is a dummy variable which equals to 1 for state-owned firms which converted into non-SOEs during the time period of this study, and 0 otherwise. *XLIST* is a dummy variable which takes a value of 1 for cross-listed firms, and 0 otherwise. *QFII* is the proportion of QFII (Qualified Foreign Institutional Investor) ownership out of total shares. *LNTOTASSET* is the size measure, which is calculated as the natural log of total assets. *LEVERAGE* is calculated as total debt/total assets. *BIG4* is a dummy variable that equals 1 if a firm is audited by a Big 4 auditor, and 0 otherwise. *BIG6* is a dummy variable that equals 1 if a firm is audited by domestic top 6 auditor, and 0 otherwise. *TRADVOLUME* is measured as the natural log of the annual trading volume. *COVERAGE* is the number of analysts per firm issuing one-year ahead forecasts, made one month after the release of the previous years' financial statement. *CAPEX* is capital expenditure, computed as capital expenditure divided by total assets. *IFRS* is a regime dummy variable which equals to 1 for the year 2007 and onwards, and 0 otherwise. *TIME* represents the time trend with values from 1-12 representing years 2003-2014. All continuous variables are winsorized each year at 1% and 99%. *, **, *** denote coefficient is significantly different from zero at 10%, 5%, 1% level, respectively. *t*-statistics are presented in parentheses.

6.4 Analysis and Discussion for Value Relevance Tests

This section is organized as follows. Section 6.4.1 provides the descriptive statistics and section 6.4.2 presents the correlation analysis. Next, section 6.4.3 provides regression analysis on value relevance of earnings, followed by section 6.4.4 which provides the regression results using operating revenue as an alternative deflator. Finally, section 6.4.5 provides earnings prediction tests. The following hypotheses are empirically tested in this section:

H9: The value relevance of earnings in firms which switch from state control to non-state owned will increase following the split share structure reform, ceteris paribus.

H10: Following the split share structure reform, the value relevance of earnings will be greater for firms which switch from state control to non-state owned compared to firms which remained state-owned, ceteris paribus.

6.4.1 Descriptive Statistics

Table 20 panel A shows the descriptive statistics of the full sample employed in this chapter. There are on average around 7.4% of observations which belong to firms which had a change in their ultimate controlling shareholder from the state to non-state related.[213] Around 46.6% of observations belong to firms which remained under state control throughout the time period of this study.[214] Table 20 panel B provide the average values on firms' characteristics by year after firms are categorized into *DSTATE2NSOE*, *RDSTATE* and *NONSOE*.

Firstly, it is observed that in the pre-reform period (2003-04), the highest ownership concentration is in *RDSTATE* firms, which is shown by *OWNERSHIP*, the proportion of shareholding of the ultimate controlling shareholder. *NONSOE* have the lowest ownership concentration amongst the

[213] This relates to *DSTATE2NSOE* firms.
[214] This relates to *RDSTATE* firms.

group during the pre-reform period (2003-04). Over the years, the ownership concentration is reducing in *DSTATE2NSOE* and *RDSTATE* firms, whereas *NONSOE* see an increasing trend in ownership concentration by the ultimate controlling shareholder.

This study further computes the univariate statistics between the pre-reform and the post-reform period by firm type for *OWNERSHIP* variable. For *RDSTATE* firms, the mean difference on *OWNERSHIP* variable between the pre-reform and the post-reform period is statistically significant (Difference: -0.063, p-value: 0.000***), for *DSTATE2NSOE* firms, the mean difference on *OWNERSHIP* variable between the pre-reform and the post-reform period is also statistically significant (Difference: -0.113, p-value: 0.000***), and for *NONSOE* firms, the mean difference on *OWNERSHIP* variable between the pre-reform and the post-reform period is also statistically significant (Difference: 0.091, p-value: 0.000***). Moreover, *NONSOE*s are more profitable with an average *ROA* of 5% relative to *RDSTATE* and *DSTATE2NSOE*.

It is also noted that *RDSTATE* are the largest firms amongst the group, with average total assets RMB 11016.12 million. These results indicate that large firms mainly belong to the state. Moreover, panel C further categorizes sample firms according to the industry in which they belong. Panel C shows that *RDSTATE* firms mostly belong to key strategic sectors such as metals and non-metals, utilities, transportation and mining. This is consistent with the *Guiding Opinions Concerning the Advancement of Adjustments of State Capital and the Restructuring of State-Owned Enterprises* issued in 2006, which promotes the expansion of state-owned firms and the influence of the state in these strategically important industries.[215] It is important for the state to have absolute control of firms operating in these strategically important industries as they are vital for the national economy and essential to national security.[216] It is

[215] https://www.state.gov/e/eb/rls/othr/ics/2018/eap/281490.htm
[216] http://www.chinadaily.com.cn/china/2006-12/19/content_762056.htm

also observed that non-state owned firms are mainly concentrated in the textile industry, as well as timber and furnishings industry.

Table 20: Descriptive statistics

Panel A: Full Sample Observations (2003-2014)

VARIABLES	N	Mean	Median	SD	Min	Max
mv_{it+1}^{Apr}/bv_{it}	15829	3.782	2.902	3.258	0.304	37.936
$1/bv_{it}$	15829	0	0	0	0	0
ni_{it}/bv_{it}	15829	0.082	0.071	0.061	0.002	0.353
ce_{it}/bv_{it}	15829	0.13	0.088	0.134	0.001	0.876
cc_{it}/bv_{it}	15829	0.077	0	0.181	0	0.817
sd_{it}/bv_{it}	15829	0.519	0	1.376	0	12.395
cd_{it}/bv_{it}	15829	0.022	0.016	0.025	0	0.149
RDSTATE	15829	0.466	0	0.499	0	1
NSOE2DSTATE	15829	0.018	0	0.134	0	1
DSTATE2NSOE	15829	0.074	0	0.261	0	1
NONSOE	15829	0.339	0	0.473	0	1

Table 20 panel A presents the descriptive statistics of variables from 2003 until 2014. The sample includes firms listed on the Shanghai and Shenzhen stock exchange. mv_{it+1}^{Apr}/bv_{it} is the market value, where market value (calculated at the end of April, which is four months after the fiscal year-end of year t for firm i) divided by the book value of equity for firm i at year t, $1/bv_{it}$ is one divided by the book value of equity for firm i at year t, ni_{it}/bv_{it} is net income divided the book value of equity for firm i at year t, ce_{it}/bv_{it} is capital expenditure divided by the book value of equity for firm i at year t, cc_{it}/bv_{it} is capital contributions divided by the book value of equity for firm i at year t, sd_{it}/bv_{it} is the stock dividend (RMB) divided by the book value of equity for firm i at year t. It is calculated as the number of bonus shares issued multiply by the share price at the end of December year t (Dedman et al., 2015). cd_{it}/bv_{it} is cash dividend divided by the book value of equity for firm i at year t. *RDSTATE* is a dummy variable which takes a value of 1 for firms which remained state-owned during the time period of this study, and 0 otherwise. *DSTATE2NSOE* is a dummy variable which takes a value of 1 for firms which converted from state-owned to non-state owned due to split share reform, and 0 otherwise. *NSOE2DSTATE* is a dummy variable which takes a value of 1 for firms which converted from non-state owned to state-owned firms, and 0 otherwise. *NONSOE* is a dummy variable which takes a value of 1 for firms which remained non-state during the time period of this study, and 0 otherwise.

Panel B: Average values for variables by Year and Firm Type

	DSTATE2NSOE					*RDSTATE*					*NONSOE*				
YEAR	n	OWNERSHIP	ROA	LEVERAGE	TOTAL ASSETS	n	OWNERSHIP	ROA	LEVERAGE	TOTAL ASSETS	n	OWNERSHIP	ROA	LEVERAGE	TOTAL ASSETS
2003	73	36%	3%	23%	1455.4	348	46%	4%	22%	3575.27	124	25%	4%	23%	1832.0
2004	108	33%	2%	24%	1661.3	626	45%	4%	22%	3692.43	229	25%	4%	23%	1728.8
2005	80	30%	2%	25%	1921.9	585	43%	4%	21%	4005.01	209	23%	4%	23%	1903.1
2006	99	23%	3%	24%	1937.0	626	38%	4%	21%	5247.30	253	23%	4%	21%	1984.3
2007	91	21%	4%	23%	2355.5	654	37%	5%	21%	7842.85	307	27%	6%	20%	2380.7
2008	94	23%	4%	21%	2625.9	640	38%	4%	20%	8525.14	344	30%	5%	18%	2412.6
2009	91	26%	4%	23%	3201.7	562	39%	4%	20%	12056.70	401	30%	6%	17%	2825.0
2010	97	23%	4%	22%	4084.8	646	39%	5%	19%	13126.55	576	33%	6%	13%	3145.1
2011	103	21%	4%	21%	4528.3	661	39%	5%	18%	15394.03	713	36%	6%	13%	3886.1
2012	119	23%	4%	19%	5053.9	677	39%	4%	18%	16069.88	762	35%	5%	13%	4169.2
2013	111	22%	4%	20%	6479.7	682	39%	4%	18%	17959.00	727	34%	5%	13%	5302.0
2014	100	24%	4%	17%	6960.5	665	39%	3%	16%	19374.01	721	35%	5%	13%	6231.5
Total	1166	25%	4%	22%	3656.1	7372	40%	4%	20%	11016.12	5366	32%	5%	15%	3787.4

Table 20 panel B provides the average values of variables by year and firm type from 2003 until 2014. *OWNERSHIP* represents the ownership proportion of the ultimate controlling shareholder of *DSTATE2NSOE* firms, *RDSTATE* firms and *NONSOE*s. TOTAL ASSETS is in RMB million. *ROA* is net profit/total assets. *LEVERAGE* is (short term debt + long term debt)/total assets. *RDSTATE* is a dummy variable which takes a value of 1 for firms which remained state-owned during the time period of this study, and 0 otherwise, *DSTATE2NSOE* is a dummy variable which takes a value of 1 for firms which converted from state-owned to non-state owned due to split share reform, and 0 otherwise, *NONSOE* is a dummy variable which takes a value of 1 for firms which remained non-state during the time period of this study, and 0 otherwise.

Panel C: Distribution of sample firms by industry

	N	*RDSTATE*	*DSTATE2NSOE*	*NONSOE*
Agricuture, forestry, farming and fishery	238	31%	8%	42%
Mining	517	68%	13%	12%
Food and beverage	618	47%	12%	34%
Textiles and apparel	431	20%	9%	70%
Timber and furnishings	90	17%	12%	70%
Paper and printing	289	31%	13%	50%
Petrochemicals	1528	48%	6%	37%
Electronics	2441	39%	4%	38%
Metals and Non-metals	1340	50%	9%	33%
Machinery	1172	30%	6%	48%
Pharmaceuticals	959	37%	7%	44%
Automobile manufacturing	656	39%	5%	44%
Utilities	1360	66%	6%	13%
Construction	426	55%	3%	31%
Transportation	660	87%	3%	5%
Information technology	731	24%	3%	40%
Whole sale and Retail Trade	1118	60%	14%	22%
Real estate	993	45%	14%	33%
Industry of culture and arts	20	0%	40%	35%
Accommodation and Catering	74	80%	0%	20%
Conglomerate	168	57%	8%	32%
Total	15829	47%	7%	34%

Table 20 panel C presents the firm-year observations by industry. The industry classification is according to the Guidelines for the Industry Classification of Listed Companies (2012 Revision). *RDSTATE* is a dummy variable which takes a value of 1 for firms which remained state-owned during the time period of this study, and 0 otherwise. *DSTATE2NSOE* is a dummy variable which takes a value of 1 for firms which converted from state-owned to non-state owned due to split share reform, and 0 otherwise. *NONSOE* is a dummy variable which takes a value of 1 for firms which remained non-state during the time period of this study, and 0 otherwise.

6.4.2 Pairwise correlation analysis

Table 21 provides the Pearson correlation among the dependent and the independent variables used in this study. This study does not find any problem of multicollinearity in the sample. The positive coefficient between net income and cash dividends indicates that profitable firms are more likely to pay out cash dividends.

Table 21: Pairwise Correlation Table

	1	2	3	4	5	6	7
1. mv_{it+1}^{Apr}/bv_{it}	1						
2. ni_{it}/bv_{it}	**0.27**	1					
3. $1/bv_{it}$	**0.34**	**-0.10**	1				
4. ce_{it}/bv_{it}	**-0.03**	**0.09**	**-0.05**	1			
5. cc_{it}/bv_{it}	0.002	0.01	-0.003	0.006	1		
6. sd_{it}/bv_{it}	**0.30**	**0.20**	-0.003	-0.008	**0.27**	1	
7. cd_{it}/bv_{it}	**0.04**	**0.49**	**-0.20**	0.01	**0.07**	**0.11**	1

Table 21 presents the pairwise correlation of the variables used in regression for this chapter. mv_{it+1}^{Apr}/bv_{it} is the market value, where market value (calculated at the end of April, which is four months after the fiscal year-end of year t for firm i) divided by the book value of equity for firm i at year t, $1/bv_{it}$ is one divided by the book value of equity for firm i at year t, ni_{it}/bv_{it} is net income divided the book value of equity for firm i at year t, ce_{it}/bv_{it} is capital expenditure divided by the book value of equity for firm i at year t, cc_{it}/bv_{it} is capital contributions divided by the book value of equity for firm i at year t, sd_{it}/bv_{it} is the stock dividend (RMB) divided by the book value of equity for firm i at year t. It is calculated as the number of bonus shares issued multiply by the share price at the end of December year t (Dedman et al., 2015). cd_{it}/bv_{it} is cash dividend divided by the book value of equity for firm i at year t. Figure in bold denote the significant level at 5%.

6.4.3 Regression results

Table 22 panel A model (1) and (2) reports the regression results for *DSTATE2NSOE* firms for the pre-reform (2003-2004) and the post-reform (2009-2014) period respectively. This study documents an increase in the coefficient of earnings for *DSTATE2NSOE* firms from the pre-reform (β_2=6.93, t=2.96) to the post-reform (β_2=14.04, t=5.30) period. Table 22 panel B further provides the pooled regression results for *DSTATE2NSOE* from 2003 until 2014, incorporating the split share structure reform dummy variable and its interaction term with earnings. This study documents a positive and significant coefficient on the interaction term (coefficient:9.13, t=4.19), which indicates a significant increase in the value relevance of earnings for *DSTATE2NSOE* due to the split share structure reform. An F-test further supports this change in the coefficient of earnings which is statistically significant from the pre-reform to the post-reform period (F-value= 17.58, p-value=0.00).[217] This finding of an increase in the value relevance of earnings for *DSTATE2NSOE* firms supports *H9*.

[217] An F-test, also known as Chow test, is used to test whether the coefficient is statistically different across two time period (Wooldridge, 2013).

Table 22: Regression Test for Value Relevance Of Earnings

Dependent variable: mv_{it+1}^{Apr}/bv_{it}

Panel A: Regression results for *DSTATE2NSOE* firms for pre-reform and post-reform period separately

	Pre-reform (2003-2004)	Post-reform (2009-2014)
VARIABLES	(1)	(2)
$1/bv_{it}$	7.44e+08 ***	1.95e+09 ***
	(5.89)	(5.68)
bv_{it}/bv_{it}	0.178	0.193
	(1.00)	(0.48)
ni_{it}/bv_{it}	6.933 ***	14.044 ***
	(2.96)	(5.30)
ce_{it}/bv_{it}	-0.230	-0.424
	(-0.83)	(-0.20)
cc_{it}/bv_{it}	-0.919 *	0.749
	(-1.95)	(0.72)
sd_{it}/bv_{it}	1.121 ***	0.478 ***
	(7.67)	(4.37)
cd_{it}/bv_{it}	3.589	8.78
	(0.44)	(0.86)
Industry Dummies	Yes	Yes
N	181	621
R-squared	0.621	0.455

Table 22 panel A shows the regression results for *H9* for *DSTATE2NSOE* firms. The results are provided in model (1) and model (2) for the pre-reform period (2003-2004) and the post-reform period (2009-2014) respectively. mv_{it+1}^{Apr}/bv_{it} is the market value, where market value (calculated at the end of April, which is four months after the fiscal year-end of year *t* for firm *i*) divided by the book value of equity for firm *i* at year *t*, $1/bv_{it}$ is one divided by the book value of equity for firm *i* at year *t*, ni_{it}/bv_{it} is net income divided by the book value of equity for firm *i* at year *t*, bv_{it}/bv_{it} is book value divided by the book value of equity for firm *i* at year *t*, ce_{it}/bv_{it} is capital expenditure divided by the book value of equity for firm *i* at year *t*, cc_{it}/bv_{it} is capital contributions divided by the book value of equity for firm *i* at year *t*, sd_{it}/bv_{it} is the stock dividend (RMB) divided by the book value of equity for firm *i* at year *t*. It is calculated as the number of bonus shares issued multiply by the share price at the end of December year *t* (Dedman et al., 2015). cd_{it}/bv_{it} is cash dividend divided by the book value of equity for firm *i* at year *t*. The regression results include industry dummies. Standard errors are clustered by firm and year. All continuous variables are winsorized annually at 1% and 99%. *, **, *** denote coefficient is significantly different from zero, at 10%, 5%, 1% level respectively. *t*-statistics are presented in parentheses.

Panel B: Pooled regression result for value relevance of earnings of *DSTATE2NSOE* firms with split share reform interaction term

Dependent variable: mv_{it+1}^{Apr}/bv_{it}

	DSTATE2NSOE
VARIABLES	(1)
$1/bv_{it}$	1.53e+09***
	(7.03)
bv_{it}/bv_{it}	-1.68***
	(-2.78)
ni_{it}/bv_{it}	5.66
	(1.46)
ce_{it}/bv_{it}	-0.826
	(-0.57)
cc_{it}/bv_{it}	0.4004
	(0.46)
sd_{it}/bv_{it}	0.413***
	(3.14)
cd_{it}/bv_{it}	9.566
	(1.27)
SSR	2.22***
	(3.46)
SSR*ni_{it}/bv_{it}	9.134***
	(4.19)
Industry Dummies	Yes
N	1,166
R-squared	0.425

Table 22 panel B shows the pooled regression results for *DSTATE2NSOE* firms from 2003 until 2014. mv_{it+1}^{Apr}/bv_{it} is the market value, where market value (calculated at the end of April, which is four months after the fiscal year-end of year t for firm i) divided by the book value of equity for firm i at year t, $1/bv_{it}$ is one divided by the book value of equity for firm i at year t, ni_{it}/bv_{it} is net income divided by the book value of equity for firm i at year t, bv_{it}/bv_{it} is book value divided by the book value of equity for firm i at year t, ce_{it}/bv_{it} is capital expenditure divided by the book value of equity for firm i at year t, cc_{it}/bv_{it} is capital contributions divided by the book value of equity for firm i at year t, sd_{it}/bv_{it} is the stock dividend (RMB) divided by the book value of equity for firm i at year t. It is calculated as the number of bonus shares issued multiply by the share price at the end of December year t (Dedman et al., 2015). cd_{it}/bv_{it} is cash dividend divided by the book value of equity for firm i at year t. *SSR* is a dummy variable which indicates the period of the split share structure reform and equals to 1 for firm-year observations in the post-reform period (2005 and onwards), and 0 for observations before the share reform. The regression results include industry dummies. Standard errors are clustered by firm and year. All continuous variables are winsorized annually at 1% and 99%. *, **, *** denote coefficient is significantly different from zero, at 10%, 5%, 1% level respectively. *t*-statistics are presented in parentheses.

Next, this study provides the results for *H10* in Table 22 panel C. *H10* predicts that following the split share structure reform, the value relevance of earnings will be greater for firms which switch from state control to non-state owned compared to firms which remained state-owned. Panel C presents the results of sample which includes *RDSTATE* and *DSTATE2NSOE* firms only, with *RDSTATE* firms as the benchmark sample. *H10* is supported if the coefficient of the interaction term, β_4, is positive and significant. Consistent with *H10*, a significant positive coefficient is observed on the interaction term (β_4=3.9, t=2.01) suggesting that the value relevance of earnings is greater for *DSTATE2NSOE* relative to *RDSTATE* firms.

Panel C: Regression results for value relevance of earnings for *DSTATE2NSOE* and *RDSTATE* firms only

Dependent variable: mv_{it+1}^{Apr}/bv_{it}

VARIABLES	(1)
$1/bv_{it}$	1.93e+09 ***
	(6.51)
bv_{it}/bv_{it}	0.502
	(1.58)
ni_{it}/bv_{it}	10.563 ***
	(8.35)
DSTATE2NSOE	-0.034
	(-0.25)
*DSTATE2NSOE**ni_{it}/bv_{it}	3.976 **
	(2.01)
ce_{it}/bv_{it}	-0.187
	(-0.27)
cc_{it}/bv_{it}	0.075
	(0.22)
sd_{it}/bv_{it}	0.529 ***
	(9.40)
cd_{it}/bv_{it}	2.196
	(0.49)
Industry Dummies	Yes
N	4,514
R-squared	0.436

Table 22 panel C shows the regression results for *H10* for the post-reform period (2009-2014) only. The sample of firms include *DSTATE2NSOE* and *RDSTATE* firms only. *DSTATE2NSOE* is a dummy variable which equals to 1 for state-owned firms which converted into non-SOEs during the time period of this study, and 0 otherwise. The benchmark sample is *RDSTATE*. mv_{it+1}^{Apr}/bv_{it}

is the market value, where market value (calculated at the end of April, which is four months after the fiscal year-end of year t for firm i) divided by the book value of equity for firm i at year t, $1/bv_{it}$ is one divided by the book value of equity for firm i at year t, ni_{it}/bv_{it} is net income divided by the book value of equity for firm i at year t, bv_{it}/bv_{it} is book value divided by the book value of equity for firm i at year t, ce_{it}/bv_{it} is capital expenditure divided by the book value of equity for firm i at year t, cc_{it}/bv_{it} is capital contributions divided by the book value of equity for firm i at year t, sd_{it}/bv_{it} is the stock dividend (RMB) divided by the book value of equity for firm i at year t. It is calculated as the number of bonus shares issued multiply by the share price at the end of December year t (Dedman et al., 2015). cd_{it}/bv_{it} is cash dividend divided by the book value of equity for firm i at year t. The regression results include industry dummies. Standard errors are clustered by firm and year. All continuous variables are winsorized annually at 1% and 99%. *, **, *** denote coefficient is significantly different from zero, at 10%, 5%, 1% level respectively. t-statistics are presented in parentheses.

This improvement in the value-relevance of earnings for *DSTATE2NSOE* firms relative to *RDSTATE* firms is due to the economic incentives associated with the split share structure reform and secondly, the change in the ultimate controlling shareholder from the state to non-state shareholder. This improvement in the value relevance of earnings provides a contribution to the value-relevance Chinese studies such as Cai et al. (2017), Dedman et al. (2015) and Lin et al. (2016), as these studies also document improvements in overall dimensions in Chinese listed firms' information environment due to the split share structure reform.

For instance, the segregated equity ownership structure, which was created by the split share structure, led to different preferences for different types of dividends by tradable and non-tradable shareholders (Wei and Xiao, 2009). For instance, prior to the split share structure reform, the non-tradability aspect of shares provided non-tradable shareholders with greater incentives to pressure the management to pay out cash dividends (Dedman et al., 2015). This, in turn, reduced the control of managers over dividend distribution decisions, as well as reducing the role of cash dividends to convey value relevant information (Dedman et al., 2015).

Dedman et al. (2015) argue that the economic incentives associated with the split share structure reform may reduce non-tradable shareholder incentives to pressure managers as these shareholders can now sell their shares and benefit from capital gains. This, in turn, will provide managers with their lost discretion

over the distribution of cash dividend and to convey value-relevant information through these dividends. Using a sample of 9,717 firm-year observations from 2003 until 2011, Dedman et al. (2015) document an increase in the value relevance of cash dividends from the pre-reform to the post-reform period. Therefore, as the split share structure reform removes the trading restriction from non-tradable shares, it provides economic incentives to non-tradable shareholders to benefit from capital gains in the post-reform period. This, in turn, reduces non-tradable shareholder preference over cash dividends and therefore, provides managers with more discretion over the distribution of cash dividends (Dedman et al., 2015).

Moreover, it is also documented that the economic incentives associated with the split share structure reform led to improvements in corporate social responsibility (CSR) disclosures of Chinese listed firms (Cai et al., 2017). Prior to the split share structure reform, controlling state shareholders had lower incentives to provide voluntary CSR because state shares were not subject to market value changes and were non-tradable (Cai et al., 2017). As controlling state shareholders could not benefit from capital gains, they, therefore, had little incentives to increase share return performance of state-owned firms and to disclose corporate social responsibility information. However, as the split share structure reform eliminates the non-tradability aspect of state shares, it provides economic incentive to these controlling state shareholders to maximize firm' market value to benefit from maximum capital gains. Therefore, these controlling state shareholders will be more likely to engage in market value enhancing activities such as CSR disclosures (Cai et al., 2017).

Using data on 5,268 firm-year observations from 2008 until 2013, Cai et al. (2017) document a large increase in CSR disclosure among SOEs relative to non-state owned firms during the post-reform period. The reason behind such an improvement in SOEs disclosure is mainly due to the economic incentive associated with the split share structure reform which changes the behaviour of

controlling state shareholders towards firm's share market performance and corporate transparency (Hou et al., 2012, Cai et al., 2017).

Lin et al. (2016) argue that the better the quality of a firm's corporate governance, the more informative and value-relevant will be its information disclosures to investors. Lin et al. (2016) examine the link between corporate governance and transparency for Chinese listed firms. They predict that good corporate governance not only limits opportunistic managerial behaviour but also motivates them to engage in informative earnings management.[218] Prior literature on earnings management in China has approached the earnings management topic through an opportunistic angle of earnings management (Liu and Lu, 2007, Jiang et al., 2010a, Peng et al., 2011). However, this is not always the case as Lin et al. (2016) document that around 27%-47% of observations in their study disclose private information through informative earnings management.

Their study focuses on 3 internal governance mechanisms which include equity structure[219], independence of the board of directors and the supervisory board, and shareholder activism.[220] Using 10,036 firm-quarter observations from 2004 until 2007, Lin et al. (2016) show that large shareholder ownership and non-tradable share ownership act as a hindrance towards the disclosure of private information to the public.[221] Although the time period of their study covers the split share structure reform, their results do not show any impact of the reform on the association between large shareholder ownership and the disclosure of private information. This is likely due to their sample observations which might include more observations on centrally controlled or locally controlled SOEs as these state-owned firms are less likely to sell their shares and are expected to

[218] Informative earnings management is defined as when insiders provide private information to investors through quarterly earnings disclosures (Lin et al., 2016).
[219] In equity structure, Lin et al. (2016) focus on ownership concentration, block holdings, non-tradable share ownership and cross-listing status.
[220] In this section, I only explain the results associated with equity structure.
[221] Hou et al. (2012) also document a weak information environment for firms with higher proportion of non-tradable shares prior to the split share structure reform.

maintain control in key industries (Hou et al., 2016). Several other Chinese studies focusing on the split share structure during the same time period find improvement in corporate governance due to the split share structure reform and associated improvement in corporate transparency (Hou et al., 2012, Chen et al., 2016a, Hou et al., 2016).

However, Lin et al. (2016) also find that ownership by other large non-controlling shareholders, known as block holders, helps towards the disclosure of private information through informative earnings management. These other large shareholders can effectively monitor the largest shareholder and the management, and require them to provide more transparent information. Overall, their study highlights the importance of having good corporate governance as it leads to transparent and useful information disclosures.

The second channel through which this study documents an improvement in the value-relevance of earnings for *DSTATE2NSOE* firms is the change in the ultimate controlling shareholder during the post-reform period. The explanation is as follows. As the reform initiates changes in the ultimate controlling shareholder from the state to non-state, it also disrupts the political connection and the government support with the listed firm (Liu et al., 2017). Strong political forces are indeed documented to have an adverse impact on corporate reporting of SOEs (Chen et al., 2018). This is due to the fact that as senior executives and board members in state-controlled firms are politicians and ex-bureaucrats, they have significant incentives to withhold value-relevant information to hide inefficient allocation of resources and the expropriation related activities (Piotroski and Wong, 2012). Moreover, politics not only dominates the financial reporting of state-owned firms, but it also influences the appointment of the auditor for state-owned firms (Wang et al., 2008). Therefore, the change in the ultimate controlling shareholder from the state to non-state eliminates the political dependence of these firms, which in turn leads to more transparent and value-relevant earnings for these firms in the post-reform period.

The impact of China's political events on the supply of value-relevant information of Chinese listed firms, specifically SOEs, is further captured by Chen et al. (2018). Their study focuses on political leadership turnovers, which creates uncertainties for firms. Chen et al. (2018) argue that as firms are not aware of the preferences of the new political leaders, they are more concerned about the consequences of disclosing information and, therefore, are reluctant to disclose information to avoid increased political scrutiny and prefer to remain opaque.[222] Using data on 7,721 firm-year observations[223] from 2000 until 2014, Chen et al. (2018) show that during periods of municipal leadership turnover, politically dependent firms such as state-owned firms and firms which receive government subsidies, reduce the supply of value-relevant information to investors. Moreover, as non-state owned firms are not politically dependent firms, their information environment is not affected by the political uncertainties relative to SOEs.

Moreover, focusing on control variables, this study documents in Table 22 panel B that stock dividends are positive and significant, which is consistent with the results of Dedman et al. (2015). However, this study does not find any significant impact of cash dividends in the post-reform period.[224] Overall, the results in this chapter provide evidence that the significant changes in the ownership structure of Chinese listed firms have indeed led to improvements in the information environment for these firms. The economic incentives associated with the split share structure reform and the change in the ultimate controlling shareholder from the state to non-state are the key drivers which led to improvement in the value relevance of earnings for *DSTATE2NSOE* firms relative to *RDSTATE* firms.

[222] For instance, disclosure by firms may attract increased taxation, penalties for poor performance and lower government subsidies (Chen et al., 2018).
[223] These observations belong to firms which had changes in their municipality's leadership from 2000 until 2014.
[224] Limiting the post-reform time period to 2011, this study finds that cash dividends are significant.

6.4.4 Regression results using operating revenue as a deflator

Table 23 panel A repeats the regression test for Equation (5.11) using operating revenue as an alternative size measure. These new results are similar to the results in Table 22 panel A. For instance, Table 23 panel A also shows an increase in the value relevance of earnings from the pre- (7.62, t=3.85) to the post-reform period (23.14, t=2.96). The F-test further supports this change in the coefficient of earnings which is statistically significant (F-value= 3.82, p-value=0.05).

Table 23: Regression results for value relevance of earnings (deflate by operating revenue)

Dependent variable: $mv_{it+1}^{Apr}/oprev_{it}$

Panel A: Regression results for *DSTATE2NSOE* firms for pre-reform and post-reform period separately (deflate by operating revenue)

VARIABLES	Pre-reform (2003-2004) (1)	Post-reform (2009-2014) (2)
$1/oprev$	5.71e+08***	2.35e+09***
	(3.99)	(4.04)
$bv/oprev$	1.147***	3.68
	(9.44)	(1.45)
$ni/oprev$	7.616***	23.14***
	(3.85)	(2.96)
$ce/oprev$	-0.935	-7.98
	(-0.53)	(-1.11)
$cc/oprev$	-0.574	-1.44
	(-1.36)	(-0.73)
$sd/oprev$	0.817***	0.157
	(4.18)	(0.29)
$cd/oprev$	-3.175	-24.84
	(-1.63)	(-0.96)
Intercept	-0.261***	-2.33**
	(-5.40)	(-2.24)
Industry Dummies	Yes	Yes
N	181	620
R-Squared	0.836	0.498

Table 23 panel A presents the regression results (deflate by operating reveue) for *H9* for *DSTATE2NSOE* firms. The results are provided in model (1) and model (2) for the pre-reform period (2003-2004) and the post-reform period (2009-2014) respectively. $mv_{it+1}^{Apr}/oprev_{it}$ is the market value, where market value (calculated at the end of April, which is four months after the fiscal year-end of year t for firm i) divided by operating revenue at year t, $1/oprev_{it}$ is one divided by the operating revenue for firm i in year t, $ni_{it}/oprev_{it}$ is net income divided by the operating revenue for firm i in year t, $bv_{it}/oprev_{it}$ is book value divided by the operating revenue for firm i in year t, $ce_{it}/oprev_{it}$ is capital expenditure divided by the operating revenue for firm i in year t, $cc_{it}/oprev_{it}$ is capital contribution divided by the operating revenue for firm i in year t, $sd_{it}/oprev_{it}$ is the stock dividend (RMB) divided by the operating revenue for firm i in year t. It is calculated as the number of bonus shares issued multiply by the share price at the end of December year t (Dedman et al., 2015). $cd_{it}/oprev_{it}$ is cash dividend divided by the operating revenue for firm i in year t. The regression results include industry dummies. Standard errors are clustered by firm and year. All continuous variables are winsorized annually at 1% and 99%. *, **, *** denote coefficient is significantly different from zero, at 10%, 5%, 1% level respectively. t-statistics are presented in parentheses.

Panel B: Pooled regression result for value relevance of earnings of *DSTATE2NSOE* firms with split share reform interaction term (deflate by operating revenue)

	DSTATE2NSOE
VARIABLES	(1)
$1/oprev_{it}$	1.56e+09***
	(3.71)
$bv_{it}/oprev_{it}$	2.99*
	(1.71)
$ni_{it}/oprev_{it}$	-22.32
	(-1.28)
$ce_{it}/oprev_{it}$	-6.98
	(-1.19)
$cc_{it}/oprev_{it}$	0.01
	(0.01)
$sd_{it}/oprev_{it}$	0.219
	(0.54)
$cd_{it}/oprev_{it}$	-15.40
	(-0.89)
SSR	1.66***
	(3.45)
SSR*$ni_{it}/oprev_{it}$	45.81*
	(1.96)
Intercept	-2.87**
	(-2.04)
Industry Dummies	Yes
N	1,165
R-squared	0.44

Table 23 panel B shows the pooled regression results (deflate by operating revenue) for *DSTATE2NSOE* firms from 2003 until 2014. $mv_{it+1}^{Apr}/oprev_{it}$ is the market value, where market value (calculated at the end of April, which is four months after the fiscal year-end of year *t* for firm *i*) divided by the operating revenue for firm *i* at year *t*, $1/oprev_{it}$ is one divided by the operating revenue for firm *i* in year *t*, $ni_{it}/oprev_{it}$ is net income divided by the operating revenue for firm *i* in year *t*, $bv_{it}/oprev_{it}$ is book value divided by the operating revenue for firm *i* in year *t*, $ce_{it}/oprev_{it}$ is capital expenditure divided by the operating revenue for firm *i* in year *t*, $cc_{it}/oprev_{it}$ is capital contribution divided by the operating revenue for firm *i* in year *t*, $sd_{it}/oprev_{it}$ is the stock dividend (RMB) divided by the operating revenue for firm *i* in year *t*. It is calculated as the number of bonus shares issued multiply by the share price at the end of December year *t* (Dedman et al., 2015). $cd_{it}/oprev_{it}$ is cash dividend divided by the operating revenue for firm *i* in year *t*. *SSR* is a dummy variable which indicates the period of the split share structure reform and equals to 1 for firm-year observations in the post-reform period (2005 and onwards), and 0 for observations before the share reform. The regression results include industry dummies. Standard errors are clustered by firm and year. All continuous variables are winsorized annually at 1% and 99%. *, **, *** denote coefficient is significantly different from zero, at 10%, 5%, 1% level respectively. *t*-statistics are presented in parentheses.

6.4.5 Earnings prediction tests

This study further includes earnings prediction tests to consider the consistency of the results with the value-relevance test and employs the following regression model:

$$\frac{E_{it+1}}{BV_{it}} = \beta_0 \frac{1}{BV_{it}} + \beta_1 + \beta_2 \frac{E_{it}}{BV_{it}} + \beta_3 \frac{CD_{it}}{BV_{it}} + \beta_3 \frac{SD_{it}}{BV_{it}} + \beta_3 \frac{CE_{it}}{BV_{it}} + \beta_6 \frac{CC_{it}}{BV_{it}} + \varepsilon_{it} \quad \text{(A)}$$

Table 23(I) panel A shows that in both models, pre-reform (2003-2004) and the post-reform (2009-2014), the coefficient on current earnings for *DSTATE2NSOE* firms is positive and significant. However, the coefficient on current earnings is lower in the post-reform period.[225] Compared with the value-relevance test results from Table 22 panel A, which document an increase in the coefficient of earnings for *DSTATE2NSOE* firms from the pre-reform (β_2=6.93, t=2.96) to the post-reform (β_2=14.04, t=5.30) period, these earnings prediction test results are, therefore, not consistent with the market value tests. The following discussion of these results is based within the Ohlson (1995) theoretical framework.

[225] An F-test, however, shows that this change in the coefficient of earnings is not statistically significant from the pre-reform to the post-reform period (F-value= 2.26, p-value=0.1328).

Table 23(I): Earnings prediction models

Dependent variable: $E_{i,t+1}/BV_{i,t}$

Panel A: Earnings prediction regression results for *DSTATE2NSOE* firms for pre-reform and post-reform period separately

	Pre-reform (2003-2004)	Post-reform (2009-2014)
VARIABLES	(1)	(2)
$1/bv_{it}$	-2.29e+07 ***	-1.15e+07 *
	(-3.19)	(-1.85)
bv_{it}/bv_{it}	-0.099 *	0.035
	(-1.68)	(1.40)
E_{it}/bv_{it}	1.374 ***	0.726 ***
	(3.16)	(6.89)
ce_{it}/bv_{it}	0.018	0.047
	(0.22)	(0.96)
cc_{it}/bv_{it}	0.098 **	-0.016
	(2.12)	(-0.68)
sd_{it}/bv_{it}	0.008	0.011 **
	(0.63)	(2.37)
cd_{it}/bv_{it}	0.473	0.774 ***
	(1.00)	(3.04)
Industry Dummies	Yes	Yes
N	182	621
R-squared	0.346	0.318

Table 23(I) panel A shows the earnings prediction test results for *DSTATE2NSOE* firms. The results are provided in model (1) and model (2) for the pre-reform period (2003-2004) and the post-reform period (2009-2014) respectively. $E_{i,t+1}/BV_{i,t}$ is the one-year-ahead earnings for firm i deflated by the book value of equity for firm i at year t, $1/bv_{it}$ is one divided by the book value of equity for firm i at year t, E_{it}/bv_{it} is net income divided by the book value of equity for firm i at year t, bv_{it}/bv_{it} is book value divided by the book value of equity for firm i at year t, ce_{it}/bv_{it} is capital expenditure divided by the book value of equity for firm i at year t, cc_{it}/bv_{it} is capital contributions divided by the book value of equity for firm i at year t, sd_{it}/bv_{it} is the stock dividend (RMB) divided by the book value of equity for firm i at year t. It is calculated as the number of bonus shares issued multiply by the share price at the end of December year t (Dedman et al., 2015). cd_{it}/bv_{it} is cash dividend divided by the book value of equity for firm i at year t. The regression results include industry and year dummies. Standard errors are clustered by firm. All continuous variables are winsorized annually at 1% and 99%. *, **, *** denote coefficient is significantly different from zero, at 10%, 5%, 1% level respectively. t-statistics are presented in parentheses.

Panel B: Pooled earnings prediction regression results for *DSTATE2NSOE* firms with split share reform interaction term

Dependent variable: $E_{i,t+1}/BV_{i,t}$

	DSTATE2NSOE
VARIABLES	(1)
$1/bv_{it}$	-6527136
	(-1.30)
bv_{it}/bv_{it}	-0.047 *
	(-1.68)
E_{it}/bv_{it}	1.258 ***
	(3.92)
ce_{it}/bv_{it}	0.038
	(1.14)
cc_{it}/bv_{it}	0.0002
	(0.01)
sd_{it}/bv_{it}	0.005
	(1.29)
cd_{it}/bv_{it}	0.702 ***
	(3.55)
SSR	0.068 **
	(2.25)
SSR*E_{it}/bv_{it}	-0.454
	(-1.50)
Industry Dummies	Yes
N	1,167
R-squared	0.304

Table 23(I) panel B shows the pooled earnings prediction regression results for *DSTATE2NSOE* firms from 2003 until 2014. $E_{i,t+1}/BV_{i,t}$ is the one-year-ahead earnings for firm i deflated by the book value of equity for firm i at year t, $1/bv_{it}$ is one divided by the book value of equity for firm i at year t, E_{it}/bv_{it} is net income divided by the book value of equity for firm i at year t, bv_{it}/bv_{it} is book value divided by the book value of equity for firm i at year t, ce_{it}/bv_{it} is capital expenditure divided by the book value of equity for firm i at year t, cc_{it}/bv_{it} is capital contributions divided by the book value of equity for firm i at year t, sd_{it}/bv_{it} is the stock dividend (RMB) divided by the book value of equity for firm i at year t. It is calculated as the number of bonus shares issued multiply by the share price at the end of December year t (Dedman et al., 2015). cd_{it}/bv_{it} is cash dividend divided by the book value of equity for firm i at year t. *SSR* is a dummy variable which indicates the period of the split share structure reform and equals to 1 for firm-year observations in the post-reform period (2005 and onwards), and 0 for observations before the share reform. The regression results include industry dummies. Standard errors are clustered by firm and year. All continuous variables are winsorized annually at 1% and 99%. *, **, *** denote coefficient is significantly different from zero, at 10%, 5%, 1% level respectively. t-statistics are presented in parentheses.

Explanation and discussion within Ohlson (1995) valuation model:

Ohlson (1995) valuation model shows how market value is related to accounting numbers and other information. His model rests on three assumptions:

Assumption 1 (A1): The present value of expected dividends is equal to the market value of the firm.

Assumption 2 (A2): The clean surplus relation, which requires that the change in book value equals to earnings minus dividends.

Assumption 3 (A3): The time series behaviour of abnormal earnings follows a particular process, as detailed below:

Focusing here on A3, Ohlson (1995) assumes that the abnormal earnings follows the forecasting structure[226]:

$$\tilde{x}^a_{\tau+1} = \omega x^a_t + v_t + \tilde{\varepsilon}_{1\,t+1} \tag{2a}$$

where

x^a_t = abnormal earnings at date t
ω = persistence parameter of residual income from one period to the next ($0 < \omega < 1$)
v_t = other information at date t

The above shows that the next period's abnormal earnings is equal to a linear combination of the current period abnormal earnings plus "other information", which represents non-accounting information, plus a random term. This function is linear in form. Ohlson (1995) further shows that the next period's earnings can be written as follows:

$$E_t[x_{t+1}] = \omega R_f x_t + (1-\omega)(R_f - 1)y_t - \omega(R_f - 1)d_t + v_t \tag{13}$$

[226] The equation numbers here are the same as in Ohlson (1995) model.

Hence, the weighted averaging process applies to the earnings forecasting model. Equation (13) here shows that the one-year-ahead earnings depends upon current earnings, book value, dividends and "other information". In equation (13), 'ω' is the persistence parameter and Ohlson (1995) shows that it plays an important role in determining the firm value, as well as for the prediction of next period earnings (Ohlson (1995) provide two extreme scenarios which are discussed below). Equation (13) can also be written as:

$$E_t[x_{t+1}] = \theta_1 x_t + \theta_2 y_t + \theta_3 d_t + v_t \tag{14}$$

where

$\theta_1 = \omega R_f$
$\theta_2 = (R_f - 1)(1 - \omega)$
$-\theta_3 = \omega(R_f - 1)$

Given the assumptions above, Ohlson (1995) derives firm value as a linear function of book value, current abnormal earnings and other information

$$P_t = y_t + \alpha_1 x_t^a + \alpha_2 v_t \tag{5}$$

where:

P_t = the market value or price of the firm's equity at date t
y_t = the ending book value at date t
x_t^a = abnormal earnings at date t
v_t = "other information" at date t

α_1 and α_2 are valuation coefficients, which can be further written as:

$$\alpha_1 = \frac{\omega}{(R_f - \omega)}$$

$$\alpha_2 = \frac{R_f}{(R_f - w)(R_f - \gamma)}$$

The point here to note is that the valuation coefficients summarize the total persistence effect of current abnormal earnings on future periods (Zhang, 2014). Hence, α_1 will increase when ω will increase. The connection here indicates that

if current earnings predictive ability of next period's earnings increases, then the coefficient on abnormal earnings α_1 will also increase (more value-relevant).

As Model (5) includes abnormal earnings, Ohlson (1995) substitutes current earnings instead of abnormal earnings and arrives at the following valuation function, which include book value, earnings and other information:

$$P_t = k(\varphi x_t - d_t) + (1-k)y_t + \alpha_2 v_t \tag{7}$$

where

P_t = the market value or price of the firm's equity at date t
y_t = the ending book value at date t
v_t = "other information" at date t
φ = It is the earnings-multiplier
= $\frac{R_f}{(R_f - 1)}$
k = a weighting factor such that when $0 \leq \omega \leq 1$, k is $0 \leq k \leq 1$
= $\frac{(R_f - 1)\omega}{(R_f - \omega)}$
d_t = net dividends paid at date t

Given the restrictions on k, i.e. when $0 \leq \omega \leq 1$, k is $0 \leq k \leq 1$, the valuation model can be viewed as a weighted average of an earnings model and a book value model. The importance of the parameters stems from the fact that they also affect how firm value is determined. Moreover, the importance of one statement (Balance Sheet or Income Statement) versus the other depends upon ω (Zhang, 2014). For instance, if earnings are more persistent, then the income statement will be more important than the balance sheet (Zhang, 2014).This is demonstrated by Ohlson (1995) using the following two extreme scenarios which, in turn, show whether earnings are value-relevant or not:

For demonstration, Ohlson (1995) further simply the point by putting $v_t \equiv 0$.

Scenario 1: $\omega = k = 1$

$$P_t = (\varphi x_t - d_t) \tag{8}$$

$$\tilde{x}_{t+1} = R_f x_t - (R_f - 1) d_t + \tilde{\varepsilon}_{1t+1} \tag{9}$$

In this case, earnings and dividends are important in terms of they predict the next period's earnings and these two variables also determine firm value.

Scenario 2: $\omega = k = 0$

$$P_t = y_t \tag{10}$$

$$\tilde{x}_{t+1} = (R_f - 1) y_t + \tilde{\varepsilon}_{1t+1} \tag{11}$$

In this case, there is no prediction of future earnings based on current earnings because $\omega = 0$. Therefore, the prediction of the next period's earnings does not depend on the current income item (x_t), and (ii) firm value depends only on the book value.[227] Equity valuation in this case only requires the balance sheet (Zhang, 2014). Hence, Feltham and Ohlson (1995) argue that given the irrelevance of current earnings in predicting next period's earnings, it is unlikely that current earnings relate to price. In this case, book value alone predicts next period earnings and also determine market value.

The above demonstration of extreme cases by Ohlson (1995) shows the importance of the link between next period's earnings and current earnings, and how firm value links to current earnings. This is because, ω, the persistence parameter, directly influences firm valuation (its effect is through k). Based on

[227] Next period's earnings is independent of x_t and the firm value cannot depend on current earnings.

Ohlson's (1995) theoretical framework, the value-relevance results from Table 22 panel A are not consistent with the earnings prediction test in Table 23(I) panel A.

Chapter 7 Conclusion

This section concludes my thesis. Section 7.1 provides the research question and research hypotheses. Section 7.2 provides a summary of empirical findings and discussion from the three chapters of this study. Section 7.3 provides the contribution and implications, followed by section 7.4 which include limitations.

7.1 Summary of the research question and research hypotheses

My thesis addresses the question of whether the split share structure reform has improved the information environment of Chinese listed firms. To answer this question, I investigate the information environment of Chinese listed firms which converted from state-owned enterprises to non-state owned due to the split share structure reform. This thesis investigates the information environment through three main topics: (1) analysts' forecast properties; (2) share price synchronicity; and (3) the value relevance of earnings. Therefore, this study includes three samples for these three main topics from the same population of firms listed on the Shanghai and the Shenzhen stock exchange from 2003 until 2014. The first chapter, analysts forecast properties, includes 19,146 firm-year observations from 2003 until 2014. From this sample, I obtain 3,990 firm-year observations for analysts forecast and dispersion. The low sample for analysts forecasts and dispersion is due to missing values on dispersion and forecast errors. The second chapter, share price synchronicity, includes 13,032 firm-year observations from 2003 until 2014. Finally, the value-relevance chapter includes 15,829 firm-year observations from 2003 until 2014.

The main reason to follow firms which converted from state-owned to non-state owned firms is that the reform initiated changes in the ultimate controlling shareholder from the state to non-state for these firms. The structural change in the ownership structure of these firms is predicted to initiate changes in the behaviour of their ultimate controlling shareholder towards the information

environment. This study contributes to the existing literature by providing comprehensive and direct evidence on firms which not only implemented the split share structure reform but further had a substantial reduction in the state control over these firms.

Table 24: Summary of Hypotheses And Findings

Hypotheses	Support for hypothesis		Findings
	Predicted	Actual	
H1: Prior to the split share reform, analyst coverage will be negatively associated with state controlled firms, ceteris paribus.	-ve	-ve***	Supported
H2: Prior to the split share reform, analyst forecast errors will be positively associated with state controlled firms, ceteris paribus.	+ve	-ve	Not significant
H3: Prior to the split share reform, analyst forecast dispersion will be positively associated with state controlled firms, ceteris paribus.	+ve	+ve	Not significant
H4: Prior to the split share reform, share price synchronicity will be positively associated with state controlled firms, ceteris paribus.	+ve	+ve	Not significant
H5: Split share structure reform will be associated with an increase in analyst coverage in firms which transferred from state control to non-state-owned firms relative to firms which remained state-controlled, ceteris paribus.	+ve	-ve***	Not supported
H6: Split share structure reform will be associated with a decrease in analyst forecast errors for firms which transferred from state control to non-state owned firms relative to firms which remained state-controlled, ceteris paribus.	-ve	+ve	Not significant
H7: Split share structure reform will be associated with a decrease in analyst forecast dispersion for firms which transferred from state control to non-state owned firms relative to firms which remained state-controlled, ceteris paribus.	-ve	-ve**	Supported
H8: Split share structure reform will be associated with a decrease in share price synchronicity for firms which transferred from state control to non-state owned firms relative to firms which remained state-controlled, ceteris paribus.	-ve	-ve***	Supported
H9: The value relevance of earnings in firms which switch from state control to non-state owned will increase following the split share structure reform, ceteris paribus.	+ve	+ve***	Supported
H10: Following the split share structure reform, the value relevance of earnings will be greater for firms which switch from state control to non-state owned compared to firms which remained state-owned, ceteris paribus.	+ve	+ve***	Supported

7.2 Summary of Research Findings and Discussion

7.2.1 Research Findings of Analyst Forecast Properties Chapter

This chapter examines the impact of the split share structure reform on the information environment of Chinese listed firms, which is measured by analyst forecast properties. The following is the summary of the results found in this chapter.

Firstly, this chapter highlights the importance of having private network relationships between the firm and analysts in reducing the information asymmetry. This was shown by the comparison of forecast errors of connected analysts with new analysts in the post-lock up period, with new analysts making more errors relative to connected analysts. Examining whether analysts with private communication channels with the management or controlling shareholder would help to improve the overall information environment of Chinese listed firms appears to be an interesting area for future research.

Secondly, the negative association between the interaction term, *SSR*DSTATE2NSOE*, and analyst coverage in Table 14 panel B model (2) indicate that the reform leads to a decrease in the number of analyst following for firms which switch from SOE to NSOE relative to firms which remained state-owned. Future researchers are encouraged to explore this issue, i.e. the impact of the reform on the private network relationship between connected analysts and Chinese listed firms. Future studies on these issues will help provide a solid understanding on whether analysts' private network link plays a significant role in analysts' decision to follow firms, and whether the network links with the firm play a significant role in improving Chinese listed firms' information environment.

Thirdly, the research findings on the association between dispersion and the interaction term, *SSR*DSTATE2NSOE*, suggests lower information asymmetry for these firms relative to firms which remained under state control, and is a further indication of a reduction in inefficiencies and other poor practices (e.g. release of private information to a limited set of market participants) with respect to information dissemination to capital market participants.

Table 25: Results for Empirical Findings (Analyst Forecast Properties)

VARIABLES	$COVERAGE_{t+1}$		*FORERROR*		$DISPERSION_{t+1}$	
	Predicted	Actual	Predicted	Actual	Predicted	Actual
Panel A: Pre-reform results (2003-2004)						
DSTATE	*H1*: -ve	-ve***	*H2*: +ve	No relation	*H3*: +ve	No relation

Panel B: Pooled regression results (2003-2014)	$COVERAGE_{t+1}$				$FORERROR_{t+1}$				$DISPERSION_{t+1}$			
	Model (1)		Model (2)		Model (1)		Model (2)		Model (1)		Model (2)	
	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual
DSTATE2NSOE	-ve	No relation	-ve	+ve***	+ve	-ve**	+ve	-ve*	+ve	+ve**	+ve	+ve**
RDSTATE	-ve	-ve***			+ve	No relation			+ve	No relation		
SSR	+ve	No relation	+ve	+ve***	-ve	No relation	-ve	+ve***	-ve	+ve**	-ve	+ve**
*SSR*DSTATE2NSOE*	+ve	No relation	*H5*: +ve	-ve***	-ve	+ve*	*H6*: -ve	No relation	-ve	-ve*	*H7*: -ve	-ve**
*SSR*RDSTATE*	?	+ve**			?	No relation			?	No relation		
XLIST	+ve	+ve***	+ve	+ve***	-ve	No relation	-ve	No relation	-ve	+ve*	-ve	+ve*
QFII	+ve	+ve***	+ve	+ve***	-ve	No relation	-ve	No relation	-ve	-ve**	-ve	No relation
LNTOTASSET	+ve	+ve***	+ve	+ve***	-ve	No relation	-ve	No relation	-ve	No relation	-ve	No relation
ROA	+ve	+ve***	+ve	+ve***	-ve	-ve***	-ve	No relation	-ve	-ve***	-ve	-ve***
LEVERAGE	-ve	-ve***	-ve	-ve***	+ve	+ve**	+ve	+ve*	+ve	+ve***	+ve	+ve***

TIME	?	+ve***	?	+ve***	?	No relation	?	No relation	?	-ve***	?	-ve***
COVERAGE	-	-			-ve	No relation	-ve	No relation	-ve	+ve**	-ve	+ve**

*, **, *** denote coefficient is significantly different from zero at 10%, 5%, 1% level, respectively.

7.2.2 Research Findings of Share Price Synchronicity Chapter

This chapter predicted two hypotheses (*H4* and *H8*). The empirical results from this chapter provide support for hypothesis *H8*, which, in turn, indicate that the split share structure reform indeed led to an improvement in the information environment of *DSTATE2NSOE* firms relative to firms which remained under state control.

Prior to the split share structure reform, controlling state shareholders ownership in the firm was through non-tradable shares which could not provide them with capital gains. These controlling state shareholders, therefore, had alternative options to benefit themselves such as tunnel the wealth of the firm for private benefit (Peng et al., 2011). To hide such expropriation of the wealth of the firm, these controlling state shareholders had greater incentive to manipulate disclosed information and withhold value-relevant information (Gul et al., 2010, Chen et al., 2018). With less firm-specific information available to market participants, share prices of these firms reflected more market-wide information which is further shown by the positive association between *DSTATE2NSOE* and share price synchronicity found in this study.

The negative association between *SSR*DSTATE2NSOE* and share price synchronicity implies that the reform indeed has been successful in improving the information environment of these firms. This study highlights two key drivers of the reform which led to the improvement in the information environment for these firms relative to firms which remained under state control. Firstly, the elimination of the non-tradability aspect of state shares provided controlling state shareholders with an option to sell their shares to benefit from capital gains (Hou et al., 2012). This reduces the incentives of controlling state shareholders to expropriate wealth to benefit themselves through other channels and, therefore, the need to withhold and manipulate reported information (Hou et al., 2012).

The second channel through which the reform leads to an increase in the disclosure of firm-specific information is due to the change in the ultimate controlling shareholder from the state to non-state. As the new controlling shareholder is no longer the state, the preferential treatment from the central government, in terms of obtaining loans and raising capital in the stock market, also reduces for these firms. Therefore, the new controlling shareholder has a greater preference to lower the information asymmetry by providing more reliable and complete information to market participants (Lin et al., 2016).

Table 26: Results of Empirical Findings (Share Price Synchronicity)

VARIABLES	Panel A model (1): Pre-reform (2003-2004)		Panel B model (1): Pooled regression with interaction term (2003-2014)		Panel B model (2): Pooled regression with interaction term (2003-2014)	
	Predicted	Actual	Predicted	Actual	Predicted	Actual
DSTATE	+ve	No relation				
RDSTATE			?	No relation		
DSTATE2NSOE			*+ve*	No relation	+ve	+ve*
SSR			-ve	+ve***	-ve	+ve***
*SSR*DSTATE2NSOE*			-ve	-ve***	*H8*: -ve	-ve***
*SSR*RDSTATE*			?	-ve*		
XLIST			-ve	No relation	-ve	No relation
QFII			-ve	-ve***	-ve	-ve*
LNTOTASSET			-ve	+ve***	-ve	+ve***
LEVERAGE			+ve	-ve***	+ve	-ve**
BIG4			-ve	-ve*	-ve	No relation
TRADVOLUME			+ve	+ve***	+ve	+ve***
COVERAGE			-ve	-ve**	-ve	No relation
TIME			-ve	-ve***	-ve	-ve***

*, **, *** denote coefficient is significantly different from zero at 10%, 5%, 1% level, respectively.

7.2.3 Research Findings of Value Relevance Study

This chapter specifically focuses on the impact of split share structure reform on the information environment of *DSTATE2NSOE* firms, measured by the value relevance of earnings. In this study, I predict two hypotheses (*H9* and *H10*). In this study, I argue that the economic incentives associated with the split share structure reform and the change in the ultimate controlling shareholder from the state to non-state will lead to an increase in the value relevance of earnings. I also predict that the increase in the value relevance of earnings will be greater for firms which had a change in control from the state to non-state relative to firms which remained under state control throughout the time period of this study.

In support of the above arguments, the research findings show an increase in the coefficient of earnings for *DSTATE2NSOE* firms from the pre- to post-reform period. The empirical results further show that the increase is greater for *DSTATE2NSOE* firms relative to *RDSTATE* firms. These results are consistent with *H9* and *H10*. Moreover, earnings prediction tests are also conducted to consider the consistency of the results with the value-relevance test. Based on Ohlson's (1995) theoretical framework, the value-relevance results from Table 22 panel A are not consistent with the earnings prediction test in Table 23(I) panel A.

Table 27: Results of Empirical Findings (Value Relevance Study)

VARIABLES	Pre-reform (2003-2004)	Post-reform (2009-2014)	
	Actual	Predicted	Actual
$1/bv$	+ve***	?	+ve***
bv/bv	No relation	?	No relation
ni/bv	+ve***	+ve	+ve***
ce/bv	No relation	?	No relation
cc/bv	-ve*	?	No relation
sd/bv	+ve***	?	+ve***
cd/bv	No relation	?	No relation

*, **, *** denote coefficient is significantly different from zero at 10%, 5%, 1% level, respectively.

7.3 Contributions and Implications

The purpose of this study is to investigate the impact of the split share structure reform on the information environment of Chinese listed firms. Specifically, this study focuses on the information environment of Chinese listed firms which converted from state-owned enterprises to non-state owned due to the share reform.

One of the significant contributions of this study is that it provides the impact of the split share structure reform after it categorizes Chinese listed firms according to their ultimate owner. According to the CSMAR definition, the ultimate controlling shareholder is: (1) the one with the maximum shareholding in the shareholder list of listed company; (2) the one who can execute and control superior voting rights than the shareholder with the maximum shareholding of a listed company, i.e. can have significant impact on decisions in meeting; (3) the one who holds and control 30% or above of shares and voting rights; and (4) voting rights will allow the ultimate controlling shareholder to elect over 50% of members of the board of directors of a listed company. Unlike other studies which either only focus on the share nature (Cheng et al., 2014, Huyghebaert and Wang, 2016) or only focus on the name of the ultimate controlling shareholder (An et al., 2014, Liao et al., 2014, Huang and Zhu, 2015, Chen et al., 2016c, Li et al., 2017) to categorize Chinese listed firms, this thesis provides a more robust technique to categorize firms into state-owned firms and non-state owned firms.

Observing the ownership data obtained from CSMAR database for each firm from 2003 onwards reveals that prior to the split share structure reform, CSMAR records the state ownership in Chinese listed firms through state shares. However, after the split share structure reform, as state shares are converted into tradable A shares, CSMAR now records the state ownership through tradable A shares. Therefore, only relying on the nature of shares for the classification of firms into the state-owned firm or non-state owned firm

underestimates (overestimates) the actual observations of state-owned (non-state owned) Chinese listed firms.

To ensure accurate information on the number of state-owned firms and non-state owned firms, I individually observe each firm's ultimate controlling shareholder from 2003 onwards. I classify a firm as a state-owned enterprise by looking at the identity and the share nature of its ultimate controlling shareholder. Moreover, during this process of ownership categorization, I found that there are several state-owned firms which implemented the split share structure reform, however, most of them do not have a significant change in their ultimate controlling shareholder, i.e. they remain state-owned firms. This study categorizes such firms as *RDSTATE* firms. However, firms which had a change in the ultimate controlling shareholder from the state to non-state are categorized as *DSTATE2NSOE* firms. These *DSTATE2NSOE* firms are the focus of this study. By following the information environment of these firms, this study provides first-hand evidence of improvement in the information environment of these firms due to the split share structure reform relative to firms which remained under state control (*RDSTATE*).

This thesis also contributes by providing the real impact of the split share structure reform by also incorporating the time period when the non-tradable shares held by the ultimate controlling shareholder became tradable once the lock-up period expired for most Chinese listed firms, i.e. after 2009 (Cheng et al., 2017). The period after 2009 is associated with structural changes in the ownership structure of Chinese listed firms as firms are now free to sell their non-tradable shares. Therefore, this study contributes by providing evidence that the reform incentivized the controlling shareholders of *DSTATE2NSOE* firms to further improve the information environment.

The argument which this study highlight is that only focusing on the immediate time period of the split share structure reform will not provide the real impact of the split share structure reform. This is because, during the lock-up period,

controlling shareholders are only allowed to sell a limited proportion of their shareholdings which barely causes any significant change in the ownership structure itself and its impact on the information environment (Liu and Tian, 2012). As this study includes firm-year observations which cover from the pre-reform period to the post-reform period, i.e. from 2003 until 2014, it provides comprehensive evidence which supports the beneficial impact of the split share structure reform on the information environment.

This study documents improvement in the information environment of firms which switch from being state-controlled to being outside of state control relative to firms which remained under state control. The reason is as follows. According to the Law of the People's Republic of China on State-Owned Assets in Enterprises, state-owned firms are expected to play a leading role in strategically important industries. These strategically important industries are power generation and distribution, oil and petrochemicals, telecommunication, coal, and the aviation and shipping industry.[228] The law further encourages regulators to adopt policies to ensure dominance in these strategically important sectors, and promote the development of state-owned enterprises in these strategic sectors.[229] In this study, firms which remained under state control throughout the time period of this study (*RDSTATE*) also belong to these strategically important industries. The state has absolute control over these firms because they belong to industries which are vital for the national economy and essential to national security.[230] Therefore, as the controlling state shareholders of these firms are less likely to sell their shares, they are not incentivized by the split share structure reform to monitor and ensure firm value maximization (Hou et al., 2016).

The finding of an improvement in firm disclosures and increase in the value-relevance of earnings for *DSTATE2NSOE* firms relative to *RDSTATE* firms is an

[228] http://www.chinadaily.com.cn/china/2006-12/19/content_762056.htm
[229] http://www.npc.gov.cn/englishnpc/Law/2011-02/15/content_1620615.htm
[230] http://www.chinadaily.com.cn/china/2006-12/19/content_762056.htm

indication of the need to reduce political influence over the financial reporting of Chinese listed firms. Therefore, this study further emphasizes on reducing the level of political influence over Chinese listed firms, especially as there are 939 firms which are still state-owned throughout the time period of this study despite completing the split share structure reform.
This study also provides first-hand evidence on analysts' preference to work for state-owned brokerage institutions. The findings in Table D1 (see Appendix D) show that over the years, there is an increase in analyst employment mostly for state-owned brokerage institutions relative to non-state owned brokerage institutions. Again, this study emphasizes the need to reduce the state control over brokerage institutions as this will allow these brokerage institutions to work more independently, and also reduce the government influence over the information flow to the market participants (Cao et al., 2018).

As this study also highlights the important role of Qualified Foreign Institutional Investors towards improving the information environment in China, it provides regulators and policymakers implications for further relaxation of rules relating to foreign investment in Chinese listed firms. Firstly, this study shows that QFII has a stronger demand for firm-specific information and financial analysts respond to this demand by providing more coverage of Chinese listed firms. Secondly, the results from this study show that analysts following firms with higher levels of *QFII* are significantly more similar in their earnings forecasts, which is further evidence of a positive role being played by foreign investors in the information environment. Thirdly, there is also evidence that QFII ownership in the firm helps to incorporate more firm-specific information into stock prices.

7.4 Limitations

Although this study provides tests on constant vs new analysts forecast errors[231], I was unable to include other factors which are also included by existing Chinese studies to proxy for private network connection between analysts and the firm such as the education background of analysts and managers, the information on location of analyst and managers, and the information on working experience of analysts and managers (Li et al., 2016, Gu et al., 2016). These factors are not included due to unavailability of data. Moreover, the data sample for forecast errors and dispersion is small compared to the coverage sample. This is mainly due to missing values on forecast errors and dispersion.

[231] Table 12: Constant vs New Analysts' Univariate Analysis

APPENDICES

Appendix A: The theory of ownership structure (Jensen and Meckling, 1976)

Jensen and Meckling (1976) provide a general framework in which they explain how managerial actions affects the wealth of the firm. When the manager owns 100 percent of the firm (owner-manager), the decision making will be such that it will be focused on maximizing his utility. He will enjoy the benefits such as the return from the business, as well as non-pecuniary benefits. However, if he sells a portion of equity stake to outside shareholders, there will be agency costs incurred due to the divergence of interests between the owner-manager and the outside shareholders (Jensen and Meckling, 1976). With outside shareholders sharing the ownership with the owner-manager, the manager will no longer bear the full costs of any non-pecuniary benefits he consumes to benefit himself. If there are more shares offered, the equity proportion of owner-manager will further reduce and his portion of cost of non-pecuniary benefit will also reduce, providing him with greater incentive to benefit at the expense of other shareholders (Jensen and Meckling, 1976).

Jensen and Meckling (1976) show in their seminal paper that how owner-manager actions affects the firm value.

ASSUMPTIONS:
Ownership stake of owner-manager: α
Ownership stake on offer to outsiders: $(1-\alpha)$

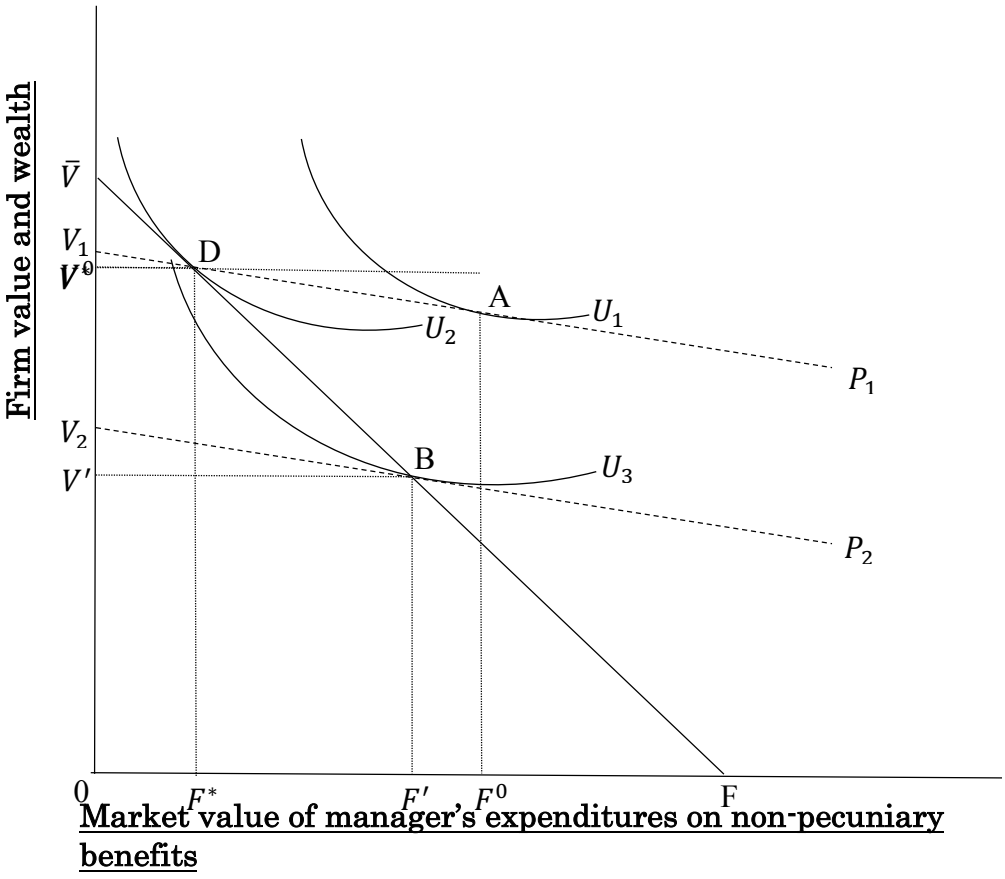
$\bar{V}$: Firm value when there are no non-pecuniary benefits consumed by the owner-manager

F: Market value of expenditures on non-pecuniary benefits consumed by the owner-manager.

Owner's wealth: $S_0 + \alpha\, V(F, \alpha)$; where S_0 is the payment made by the outsider for (1-α) of the equity, $\alpha\, V(F, \alpha)$ is the value of the firm given manager fractional ownership and the market value of his non-pecuniary consumption.

If the buyer believes that the owner will continue to enjoy the same level of perquisites, he will be willing to pay (1-α) V^* for the ownership stake (1-α) of the equity. The costs to the owner of consuming $1 of non-pecuniary will no longer be $1, it will now be according to his current ownership stake in the firm (α x $1). The budget constraint line of the manager is given in Figure 8 as $V_1\, P_1$.

Figure 8: Firm value and manager non-pecuniary consumption



Source: Jensen and Meckling (1976)

Given this budget line, the owner-manager can choose the level of non-pecuniary benefits he prefers (Jensen and Meckling, 1976). However, if the owner-manager is free to choose the level of perquisites, subject only to (α x $1), he will maximize his welfare by increasing his consumption of non-pecuniary benefits. He will then move to point A in figure 8 which represents the higher level of utility. However, this will lower the firm value by the amount of the cost of increased non-pecuniary expenditures and the firm value reduces from V^* to V^0 (Jensen and Meckling, 1976).

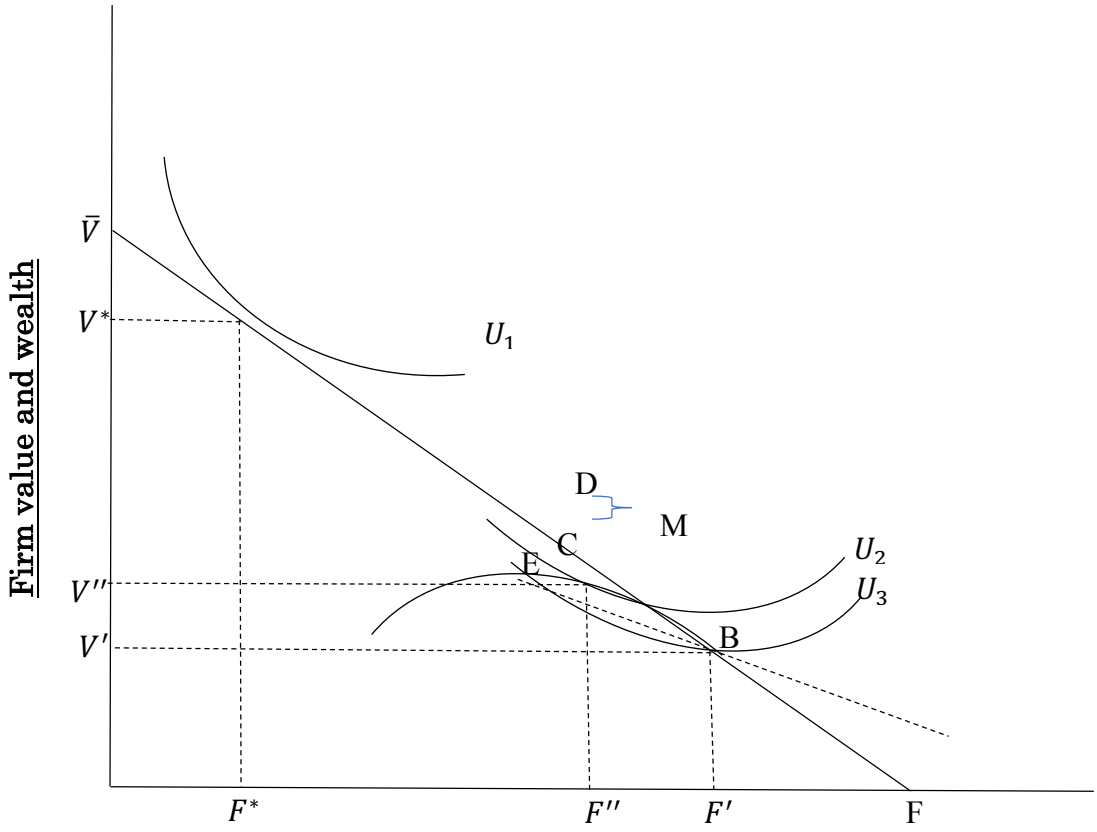
Jensen and Meckling (1976) further show that how the choice for the level of consumption of non-pecuniary benefits of owner-manager determines whether outsiders have paid more or less than what the firm is worth. V_2 P_2 is the tradeoff the owner-manager faces between the level of non-pecuniary benefits and his wealth after the sale. Given this budget constraint, he will maximize his welfare at point B shown in figure 8 which is tangent to the indifference curve U_3. The price for (1-α) which satisfy both the buyer and the owner-manager must be at the tangency point on line $\bar{V}$F.

For instance, if the tangency point occurs to the left of point B on the line $\bar{V}$F, this would imply that owner-manager has decided to consume a lower level of non-pecuniary consumption that will lead to an increase in the firm value. Firm value would be higher to outsiders who have paid less than what the firm is worth (1-α) $V' > S$. If however, the tangency point is on the right side of the line $\bar{V}$F, the consumption of non-pecuniary benefits means that the value of the firm is less than V'. In this case, outsiders have paid more than for the share of equity than it is worth (Jensen and Meckling, 1976).

The reduction in the firm value from V^* to V' is mainly due to the agency relationship which exists after selling proportion of equity ownership to outsiders and is defined as "residual loss". However, there are certain mechanisms which could help align the interest of managers with those of shareholders and limit the managerial incentive on the choice of non-pecuniary

benefits (Jensen and Meckling, 1976, Shleifer and Vishny, 1997). For instance, auditing, budget restrictions and incentive compensation which help to align the interest of managers with those of outsiders. Figure 9 shows the budget constraint curve *BCE* when monitoring possibilities are taken into account.

Figure 9: The value of the firm and level of non-pecuniary benefits



Source: Jensen and Meckling (1976)

V': Value of the firm without monitoring by outsiders and with outside equity proportion (1-α).

F': Nonpecuniary expenditures.

By incurring monitoring costs, the outside shareholder can limit managers consumption of perquisites to less than F'. F(M, α) is the maximum non-

pecuniary benefit the manager can consume for alternative levels of monitoring expenditures, *M*, given his share ownership 'α'. Given the monitoring activity, value of the firm now is: $V = \bar{V} - F(M, \alpha) - M$. M is the vertical difference between the budget line $\bar{V}F$ and the curve BCE, and is the current market value of future monitoring expenditure.

However, small shareholders do not have enough ownership in the firm to absorb the monitoring costs. Given large shareholder substantial ownership in the firm, such as 10% or 20%, they are able to cover the monitoring costs and are more likely to perform the monitoring role (Shleifer and Vishny, 1986, Shleifer and Vishny, 1997). The substantial ownership in the firm allows them control over the firm and to help align the interest towards profit maximization (Shleifer and Vishny, 1997).

Mostly large shareholder in the firm are families, who are also part of the board. Having family members on the board can facilitate monitoring and in some cases, replacement of management. Large shareholder also has the power, through voting control, to pressure the management (Shleifer and Vishny, 1997). Other large shareholders are banks, insurance companies, and investment funds however less prominent (Shleifer and Vishny, 1986).

In their model, they show that if the large shareholder believes that replacing the current management will lead to an improvement in firm performance, he will then likely gain control of the firm through cash tender offer for 50% of the firm's shares (Shleifer and Vishny, 1986). A tender offer by large shareholder does not only yields a non-negative profit but also a high profit than any other mechanism for gaining control of the firm. The presence of large shareholder is a necessary condition for value-increasing takeovers. Therefore, an increase in the proportion of large shareholder ownership will likely lead to an increase in the market price of the share (Shleifer and Vishny, 1986).

Appendix B: Summary of key empirical papers

Table B2: Summary on Key Empirical Literature (Analyst Forecast Properties)

Authors(s) (Year)	Theory	Research Question/Purpose	Data	Variables	Empirical setting
Yu (2010)		1. The impact of corporate governance disclosures on the predictability of furture earnings by analysts.	Sample: 1,128 firm-specific observation from 36 countries	**Dependent var:** Analyst forecast accuracy, dispersion and coverage **Independent var:** Standard and Poor's Transparency and disclosure ranking score **Control:** Size, earnings surprise, standard deviation of ROE, legal enforcement, earnings-return correlation	cross-country sample
Haw et al (2010)	Agency theory	1. Examine the relationship between concentrated ownership and analyst activities.	Sample: 7,911 firm-year observations Time period: 1990-1996	**Dependent var:** Analyst forecast accuracy, dispersion and coverage **Independent var:** Control-Cash flow divergence, Controlling owner's cash-flow rights **Control:** Size, earnings surprise, XLIST, earnings predictability, return volatility, market development, coverage, leverage and institution environment variables (legal origin, anti-director rights, law enforcement, disclosure standard ratings).	East Asian and Western European

Authors(s) (Year)	Theory	Research Question/Purpose	Data	Variables	Empirical setting
Wang and Yu (2007)	Agency theory	1. Examine the impact of insider ownership on analyst forecast properties	Sample: 50,000 firm-year observations Time period: 1990-2005	**Dependent var:** Analyst forecast accuracy and dispersion **Independent var:** Insider ownership **Control:** Size, leverage, coverage, loss dummy, earnings surprise, earnings volatility, earnings skewness, market to book, ADR, stock return volatility, ROA	cross-country sample
Garcia-Meca and Ballesta (2011)	Agency theory	1. Examine the impact of different type of owners, such as bank ownership, insider ownership (directors) and outside ownership concentration on the analyst forecast.	Sample: 173 firm-year observations Time period: 1999-2002	**Dependent var:** Analyst forecast accuracy **Independent var:** Bank ownership, Insider ownership and outside ownership concentration **Control:** Size, loss dummy, earnings surprise, earnings volatility, market to book, Xlist	Spain

Authors(s) (Year)	Theory	Research Question/Purpose	Data	Variables	Empirical setting
Sabherwal and Smith (2008)		1. Examine the relationship between ownership concentration and analyst following	Sample: 3,115 US firms Time period: 1996-2001	**Dependent var:** Analyst following **Independent var:** Outside shareholder ownership concentration, insiders ownerhsip concentration **Control:** Number of institutions holding a firms stock, Size, Number of shares outstanding, insider percentage ownership	The US
Lang et al. (2004)	Agency theory	1. Investigate the relationship between ownership structure, analyst following, investor protection and firm valuation	Sample: 2,094 firms from 27 countries Time period: 1996	**Dependent var:** Analyst following **Independent var:** Family control percentage, Dummy variable if family is largest shareholder, other blockholders control percentage **Control:** Size, XLIST, earnings growth, earnings surprise, return earnings correlation, volatility of stock returns, float	Western European firms

Table B3: Summary of Key Empirical Studies On China (Analyst Forecast Properties)

	Authors(s) (Year)	Theory	Research Question/Purpose	Data	Variables
1	Hab et al. (2014)	Agency theory	1. Examine the relationship between corporate governance mechanisms and the information environment of Chinese listed firms.	Sample: 12,649 firm-year observations Time period: 2003-2011	**Dependent var:** Forecast accuracy, dispersion, coverage **Independent var:** CG scores {independent directors, board size, CEO duality, top10 relation, management share ownership, Big 4, foreign share ownership} **Control:** Size, profitability, loss firm dummy, leverage, growth opportunity, stock return volatility, volume, IFRS dummy, forecast horizon, brokerage commissions.
2	Huang and Wright (2015)	Agency theory	1. Examine the effect of ownership structure on analysts' earnings forecasts.	Sample: 1,298 firms Time period: 2004-2011	**Dependent var:** Optimism, inaccuracy **Independent var:** State ownership, Tradable shares, Concentration, Institutional shareholdings **Control:** Dispersion, earnings growth, earnings quality, Price to book, ROE, firm size, volatility of stock return, dividend yield

3	Barniv (2009)		1. Examine the effect of ownership structure on analysts' earnings forecasts.	Sample: 4,922 annual forecasts for 170 companies, issued by 856 analysts Time period: 1991-2000	**Dependent var:** Forecast accuracy **Independent var:** Coverage, dispersion **Control:** EPS, Size, loss dummy
4	Huang and Baoteng (2016)	Agency theory	1. Examine the effect of insider ownership on analyst forecast properties	Sample: 4,257 firm-year observations Time period: 2007-2012	**Dependent var:** Error and dispersion **Independent var:** Executive ownership, board of director ownership, supervisor ownership, cash compensation of top 3 executives and other insiders. **Control:** Institutional shareholdings, % of top 10 shareholdings, number of independent directors, earnings volatility, size, leverage, growth and profitability

Table B4: Summary of Key Empirical Papers (Share Price Synchronicity)

	Authors(s) (Year)	Research Question/Purpose	Data	Variables	Empirical setting
1.	Ben-Nasr and Cosset (2014)	1. Examine the impact of state ownership in the incorporation of firm-specific information into stock prices	Sample: 2,036 firm-year observations Time period: 1980-2012	**Dependent var**: Informative	41 countries
		2. Examine how country level political factors impact the relation between state ownership and stock price informativeness		**Independent var**: State ownership	
				Control: Size, leverage, market to book, foreign ownership, insider ownership, ROA, cross-listing, analysts coverage, trading volume, Log (GDP), stock market capitalization to GDP	
2.	Piotroski and Roulston (2004)	1. Examine the impact of trading by insiders, institutional investors and financial analysts on the incorporation of information into stock prices.	Sample: 74,571 firm-year observations Time period: 1984-2000	**Dependent var**: Synchronicity	The US
				Independent var: Insider ownership, changes in institutional ownership, revision of analyst forecast	
				Control: Size, number of firms in industry, industry concentration, correlation of earnings, earnings volatility, diversification of firm	

3.	Boubaker, Mansali and Rjiba (2014)	1. Examine the impact of ownership concentration on share price synchronicity	Sample: 4,561 non-financial firms Time period: 1998 -2007	**Dependent var:** Synchronicity **Independent var:** Cash flow ownership of large shareholder, control rights of large shareholder, excess control **Control:** Leverage, cross-listing on US , number of firms in industry, stock luqidity, correlation of firm earnings with industry	France
3	Morck, Yeung and Yu (2000)	1. Examine the reason for the differences in R-square across countries.	Sample: 15,920 firms Time period: 1995		40 countries
4	Brockman and Yan (2009)	1. Examine the impact of blockownership by insiders and outsiders on share price synchronicity	Sample: NYSE and AMEX stocks Time period: 1996-2001	**Dependent var:** Synchronicity **Independent var:** Block ownerhsip by insiders (officers, directors), block ownerhsip by outside shareholders **Control:** Size, turnover, asset return volatility, number of analysts, number of firms in an industry, correlation of firm earnings with industry	US firms

Table B5: Summary of Key Empirical Papers: China Evidence (Share Price Synchronicity)

	Authors(s) (Year)	Research Question/Purpose	Data	Variables	Empirical setting
1.	Gul, Kim and Qiu (2010)	1. Examine the impact of ownership concentration, government ownership and foreign ownership on share price synchronicity	Sample: 1,142 firms Time period: 1996-2003	**Dependent var**: Synchronicity **Independent var**: Large shareholder ownership, Dummy variable if firm is SOE, foreign shareholder ownership (BSHARES +HSHARES) **Control**: Trading volume, size, leverage, standard deviation of return on assets, market to book, number of firms in an industry, industry size	China
2.	Feng, Hu and Johansson (2016)	1. Examine the impact of ownership structure and coverage on share price synchronicity	Sample: 11,913 firm-year observations Time period: 2005-2012	**Dependent var**: Synchronicity **Independent var**: Analyst coverage, Difference between Control rights and Cash flow Ownership **Control**: Size, leverage, ultimate shareholder ownership, trading volume, standard deviation of stock return, mutual fund ownership	China

	Authors(s) (Year)	Research Question/Purpose	Data	Variables	Empirical setting
3.	Hou, Kuo and Lee (2012)	1. Examine the impact of state ownership on the incorporation of firm-specific information into stock price.	Sample: 9,871 firm-year observations Time period: 2001-2008	**Dependent var**: Informative **Independent var**: State ownership, Split share reform dummy **Control**: size, market to book, leverage, trading volume, CEO ownership, CEO duality, Board independence, Board size	China
4.	Ding, Hou, Kuo and Lee (2013)	1. Examine the impact of mutual fund ownership on the share price informativeness 2. How this relationship is influenced by the presence of state ownership in firms	Sample: 6,104 non-financial firms Time period: 2003-2008	**Dependent var:** Informativeness **Independent var**: Mutual fund ownership **Control**: State-ownership, State-dummy variable, size, growth, leverage, special treatment status, split share reform dumy, foreign ownership, volume, profitability, BIG4, ownership concentration, CEO ownership, duality, board size, board meeting, board independence, supervisory board size	China

5.	Li, Brockman and Zurbruegg (2014)	1. Examine the impact of state ownership on the incorporation of firm-specific information into stock price.	Sample: 60 cross-listed firms Time period: 2005-2010	**Dependent var**: Difference between H-share synchronicity and A-share sychronicity **Independent var**: Largest shareholder ownership, number of QFII, domestic mutual fund ownership and ratio of H-shares to A-shares. **Control**: size, market to book, leverage, share turnover ratio, corporate governance variables, volatility of return on assets, number of foreign subsidiaries	China
6.	Cheng, Leung and Yu (2014)	1. Examine the impact of earnings announcement and ST announcement on changes in synchronicity	Sample: 3,472 earnings announcements Time period: 2001-2006	**Dependent var**: Informative **Independent var**: State ownership **Control**: Size, leverage, market to book, foreign ownership, insider ownership, ROA, cross-listing, analysts coverage, trading volume, Log (GDP), stock market capitalization to GDP	China

Table B6: Summary of Key Papers (Value Relevance Study)

	Authors(s) (Year)	Theory	Research Question/Purpose	Data	Variables	Empirical setting
1	Cormier and Magnan (2016)	Value relevance study	1. Examine the impact of IFRS adoption on the value relevance of earnings.	Sample: 792 firm-years observations Time period: 2009-2012	**Market value of equity/total equity book value**, 1/ common equity per share, earnings/total equity, cross-listed firms in US, IFRS dummy	Canada
2	Choi et al. (2013)	Value relevance study	1. Examine whether IFRS implementation improved the value relevance of reported earnings 2. Investigate analyst forecast accuracy and dispersion before and after IFRS implementation	Sample: 3,277 firm-year observations Time period: 2003-2007	**Price per share**, book value per share, earnings per share, analyst forecast measure	UK
3	Christensen et al. (2015)	Value relevance	1. Examine the impact of managerial financial reporting incentives on accounting quality changes around IFRS.	Sample: 133 voluntary adopters 177 mandatory adopters Time period: 1993 until 2006	**Price per share**, book value per share (BVPS), earnings per share (EPS)	Germany
4	Akbar et al. (2011)	Value relevance	1. Examine the value relevance of earnings components such as operating cash flows, funds flow, current accruals, non-current accruals and total accruals.	Sample: 14,503 firm-year observations Time period: 1993 until 2007	**Model 1:** Market value, book value, earnings, R&D, capital contribution, dividends, other information. **Model 2:** Market value, book value, cash flow, total accuruals, R&D, capital contribution, dividends, other information. **Model 3**: Market value, book value, non-current accruals, R&D, capital contribution, dividends, other information. **Model 4:** Market value, book value, cash flow from operating activities, current accruals, non-current accruals, R&D, captial contribution, dividends and other information.	UK

	Authors(s) (Year)	Theory	Research Question/Purpose	Data	Variables	Empirical setting
5	Fan and Wong (2002)	Earnings informativeness	1. Examine the impact of ownership structures on the earnings informativeness of East Asian economies.	Sample: 3,572 firm-years observations Time period: 1991-1995	**Cumulative return,** net income, net income*voting rights, net income*CV (cash flow rights/voting rights)	7 East Asian economies
6	Claessens et al. (2002)	Earnings informativeness	1. Examine the impact of ownership structure on firm value.	Sample: 1,301 firm-years observations	**Market to book,** cash flow ownership of largest shareholder, voting rights of largest shareholder, divergence between control and ownership.	8 East Asian economies

Table B7: Summary of Key Empirical Paper: China Evidence (Value Relevance Study)

	Authors(s) (Year)	Theory	Research Question/Purpose	Data	Variables	Empirical setting
7	Liu et al (2011)	Value relevance study	1. Examine whether there is improvement in accounting quality following the convergence	Sample: 3,240 firm-years observations (A-share firms only) Time period: 2005-2008	**Price per share**, book value per share, earnings per share, IFRS dummy, interaction terms	China
8	Lee et al. (2013)	Value relevance study	1. Examine the impact of IFRS converged CAS on the accounting information	Sample: 10,017 firm-year observations Time period: 2003-2009	**Price per share**, book value per share (BVPS), earnings per share (EPS), IFRS dummy, IFRS*BVPS, IFRS* EPS	China
9	Cheng and Wang (2004)	Value relevance study	1. Value relevance of operating income vs below the line items.	Sample: 2,202 firm-year observations Time period: 1997-2000	**Price per share**, book value per share, operating income per share, investment income per share, government subsidy per share, non-operating revenue per share and non-operating expenses per share	China
10	Firth et al. (2007)	Earnings informativeness	1. Effect of ownership structure on earnings informativeness	Sample: 5,189 firm-year observations Time period: 1998 until 2003	**Return**, earnings, ownership variables, control variables.	China
11	Elshandidy (2014)	Value relevance	1. Value relevance of earnings and book value prepared by different types of share issuing firms (A-share, B-share and H-share firms)	Sample: 31,262 firm-year observations for A-share, 1,316 firm-year observations for B-share and 1,442 firm-year observations for H-share Time period: 1999 until 2012	**Price per share**, book value per share, earnings per share, ownership structure, IFRS convergence dummy	China

Appendix C: List of hypotheses

H1: Prior to the split share reform, analyst coverage will be negatively associated with state controlled firms, ceteris paribus.	Eq. (5.1)
H2: Prior to the split share reform, analyst forecast errors will be positively associated with state controlled firms, ceteris paribus.	Eq. (5.1)
H3: Prior to the split share reform, analyst forecast dispersion will be positively associated with state controlled firms, ceteris paribus.	Eq. (5.1)
H4: Prior to the split share reform, share price synchronicity will be positively associated with state controlled firms, ceteris paribus.	Eq. (5.4)
H5: Split share structure reform will be associated with an increase in analyst coverage in firms which transferred from state control to non-state-owned firms relative to firms which remained state-controlled, ceteris paribus.	Eq. (5.2)
H6: Split share structure reform will be associated with a decrease in analyst forecast errors for firms which transferred from state control to non-state owned firms relative to firms which remained state-controlled, ceteris paribus.	Eq. (5.2)
H7: Split share structure reform will be associated with a decrease in analyst forecast dispersion for firms which transferred from state control to non-state owned firms relative to firms which remained state-controlled, ceteris paribus.	Eq. (5.2)
H8: Split share structure reform will be associated with a decrease in share price synchronicity for firms which transferred from state control to non-state owned firms relative to firms which remained state-controlled, ceteris paribus.	Eq. (5.5)
H9: The value relevance of earnings in firms which switch from state control to non-state owned will increase following the split share structure reform, ceteris paribus.	Eq. (5.11)
H10: Following the split share structure reform, the value relevance of earnings will be greater for firms which switch from state control to non-state owned compared to firms which remained state-owned, ceteris paribus.	Eq. (5.12)

Appendix D: Observations on analysts and Chinese brokerage firms

Table D1: Composition of Brokerage Institutions In China

Brokerage Institution name	Number of analyst employed	Trend of analyst employment over the years
State-owned brokerage institutions		
BOC International (China) Limited	40	An increase in analyst for this institution has been noted over the years.
Changjiang Securities Co., Ltd.	38	An increase in analyst for this institution has been noted over the years.
China Galaxy Securities Co., Ltd.	47	An increase in analyst for this institution has been noted over the years.
China Jianyin Investment Securities Co., Ltd.	51	An increase in analyst for this institution has been noted over the years.
China Merchants Securities Co., Ltd.	81	An increase in analyst for this institution has been noted over the years.
CITIC Securities Co., Ltd.	86	An increase in analyst for this institution has been noted over the years.
Essence Securities Co., Ltd.	53	An increase in analyst for this institution has been noted over the years.
Everbright Securities Co., Ltd.	45	An increase in analyst for this institution has been noted over the years.
Guosen Securities Co., Ltd.	45	An increase in analyst for this institution has been noted over the years.
Guoyuan Securities Co., Ltd.	18	An increase in analyst for this institution has been noted over the years.
Haitong Securities Co., Ltd.	79	An increase in analyst for this institution has been noted over the years.
Hong Yuan Securities Co., Ltd.	48	An increase in analyst for this institution has been noted over the years.
Orient Securities Co., Ltd.	54	An increase in analyst for this institution has been noted over the years.
Sealand Securities Co., Ltd.	28	An increase in analyst for this institution has been noted over the years.
Shanxi Securities Co., Ltd.	20	An increase in analyst for this institution has been noted over the years.
China International Capital Corporation Limited	54	A decrease in analyst for this institution has been noted over the years.
China Securities Co., Ltd.	48	A decrease in analyst for this institution has been noted over the years.
Guotai Junan Securities Co., Ltd.	100	A decrease in analyst for this institution has been noted over the years.
Industrial Securities Co., Ltd.	62	A decrease in analyst for this institution has been noted over the years.
Ping An Securities Co., Ltd.	54	A decrease in analyst for this institution has been noted over the years.
Shanghai Securities Co., Ltd.	19	A decrease in analyst for this institution has been noted over the years.
WanLian Securities Co., Ltd.	4	A decrease in analyst for this institution has been noted over the years.
Non-state owned brokerage institutions		
AJ Securities Co., Ltd.	5	A decrease in analyst for this institution has been noted over the years.
AVIC Securities Co., Ltd.	10	A decrease in analyst for this institution has been noted over the years.
Beijing Gao Hua Securities Co., Ltd.	17	A decrease in analyst for this institution has been noted over the years.
Bohai Securities Co., Ltd.	15	A decrease in analyst for this institution has been noted over the years.

Brokerage Institution name	Number of analyst employed	Trend of analyst employment over the years
Caitong Securities Co., Ltd.	5	A decrease in analyst for this institution has been noted over the years.
Central China Securities Co., Ltd.	7	A decrease in analyst for this institution has been noted over the years.
Century Securities Co.,Ltd.	8	A decrease in analyst for this institution has been noted over the years.
CHINA GREAT WALL SECURITIES CO., LTD.	28	A decrease in analyst for this institution has been noted over the years.
China Investment Securities Co., Ltd.	29	A decrease in analyst for this institution has been noted over the years.
China Minzu Securities Co., Ltd.	15	A decrease in analyst for this institution has been noted over the years.
Daton Securities Co., Ltd.	1	A decrease in analyst for this institution has been noted over the years.
Donghai Securities Co., Ltd.	7	A decrease in analyst for this institution has been noted over the years.
Dongxing Securities Co., Ltd.	32	A decrease in analyst for this institution has been noted over the years.
First Capital Securities Co.,Ltd.	29	A decrease in analyst for this institution has been noted over the years.
Fortune Securities Co., Ltd.	12	A decrease in analyst for this institution has been noted over the years.
Guodu Securities Co., Ltd.	2	A decrease in analyst for this institution has been noted over the years.
Guolian Securities Co., Ltd.	10	A decrease in analyst for this institution has been noted over the years.
Hongxin Securities Co., Ltd.	1	A decrease in analyst for this institution has been noted over the years.
Hua Chuang Securities Co., Ltd.	37	A decrease in analyst for this institution has been noted over the years.
Huatai Securities Co., Ltd.	73	A decrease in analyst for this institution has been noted over the years.
HWABAO SECURITIES CO.,LTD	1	A decrease in analyst for this institution has been noted over the years.
Lianxun Securities Co., Ltd.	5	A decrease in analyst for this institution has been noted over the years.
Minsheng Securities Co., Ltd.	49	A decrease in analyst for this institution has been noted over the years.
New Times Securities Co., Ltd.	1	A decrease in analyst for this institution has been noted over the years.
Northeast Securities Co., Ltd.	25	A decrease in analyst for this institution has been noted over the years.
RiXin Securities Co., Ltd.	3	A decrease in analyst for this institution has been noted over the years.
Sinolink Securities Co., Ltd.	43	A decrease in analyst for this institution has been noted over the years.
Soochow Securities Co., Ltd.	9	A decrease in analyst for this institution has been noted over the years.
Southwest Securities Co., Ltd.	19	A decrease in analyst for this institution has been noted over the years.
Tebon Securities Co., Ltd.	6	A decrease in analyst for this institution has been noted over the years.
Tianfeng Securities Co., Ltd.	6	A decrease in analyst for this institution has been noted over the years.
UBS Securities Co. Limited	33	A decrease in analyst for this institution has been noted over the years.
Xiamen Securities Co.,Ltd.	1	A decrease in analyst for this institution has been noted over the years.
Xiangcai Securities Co., Ltd.	23	A decrease in analyst for this institution has been noted over the years.
Yingda Securities Co., Ltd.	4	A decrease in analyst for this institution has been noted over the years.
Zhongshan Securities Co., Ltd.	2	A decrease in analyst for this institution has been noted over the years.
Caida Securities Co.,Ltd.	7	An increase in analyst for this institution has been noted over the years.

Brokerage Institution name	Number of analyst employed	Trend of analyst employment over the years
Capital Securities Co., Ltd.	4	An increase in analyst for this institution has been noted over the years.
CHINA DRAGON SECURITIES CO.,LTD.	3	The same number of analyst for this institution over the years
China Fortune Securities Co., Ltd.	9	An increase in analyst for this institution has been noted over the years.
Cinda Securities Co., Ltd.	29	An increase in analyst for this institution has been noted over the years.
Dong Guan Securities Co., Ltd.	16	An increase in analyst for this institution has been noted over the years.
Founder Securities Co., Ltd.	50	An increase in analyst for this institution has been noted over the years.
GF Securities Co., Ltd.	55	An increase in analyst for this institution has been noted over the years.
Hongta Securities Co., Ltd.	17	An increase in analyst for this institution has been noted over the years.
Huaan Securities Co., Ltd.	7	An increase in analyst for this institution has been noted over the years.
Huarong Securities Co., Ltd.	6	An increase in analyst for this institution has been noted over the years.
KAIYUAN SECURITIES CO., LTD	3	An increase in analyst for this institution has been noted over the years.
Qilu Securities Co., Ltd.	33	An increase in analyst for this institution has been noted over the years.
The Pacific Securities Co., Ltd.	9	An increase in analyst for this institution has been noted over the years.
Zheshang Securities Co., Ltd.	19	An increase in analyst for this institution has been noted over the years.

Note: This table provides an overview of brokerage institutions in China from 2003 until 2014. The data is obtained from CSMAR database. This table shows the name of brokerage institutions, the number of analysts employed as at 2014 (or 2013 if no information available for 2014) and the trend of analyst employment over the years. Brokerage institutions are categorized into state-owned and non-state owned institutions based on information available through online search.

Table D2: Constant Analyst Brokerage Institutions

Non-state owned brokerage institutions	State-owned brokerage institutions
Zhao Shang Securities Co., Ltd	BOC International (China) Limited
UBS Securities Co., Ltd.	Capital Securities Corporation
The Pacific Securities Co. Ltd.	Changjiang Securities Co., Ltd.
Southwest Securities Co., Ltd.	China International Capital Co., Ltd.
Sinolink Securities Co., Ltd.	China Jianyin Investment Securities Co., Ltd.
RiXin Securities Co., Ltd.	China Securities Co., Ltd.
Qilu Securities Co., Ltd.	CITIC Securities Co., Ltd.
Northeast Securities Co., Ltd.	CITIC Securities Co., Ltd.
Min Sheng Securities Co., Ltd.	Essence Securities Co. Ltd.
Huatai Securities Co., Ltd.	Everbright Securities Co., Ltd.
Fortune Securities Co., Ltd.	Guo Yuan Securities Co., Ltd
First Capital Securities Co., Ltd.	Guosen Securities Co.,
Dongxing Securities Co., Ltd.	Guotai Junan Securities Co., Ltd.
Donghai Securities Co.,	Guoyuan Securities Co., Ltd.
Dong Guan Securities Co.,	Haitong Securities Co.,Ltd.
Cinda Securities Co., Ltd.	Hongyuan Securities Co., Ltd.
China Investment Securities Co., Ltd.	Huachuang Securities Co., Ltd.
Century Securities Co.,Ltd.	Industrial Securities Co.
Bohai Securities Co.	Orient Securities Co., Ltd.
Beijing Gao Hua Securities Co., Ltd.	Pingan Securities Co., Ltd.
AJ Securities Co., Ltd.	Sealand Securities Co., Ltd.
	Shanghai Securities Co., Ltd.
	Shanxi Securities Co., Ltd.
	Wanlian Securities Co., Ltd.

Table D2 categorizes brokerage institutions into state-owned and non-state owned for constant analysts. The information on brokerage institutions is obtained from CSMAR database. The categorization of brokerage institutions into state-owned and non-state owned is based on information available through online search.

References:

AKBAR, S. & STARK, A. W. 2003. Deflators, Net Shareholder Cash Flows, Dividends, Capital Contributions and Estimated Models of Corporate Valuation. *Journal of Business Finance & Accounting,* 30.

AKBAR, S., SHAH, S. Z. A. & STARK, A. W. 2011. The value relevance of cash flows, current accruals, and non-current accruals in the UK. *International Review of Financial Analysis,* 20**,** 311-319.

AKERLOF, G. A. 1970. The Market for "Lemons": Quality Uncertainty and the Market Mechanism. *The Quarterly Journal of Economics,* 84**,** 488-500.

AN, C., PAN, X. & TIAN, G. G. 2014. Ownership structure and collateral requirements: Evidence from China's listed firms. *International Review of Financial Analysis,* 36**,** 168-178.

AN, H. & ZHANG, T. 2013. Stock price synchronicity, crash risk, and institutional investors. *Journal of Corporate Finance,* 21**,** 1-15.

ANDERSON, H. D., CHI, J., ING-ARAM, C. & LIANG, L. 2011. Stock dividend puzzles in China. *Journal of the Asia Pacific Economy,* 16**,** 422-447.

AREDDY, J. T. 2007. China's Bubble Is Defying Beijing; Stocks Push Higher Despite Measures to Cool Investors' Enthusiam. *Wall Street Journal.*

ASHBAUGH-SKAIFE, H., GASSEN, J. & LAFOND, R. 2005. Does Stock Price Synchronicity Represent Firm-Specific Information? The international Evidence *Working Paper.*

BAE, K.-H. & JEONG, S. W. 2007. The Value-relevance of Earnings and Book Value, Ownership Structure, and Business Group Affiliation: Evidence From Korean Business Groups. *Journal of Business Finance & Accounting,* 34**,** 740-766.

BAKER, H. K., NOFSINGER, J. R. & WEAVER, D. G. 2002. International cross-listing and visibility *Journal of Financial and Quantitative Analysis,* 37**,** 495-521.

BALL, R. & BROWN, P. 1968. An Empirical Evaluation of Accounting Income Numbers. *Journal of Accounting Research,* 6**,** 159-178.

BALL, R. 2006. International Financial Reporting Standards (IFRS): pros and cons for investors. *Accounting and Business Research* 5-27.

BALL, R., ROBIN, A. & WU, J. S. 2000. Accounting standards, the institutional environment and issuer incentives: Effect on timely loss recognition in China. *Asia-Pacific Journal of Accounting & Economics,* 7**,** 71-96.

BALL, R., ROBIN, A. & WU, J. S. 2003. Incentives versus standards: properties of accounting income in four East Asian countries. *Journal of Accounting and Economics,* 36**,** 235-270.

BARNIV, R. 2009. Does foreign investor demand for information affect forecast accuracy? Evidence from the Chinese stock markets. *Journal of International Accounting, Auditing and Taxation,* 18**,** 101-118.

BARTH, M. E. & CLINCH, G. 2009. Scale Effects in Capital Markets-Based Accounting Research. *Journal of Business Finance & Accounting,* 36**,** 253-288.

BARTH, M. E., BAEAVER, W. H. & LANDSMAN, W. R. 2001. The relevance of the value relevance literature for financial accounting standard setting: another view. *Journal of Accounting and Economics,* 31**,** 77-104.
BELTRATTI, A., BORTOLOTTI, B. & CACCAVAIO, M. 2012. The stock market reaction to the 2005 split share structure reform in China. *Pacific-Basin Finance Journal,* 20**,** 543-560.
BEN-NASR, H. & COSSET, J.-C. 2014. State Ownership, Political Institutions, and Stock Price Informativeness: Evidence from Privatization. *Journal of Corporate Finance,* 29**,** 179-199.
BLACK, F. 1986. Noise. *The Journal of Finance,* 41**,** 529-543.
BODEN, J. 2008. *Wall Behind China's Open Door : Towards Efficient Intercultural Management in China,* Brussels, Belgium, Academic and Scientific Publishers.
BONA-SANCHEZ, C., PEREZ-ALEMAN, J. & SANTANA-MARTIN, D. J. 2014. Poltiically connected firms and earnings informativeness in the controlling versus minority shareholders context: European Evidence. *Corporate Governance: An International Review,* 22**,** 330-346.
BOUBAKER, S. & LABÉGORRE, F. 2008. Ownership structure, corporate governance and analyst following: A study of French listed firms. *Journal of Banking & Finance,* 32**,** 961-976.
BOUBAKER, S., MANSALI, H. & RJIBA, H. 2014. Large controlling shareholders and stock price synchronicity. *Journal of Banking & Finance,* 40**,** 80-96.
BROCKMAN, P. & YAN, X. 2009. Block ownership and firm-specific information. *Journal of Banking & Finance,* 33**,** 308-316.
BRYAN, D. M. & TIRAS, S. L. 2007. The influence of forecast dispersion on the incremental explanatory power of earnings, book value and analyst forecast on market prices. . *The Accounting Review,* 82**,** 651-677.
BUSHMAN, R. M., PIOTROSKI, J. D. & SMITH, A. J. 2004. What determines corporate transparency? *Journal of Accounting Research,* 42**,** 207-252.
BYARD, D., LI, Y. & YU, Y. 2011. The Effect of Mandatory IFRS Adoption on Financial Analysts' Information Environment. *Journal of Accounting Research,* 49**,** 69-96.
CAI, W. 2017. The Dilemmas of Independent Directors in China: An Empirical and Comparative Study. *European Business Organization Law Review,* 18**,** 123-154.
CAI, W., LEE, E., WU, Z., XU, A. L. & ZENG, C. 2017. Do Economic Incentives of Controlling Shareholders Influence Corporate Social Responsibility Disclosure? A Natural Experiment. *The International Journal of Accounting,* 52**,** 238-250.
CAO, S., HE, X., WANG, C. C. Y. & YIN, H. 2018. Government Incentives and Financial Intermediaries: The case of Chinese Sell-Side Analysts. *Working Paper*.
CHANG, X., DASGUPTA, S. & HILARY, G. 2006. Analyst Coverage and Financing Decisions. *The Journal of Finance,* 61**,** 3009-3048.
CHAN, K. & HAMEED, A. 2006. Stock price synchronicity and analyst coverage in emerging markets. *Journal of Financial Economics,* 80**,** 115-147.

CHAN, K. H. & WU, D. 2011. Aggregate Quasi Rents and Auditor Independence: Evidence from Audit Firm Mergers in China. *Contemporary Accounting Research,* 28**,** 175-213.
CHAN, K. H., LIN, K. Z. & WONG, B. 2010. The Impact of Government Ownership and Institutions on the Reporting Behavior of Local Auditors in China. *Journal of International Accounting Research,* 9**,** 1-20.
CHEN, D., JIANG, D., LIANG, S. & WANG, F. 2011a. Selective enforcement of regulation. *China Journal of Accounting Research,* 4**,** 9-27.
CHEN, G., FIRTH, M. & NING GAO, D. 2011c. The Information Content of Earnings Components: Evidence from the Chinese Stock Market. *European Accounting Review,* 20**,** 669-692.
CHEN, G., FIRTH, M. & XU, L. 2009. Does the type of ownership control matter? Evidence from China's listed companies. *Journal of Banking & Finance,* 33**,** 171-181.
CHEN, G., FIRTH, M., GAO, D. N. & RUI, O. M. 2006. Ownership structure, corporate governance, and fraud: Evidence from China. *Journal of Corporate Finance,* 12**,** 424-448.
CHEN, G., FIRTH, M., XIN, Y. & XU, L. 2008. Control trasnfers, privatization and corporate performance: Efficiency gains in China's listed companies. *The Journal of Financial and Quantitative Analysis,* 43**,** 161-190.
CHEN, J., CUMMING, D., HOU, W. & LEE, E. 2016a. CEO Accountability for Corporate Fraud: Evidence from the Split Share Structure Reform in China. *Journal of Business Ethics,* 138**,** 787-806.
CHEN, J., CUMMING, D., HOU, W. & LEE, E. 2016b. Does the External Monitoring Effect of Financial Analysts Deter Corporate Fraud in China? *Journal of Business Ethics,* 134**,** 727-742.
CHEN, J., DING, R., HOU, W. & JOHAN, S. 2016c. Do Financial Analysts Perform a Monitoring Role in China? Evidence from Modified Audit Opinions. *Abacus,* 52**,** 473-500.
CHEN, S. & WANG, Y. 2004. Evidence from China on the value relevance of operating income vs. below-the-line items. *The International Journal of Accounting,* 39**,** 339-364.
CHEN, S., SUN, Z., TANG, S. & WU, D. 2011b. Government Intervention and investment efficiency- Evidence from China. *Journal of Corporate Finance,* 17**,** 259-271.
CHEN, X., DAI, Y., KONG, D. & TAN, W. 2017. Effect of international working experience of individual auditors on audit quality: Evidence from China. *Journal of Business Finance & Accounting,* 44**,** 1073-1108.
CHEN, X., LEE, C.-W. J. & LI, J. 2008. Government assisted earnings management in China. *Journal of Accounting and Public Policy,* 27**,** 262-274.
CHEN, Y., CHEN, D., WANG, W. & ZHENG, D. 2018. Political uncertainty and firms' information environment: Evidence from China. *Journal of Accounting and Public Policy,* 37**,** 39-64.

CHEN, Y., WANG, S. S., LI, W., SUN, Q. & TSONG, W. H. S. 2015. Institutional environment , firm ownership, and IPO first-day returns: Evidence from China. *Journal of Corporate Finance,* 32.
CHENG, L. T. W., FUNG, H.-G. & LEUNG, T. Y. 2009. Dividend preference of tradable-share and non-tradable-share holders in Mainland China. *Accounting & Finance,* 49**,** 291-316.
CHENG, L. T. W., LEUNG, T. Y. & YU, W. 2014. Information arrival, changes in R-square and pricing asymmetry of corporate news. *International Review of Economics & Finance,* 33**,** 67-81.
CHENG, M., LIN, B., LU, R. & WEI, M. 2017. Non-controlling large shareholders in emerging markets: Evidence from China. *Journal of Corporate Finance*.
CHEUNG, Y. L., RAU, P. R. & STOURAITIS, A. 2009. Helping Hand or Grabbing Hand? Central vs. Local Government Shareholders in Chinese Listed Firms. *Review of Finance,* 14**,** 669-694.
CHI, W., LISIC, L. L., LONG, X. & WANG, K. 2013. Do regulations limiting management influence over auditors improve audit quality? Evidence from China. *Journal of Accounting and Public Policy,* 32**,** 176-187.
CHOI, H. M. 2014. When Good News Is Not So Good: Economy-wide Uncertainty and Stock Returns. *Journal of Business Finance & Accounting,* 41**,** 1101-1123.
CHOI, Y.-S., PEASNELL, K. & TONIATO, J. 2013. Has the IASB Been Successful in Making Accounting Earnings More Useful for Prediction and Valuation? UK Evidence. *Journal of Business Finance & Accounting,* 40**,** 741-768.
CHRISTENSEN, H. B., LEE, E., WALKER, M. & ZENG, C. 2015. Incentives or Standards: What Determines Accounting Quality Changes around IFRS Adoption? *European Accounting Review,* 24**,** 31-61.
CLAESSENS, S., DJANKOV, S., FAN, J. P. H. & LANG, L. H. P. 2002. Disentangling the incentive and entrenchment effects of larges shareholdings. *The Journal of Finance,* 57**,** 2741-2771.
CONYON, M. J. & HE, L. 2011. Executive compensation and corporate governance in China. *Journal of Corporate Finance,* 17**,** 1158-1175.
CORMIER, D. & MAGNAN, M. L. 2016. The Advent of IFRS in Canada: Incidence on value relevance *Journal of International Accounting Research,* 15**,** 113-130.
CRAWFORD, S. S., ROULSTONE, D. T. & SO, E. C. 2012. Analyst Initiations of Coverage and Stock Return Synchronicity. *The Accounting Review,* 87**,** 1527-1553.
CULL, R., XU, L. C., YANG, X., ZHOU, L.-A. & ZHU, T. 2017. Market facilitation by local government and firm efficiency: Evidence from China. *Journal of Corporate Finance,* 42**,** 460-480.
CUMMING, D. & HOU, W. 2014. Valuation of restricted shares by conflicting shareholders in the Split Share Structure Reform. *The European Journal of Finance,* 20**,** 778-802.

DECHOW, P., GE, W. & SCHRAND, C. 2010. Understanding earnings quality: A review of the proxies, their determinants and their consequences. *Journal of Accounting and Economics,* 50**,** 344-401.
DEDMAN, E., JIANG, W. & STARK, A. 2015. The value relevance and information content of cash and stock dividends in China. *The European Journal of Finance***,** 1-29.
DEFOND, M. L., WONG, T. J. & LI, S. 2000. The impact of improved auditor independence on audit market concentration in China. *Journal of Accounting and Economics,* 28**,** 269-305.
DEFOND, M., GAO, X., LI, O. Z. & XIA, L. 2019. IFRS adoption in China and foreign institutional investments. *China Journal of Accounting Research,* 12**,** 1-32.
DELIOS, A., WU, Z. J. & ZHOU, N. 2015. A New Perspective on Ownership Identities in China's Listed Companies. *Management and Organization Review,* 2**,** 319-343.
DIMSON, E. 1979. Rosk measurement when shares are subject to infrequent trading. *Journal of Financial Economics,* 7**,** 197-226.
DING, F., LUO, W., HAO, X. & ZHANG, L. 2017. Does IFRS Adoption Increase the Accuracy of Chinese Analysts' Forecasts? *Emerging Markets Finance and Trade,* 53**,** 1107-1121.
DING, R., HOU, W., KUO, J.-M. & LEE, E. 2013. Fund ownership and stock price informativeness of Chinese listed firms. *Journal of Multinational Financial Management,* 23**,** 166-185.
DONALDSON, L. & DAVIS, J. H. 1991. Stewardship Theory or Agency Theory: CEO Governance and Shareholder Returns. *Australian Journal of Management,* 16**,** 49-65.
DONALDSON, L. 1990. The Ethereal Hand: Organizational Economics and Management Theory. *The Academy of Management Review,* 15**,** 369-381.
DONALDSON, L. 2008. Ethics Problems and Problems with Ethics: Toward a Pro-Management Theory. *Journal of Business Ethics,* 78**,** 299-311.
DURNEV, A., MORCK, R., YEUNG, B. & ZAROWIN, P. 2003. Does greater firm-specific return variation mean more or less informed stock pricing? *Journal of Accounting Research,* 41.
DYE, R. A. 2017. Some Recent Advances in the Theory of Financial Reporting and Disclosures. *Accounting Horizons,* 31**,** 39-54.
EASTON, P. D. & SOMMERS, G. A. 2003. Scale and the Scale Effect in Market-based Accounting Research. *Journal of Business Finance & Accounting,* 30**,** 25-55.
EASTON, P. D. 1999. Securtiy returns and the value relevance of accounting data. *Accounting Horizons,* 13**,** 399-412.
ELSHANDIDY, T. 2014. Value relevance of accounting information: Evidence from an emerging market. *Advances in Accounting,* 30**,** 176-186.
FAN, J. P. H. & WONG, T. J. 2002. Corporate ownership structure and the informativeness of accounting earnings in East Asia. *Journal of Accounting and Economics,* 33**,** 401-425.
FAN, J. P. H., HUANG, J., MORCK, R. & YEUNG, B. 2014. Institutional determinants of vertical integration in China. *Journal of Corporate Finance*.

FAN, J. P. H., WONG, T. J. & ZHANG, T. 2012. Institutions and Organizational Structure: The Case of State-Owned Corporate Pyramids. *Journal of Law, Economics, and Organization,* 29**,** 1217-1252.
FANG, L. & PERESS, J. 2009. Media coverage and the cross-section of stock returns. *The Journal of Finance,* 64**,** 2032-2052.
FELTHAM, G. A. & OHLSON, J. A. 1995. Valuation and Clean Surplus Accounting for Operating and Financial Activities. *Contemporary Accounting Research,* 11**,** 689-73.
FENG, X., HU, N. & JOHANSSON, A. C. 2016. Ownership, analyst coverage, and stock synchronicity in China. *International Review of Financial Analysis,* 45**,** 79-96.
FIRTH, M., FUNG, P. M. Y. & RUI, O. M. 2007. Ownership, two-tier board structure, and the informativeness of earnings – Evidence from China. *Journal of Accounting and Public Policy,* 26**,** 463-496.
FIRTH, M., LIN, C. & ZOU, H. 2010. Friend or Foe? The role of state and mutual fund ownership in the split share structure reform in China. *Journal of Financial and Quantitative Analysis,* 45**,** 685-706.
FIRTH, M., LIN, C., LIU, P. & XUAN, Y. 2013. The Client Is King: Do Mutual Fund Relationships Bias Analyst Recommendations? *Journal of Accounting Research,* 51**,** 165-200.
FIRTH, M., RUI, O. M. & WU, W. 2011. Cooking the books: Recipes and costs of falsified financial statements in China. *Journal of Corporate Finance,* 17**,** 371-390.
GALLAGHER, D. R., GARDNER, P. A. & SWAN, P. L. 2013. Governance through trading: Institutional swing trades and subsequent firm performance. *The Journal of Financial and Quantitative Analysis,* 48**,** 427-458.
GARCÍA-MECA, E. & SÁNCHEZ-BALLESTA, J. P. 2011. Ownership structure and forecast accuracy in Spain. *Journal of International Accounting, Auditing and Taxation,* 20**,** 73-82.
GARROD, N. & VALENTINCIC, A. 2005. The term structure of implicit discount rates in security valuation. *Journal of Business Finance & Accounting,* 32**,** 1237-1274.
GILLIS, P. L. 2011. *The Big Four in China: Hegemony and Counter-hegemony in the Development of the Accounting Profession in China.* Macquarie University.
GREEN, W., MORRIS, R. D. & TANG, H. 2010. The split equity reform and corporate financial transparency in China. *Accounting Research Journal,* 23**,** 20-48.
GU, Z., LI, G., LI, Z. & YANG, Y. G. 2016. Friends in Need are Friends Indeed: An Analysis of Social Ties between Financial Analysts and Mutual Fund Managers'. *Working Paper*.
GU, Z., LI, Z. & YANG, Y. G. 2013. Monitors or Predators: The Influence of Institutional Investors on Sell-Side Analysts. *The Accounting Review,* 88**,** 137-169.
GUL, F. A., CHENG, L. T. W. & LEUNG, T. Y. 2011. Perks and the informativeness of stock prices in the Chinese market. *Journal of Corporate Finance,* 17**,** 1410-1429.

GUL, F. A., KIM, J.-B. & QIU, A. A. 2010. Ownership concentration, foreign shareholding, audit quality, and stock price synchronicity: Evidence from China. *Journal of Financial Economics,* 95**,** 425-442.
GUL, F. A., SAMI, H. & ZHOU, H. 2009. Auditor Disaffiliation Program in China and Auditor Independence. *Auditing: A Journal of Practice and Theory,* 28**,** 29-51.
GUO, L., DAI, Y. & LIEN, D. 2016. The effects of China's split-share reform on firms' capital structure choice. *Applied Economics,* 48**,** 2530-2549.
GUO, S. 2013. *Chinese politics and government: power, ideology and organization*, Routledge.
HAIL, L. 2002. The impact of voluntary corporate disclosures on the ex-ante cost of capital for Swiss firms. *European Accounting Review,* 11**,** 741-773.
HAND, J. R. M. & LANDSMAN, W. R. 2005. The Pricing of Dividends in Equity Valuation. *Journal of Business Finance & Accounting,* 32.
HAS, L. H., VERGAUWE, S. & ZHANG, Q. 2014. Corporate governance and the information environment: Evidence from Chinese stock markets. *International Review of Financial Analysis,* 36**,** 106-119.
HAW, I.-M., HO, S. S. M., HU, B. & WU, W. 2010. Analysts' forecast properties, concentrated ownership and legal institutions. *Journal of Accounting, Auditing and Finance,* 25.
HE, Q., HUANG, J., LI, D. & LU, L. 2016a. Banks as corporate monitors: Evidence from CEO turnovers in China. *BOFIT Discussion Papers,* 19**,** 4-40.
HE, X., LI, M., SHI, J. & TWITE, G. 2016b. Why do firms pay stock dividends: Is it just a stock split? *Australian Journal of Management,* 41**,** 508-537.
HEALY, P. M. & PALEPU, K. G. 2001. Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics,* 31**,** 405-440.
HENG, L. C. C. & NORONHA, C. 2011. The impact of the new Accounting Standards for Business Enterprises (ASBE) on financial results of mainland Chinese listed companies. *Advances in Accounting, incorporating Advances in International Accounting,* 27**,** 156-165.
HORTON, J., SERAFEIM, G. & SERAFEIM, I. 2013. Does Mandatory IFRS Adoption Improve the Information Environment?*. *Contemporary Accounting Research,* 30**,** 388-423.
HOU, Q., JIN, Q., YANG, R., YUAN, H. & ZHANG, G. 2015. Performance Commitments of Controlling Shareholders and Earnings Management. *Contemporary Accounting Research,* 32**,** 1099-1127.
HOU, W., KUO, J.-M. & LEE, E. 2012. The impact of state ownership on share price informativeness: The case of the Split Share Structure Reform in China. *The British Accounting Review,* 44**,** 248-261.
HOU, W., LEE, E., STATHOPOULOS, K. & TONG, Z. 2016. Executive compensation and the split share structure reform in China. *The European Journal of Finance,* 22**,** 506-528.
HU, C. & WANG, Y. 2013. Noise trading and stock returns: evidence from China. *China Finance Review International,* 3**,** 301-315.
HUANG, W. & BOATENG, A. 2016. Executive shareholding, compensation, and analyst forecast of Chinese firms. *Applied Economics,* 49**,** 1459-1472.

HUANG, W. & WRIGHT, B. 2015. Analyst earnings forecast under complex corporate ownership in China. *Journal of International Financial Markets, Institutions and Money,* 35**,** 69-84.
HUANG, W. & ZHU, T. 2015. Foreign institutional investors and corporate governance in emerging markets: Evidence of a split-share structure reform in China. *Journal of Corporate Finance,* 32**,** 312-326.
HUANG, X., LI, X., TSE, S. & TUCKER, J. W. 2018. The effects of a mixed approach toward management earnings forecasts: Evidence from China. *Journal of Business Finance & Accounting,* 45**,** 319-351.
HUNG, M., WONG, T. J. & ZHANG, T. 2007. Political Relations and Overseas Stock Exchange Listing: Evidence from Chinese State- owned Enterprises. *Working paper*.
HUTTON, A. P., LEE, L. F. & SHU, S. Z. 2012. Do managers always know better? the relative accuracy of management and analyst forecasts. *Journal of Accounting Research,* 50**,** 1217-1244.
HUYGHEBAERT, N. & WANG, L. 2016. Institutional development and financing decisions: evidence from a cross-regional study on Chinese listed firms. *The European Journal of Finance,* 22**,** 288-318.
ICAS 2010. Chinese accounting reform: towards a principles-based global regime. *The Institute of Chartered Accountants of Scotland.*
JENSEN, M. C. & MECKLING, W. H. 1976. Theory of the firm: managerial behavior, agency costs and ownership structure. *Journal of Financial Economics,* 3**,** 305-360.
JIAN, M. & WONG, T. J. 2010. Propping through related party transactions. *Review of Accounting Studies,* 15**,** 70-105.
JIANG, F. & KIM, K. A. 2015. Corporate governance in China: A modern perspective. *Journal of Corporate Finance,* 32**,** 190-216.
JIANG, G., LEE, C. M. C. & YUE, H. 2010a. Tunneling through intercorporate loans: The China experience☆. *Journal of Financial Economics,* 98**,** 1-20.
JIANG, H. & HABIB, A. 2012. Split-share reform and earnings management: Evidence from China. *Advances in Accounting, incorporating Advances in International Accounting,* 28**,** 120-127.
JIANG, Z.-Q., ZHOU, W.-X., SORNETTE, D., WOODARD, R., BASTIAENSEN, K. & CAUWELS, P. 2010b. Bubble diagnosis and prediction of the 2005-2007 and 2008-2009 Chinese stock market bubbles. *Journal of Economic Behavior and Organisation,* 74**,** 149-162.
JIN, L. & MYERS, S. C. 2006. R2 around the world: New theory and new tests. *Journal of Financial Economics,* 79**,** 257-292.
JIRAPORN, P., CHINTRAKARN, P. & KIM, Y. S. 2012. Analyst following, staggered boards, and managerial entrenchment. *Journal of Banking & Finance,* 36**,** 3091-3100.
KE, B., LENNOX, C. S. & XIN, Q. 2015. The effects of China's weak institutional environment on he quality of Big 4 Audits. *The Accounting Review,* 90**,** 1591-1619.
KOTHARI, S. P. & ZIMMERMAN, J. L. 1995. Price and return models. *Journal of Accounting and Economics,* 20**,** 155-192.

KUO, J.-M., NING, L. & SONG, X. 2014. The real and accrual based earnings management behaviors: Evidence from the split share reform in China. *The International Journal of Accounting,* 49**,** 101-136.
LA PORTA, R., LOPEZ-DE-SILANES, F. & SHLEIFER, A. 1999. Corporate ownership around the world. *The Journal of Finance***,** 471-517.
LANG, M. H. & LUNDHOLM, R. J. 1996. Corporate Disclosure Policy and Analyst Behavior. *The Accounting Review,* 71**,** 467-492.
LANG, M. H., LINS, K. V. & MILLER, D. P. 2003. ADRs, Analysts, and Accuracy: Does Cross Listing in the United States Improve a Firm's Information Enviornment and Increase Market Value? *Journal of Accounting Research,* 41.
LANG, M. H., LINS, K. V. & MILLER, D. P. 2004. Concentrated control, Analyst following, and valuation: Do analysts matter most when investors are protected least? *Journal of Accounting Research,* 42**,** 589-623.
LEE, E., WALKER, M. & COLIN, Z. 2013. Does IFRS convergence affect financial reporting quality in China? *ACCA Research Report*.
LEE, H. 2016. Financial reporting and audit failures in transition economy: examples of auditors in China's financial market. *Law and Financial Markets Review,* 10**,** 4-15.
LI, J. & QIAN, C. 2013. Principal-principal conflicts under weak institutions: A study of corporate takeovers in China. *Strategic Management Journal,* 34**,** 498-508.
LI, K., WANG, T., CHEUNG, Y.-L. & JIANG, P. 2011. Privatization and Risk Sharing: Evidence from the Split Share Structure Reform in China. *Review of Financial Studies,* 24**,** 2499-2525.
LI, L., NAUGHTON, T. & HOVEY, M. 2008. A review of Corporate Governance in China. *SSRN*.
LI, O. Z., LIU, H. & NI, C. 2017. Controlling Shareholders' Incentive and Corporate Tax Avoidance: A Natural Experiment in China. *Journal of Business Finance & Accounting,* 44**,** 697-727.
LI, S., BROCKMAN, P. & ZURBRUEGG, R. 2015. Cross-listing, firm-specific information, and corporate governance: Evidence from Chinese A-shares and H-shares. *Journal of Corporate Finance,* 32**,** 347-362.
LI, Z., WONG, T. J. & YU, G. 2016. The dyadic ties of managers and financial analysts and their externality on a firm's information environment. *Working Paper*.
LIANG, P. & WILLETT, T. D. 2015. Chinese Stocks during 2000–2013: Bubbles and Busts or Fundamentals? *The Chinese Economy,* 48**,** 199-214.
LIAO, L., LI, B. & WANG, H. 2011. Information discovery in share lockups: Evidence from the split share structure reform in China. *Financial Management***,** 1001-1027.
LIAO, L., LIU, B. & WANG, H. 2014. China's secondary privatization: Perspectives from the Split-Share Structure Reform. *Journal of Financial Economics,* 113**,** 500-518.
LIN, Z., LIU, M. & NORONHA, C. 2016. The Impact of Corporate Governance on Informative Earnings Management in the Chinese Market. *Abacus,* 52**,** 568-609.

LIU, C., YAO, L. J., HU, N. & LIU, L. 2011. The Impact of IFRS on Accounting Quality in a Regulated Market. *Journal of Accounting, Auditing & Finance,* 26**,** 659-676.
LIU, J. & LIU, C. 2007. Value relevance of acounting information in different stock market segments: the case of Chinese A-, B-, and H-shares. *Journal of International Accounting Research,* 6**,** 55-81.
LIU, J., WANG, Z. & WUXIANG, Z. 2017. Does Privatization Reform Alleviate Ownership Discrimination? Evidence from the Split-Share Structure Reform in China. *Working paper*.
LIU, Q. & LU, Z. 2007. Corporate governance and earnings management in the Chinese listed companies: A tunneling perspective. *Journal of Corporate Finance,* 13**,** 881-906.
LIU, Q. & TIAN, G. 2012. Controlling shareholder, expropriations and firm's leverage decision: Evidence from Chinese Non-tradable share reform. *Journal of Corporate Finance,* 18**,** 782-803.
LIU, S. 2017. The impact of equity incentive plans on analysts' earnings forecasts and stock recommendations for Chinese listed firms: An empirical study. *Journal of International Accounting, Auditing and Taxation,* 29**,** 1-13.
LO, K. & LYS, T. 2000. The Ohlson Model: Contribution to Valuation Theory, Limitations, and Empirical Applications. *Journal of Accounting, Auditing & Finance,* 15.
LU, S. F. & YAO, Y. 2009. The Effectiveness of Law, Financial Development and Economic Growth in an Economy of Financial Repression: Evidence from China. *World Development,* 37**,** 763-777.
MA, R., ANDERSON, H. D. & MARSHALL, B. R. 2017. Stock Market Liquidity and Trading Activity: Is China Different? *SSRN*.
MCCONNELL, J. J. & MUSCARELLA, C. J. 1985. Corporate Capital Expenditure Decisions And The Market Value Of The Firm. *Journal of Financial Economics,* 14**,** 399-422.
MCGUINNESS, P. B. 2009. An overview and assessment of the reform of the non-tradable shares of Chinese state-owned enterprise A-share issuers. *Journal of Financial Regulation and Compliance,* 17**,** 41-56.
MEGGINSON, W. L., ULLAH, B. & WEI, Z. 2014. State ownership, soft-budget constraints, and cash holdings: Evidence from China's privatized firms. *Journal of Banking & Finance,* 48**,** 276-291.
MEI, J., SCHEINKMAN, J. & XIONG, W. 2005. Speculative trading and stock prices: Evidence from Chinese A-B Share premia. *NBER working paper series*.
MORCK, R. & YEUNG, B. 2014. Corporate Governance in China. *Journal of Applied Corporate Finance,* 26**,** 20-41.
MORCK, R., YEUNG, B. & YU, W. 2000. The information content of stock markets: why do emerging market have synchronous stock price movements? *Journal of Financial Economics,* 58**,** 215-260.
MORCK, R., YEUNG, B. & YU, W. 2013. R-sqaure and the economy. *Unpublished working paper. University of Alberta, National University of Singapore, and Hong Kong Polytechnic University*

NIE, P., COLLINS, A. B. & WANG, S. 2013. China's Progress with IFRS Convergence: Interviews with Chinese Professors. *Issues in Accounting Education,* 28**,** 277-290.
OECD 2011. Corporate Governance of Listed Companies in China:Self-Assessment by the China Securities Regulatory Commission. *OECD Publishing*.
OHLSON, J. A. 1995. Earnings, Book values, and Dividends in Equity Valuation. *Contemporary Accounting Research,* 11.
PARK, K., TINAIKAR, S. & SHIN, Y.-C. 2017. Managerial control divergence and analysts' information precision. *Corporate Governance: An International Review*.
PENG, S. & SMITH, J. V. D. L. 2010. Chinese GAAP and IFRS: An analysis of the convergence process. *Journal of International Accounting, Auditing and Taxation,* 19**,** 16-34.
PENG, W. Q., WEI, K. C. J. & YANG, Z. 2011. Tunneling or propping: Evidence from connected transactions in China. *Journal of Corporate Finance,* 17**,** 306-325.
PETERSEN, M. A. 2009. Estimating Standard Errors in Finance Panel Data Sets: Comparing Approaches. *The Review of Financial Studies,* 22**,** 435-480.
PIOTROSKI, J. D. & ROULSTONE, B. T. 2004. The infleunce of analysts, institutional investors and insiders on the incorporation of market, industry and firm-specific information into stock prices. *The Accounting Review,* 79**,** 1119-1151.
PIOTROSKI, J. D. & WONG, T. J. 2012. Institutions and Information Enviornment of Chinese listed firms. *Capitalizing China***,** 201-242.
PIOTROSKI, J. D. 2014. Financial reporting practices of China's listed firms. *Journal of Applied Corporate Finance,* 26.
PIOTROSKI, J. D., WONG, T. J. & ZHANG, T. 2015. Political Incentives to Suppress Negative Information: Evidence from Chinese Listed Firms. *Journal of Accounting Research,* 53**,** 405-459.
PUGSLEY, J. 2018. China's regulatory rearrangement. *The Banker*.
REES, W. & VALENTINCIC, A. 2013. Dividend Irrelevance and Accounting Models of Value. *Journal of Business Finance & Accounting,* 40**,** 646-672.
REES, W. P. 1997. The impact of dividends, debt and investment on valuation models. *Journal of Business Finance & Accounting,* 24.
ROLL, R. 1988. R square. *The Journal of Finance,* 43**,** 541-566.
SABHERWAL, S. & SMITH, S. D. 2008. Concentrated Shareholders as Substitutes for Outside Analysts. *Corporate Governance: An International Review,* 16**,** 562-577.
SAMI, H. & ZHOU, H. 2008. The economic consequences of increased disclosure: evidence from cross-listings of Chinese firms. *Journal of International Financial Management and Accounting,* 19.
SCHOLES, M. & WILLIAMS, J. 1977. Estimating betas from nonsynchronous data. *Journal of Financial Economics,* 5**,** 309-327.
SHAH, S. Z. A., STARK, A. W. & AKBAR, S. 2009. The value relevance of major media advertising expenditures: Some U.K. evidence. *The International Journal of Accounting,* 44**,** 187-206.

SHEN, Y. & STARK, A. W. 2013. Evaluating the effectiveness of model specifications and estimation approaches for empirical accounting-based valuation models. *Accounting and Business Research,* 43**,** 660-682.
SHLEIFER, A. & VISHNY, R. W. 1986. Large shareholders and corporate control. *Journal of Political Economy,* 94**,** 461-468.
SHLEIFER, A. & VISHNY, R. W. 1997. A survey of Corporate Governance. *The Journal of Finance,* 52**,** 737-783.
STOWE, J. D. & XING, X. 2011. R-square: Does it matter for firm valuation? *The Financial Review,* 46**,** 233-250.
SUN, J., YUAN, R., CAO, F. & WANG, B. 2017. Principal-principal agency problems and stock price crash risk: Evidence from the split-share structure reform in China. *Corporate Governance: An International Review,* 25**,** 186-199.
TAN, H. 2017. Chinese shadow banking has slowed-but that's not as good as it seems. *CNBC*.
TAN, H., WANG, S. & WELKER, M. 2011. Analyst Following and Forecast Accuracy After Mandated IFRS Adoptions. *Journal of Accounting Research,* 49**,** 1307-1357.
TITMAN, S., WEI, C. & ZHAO, B. 2017. Is the Chinese Stock Market Really Different? *SSRN*.
TONG, W. H. S., ZHANG, S. & ZHU, Y. 2013. Trading on inside information: Evidence from the share-structure reform in China. *Journal of Banking & Finance,* 37**,** 1422-1436.
WALTER, C. E. 2006. *Privatizing China: inside China's stock markets,* Singapore: Chichester, Wiley.
WANG, J. W. & YU, W. W. 2017. Insider Ownership and Analyst Forecast Properties. *Journal of Accounting, Auditing & Finance***,** 0148558X1769166.
WANG, K. & XIAO, X. 2009. Ultimate Government Control Structures and Firm Value: Evidence from Chinese Listed Companies. *China Journal of Accounting Research,* 2**,** 101-122.
WANG, Q. W., T. J.; XIA, LIJUN 2008. State ownership, the institutional environment, and auditor choice: Evidence from China. *Journal of Accounting and Economics,* 46**,** 112-134.
WANG, Y., HOU, Y. & CHEN, X. 2012. Accounting standard changes and foreign analyst behavior: Evidence from China. *China Journal of Accounting Research,* 5**,** 27-43.
WEI, G. & XIAO, J. Z. 2009. Equity ownership segregation, shareholder preferences, and dividend policy in China. *The British Accounting Review,* 41**,** 169-183.
WONG, T. J. 2016. Corporate Governance Research on Listed Firms in China: Institutions, Governance and Accountability. *Foundations and Trends® in Accounting,* 9**,** 259-326.
WU, W., WU, C. & RUI, O. M. 2012. Ownership and the value of political connections: Evidence from China. *European Financial Management,* 18**,** 695-729.
WURGLER, J. 2000. Financial markets and the allocation of capital. *Journal of Financial Economics,* 58**,** 187-214.

WOOLDRIDGE, J. M. 2013. Introductory Econometrics: A Modern Approach. 5th Edition ed. USA: South-Western, Cengage Learning.
XIAO, G. 2015. Trading and earnings management: Evidence from China's non-tradable share reform. *Journal of Corporate Finance,* 31**,** 67-90.
XIAO, J. Z., YANG, S., ZHANG, X. & FIRTH, M. 2016. Institutional Arrangements and Government Audit Independence in China. *Abacus,* 52**,** 532-567.
XINYUN, M. 2016. *Issues Affecting Convergence of Chinese Accounting Standards with IFRS.* Doctor of Economics, Nagoya University.
YANG, S., XIAO, J. Z. & PENDLEBURY, M. 2008. Government auditing in China: Problems and reform. *Advances in Accounting,* 24**,** 119-127.
YAO, S. & LUO, D. 2009. The economic psychology of stock market bubbles in China. *The World Economy***,** 667-691.
YEE, H. 2012. Analyzing the state-accounting profession dynamic: Some insights from the professionalization experience in China. *Accounting, Organizations and Society,* 37**,** 426-444.
YEH, Y.-H., SHU, P.-G., LEE, T.-S. & SU, Y.-H. 2009. Non-Tradable Share Reform and Corporate Governance in the Chinese Stock Market. *Corporate Governance: An International Review,* 17**,** 457-475.
YOUNG, M. N., PENG, M. W., AHLSTROM, D. & BRUTON, G. D. 2008. Corporate Governance in Emerging Economies: A Review of the Principal-Principal Perspective. *Journal of Management Studies,* 45.
YU, M. 2010. Analyst forecast properties, analyst following and governance disclosures: A global perspective. *Journal of International Accounting, Auditing and Taxation,* 19**,** 1-15.
ZHANG, G. 2014. Accounting Information and Equity Valuation: Theory, Evidence and Applications. New York: Springer.
ZHANG, W. & LIU, X. 2009. Introduction: Success and challenges: an overview of China's economic growth and reform since 1978. *Journal of Chinese Economic and Business Studies,* 7**,** 127-138.
ZHANG, X., YANG, X., STRANGE, R. & ZHANG, Q. 2017. Informed trading by foreign institutional investors as a constraint on tunneling: Evidence from China. *Corporate Governance: An International Review,* 25**,** 222-235.
ZHEN, Y. 2013. *China's Capital Markets,* Oxford, UK, Chandos Pub.
ZHENG, S. 2013. Rising Confidence Behind the "Chinese Dream". *Journal of Chinese Political Science,* 19**,** 35-48.