The Effect of Convergence with IFRS on Value Relevance: Evidence from Chinese Capital Markets

A Thesis Submitted in Partial Fulfillment of Requirements for
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Reference to Prior Research Pertaining to the Author

This thesis contains the prior research conducted by the author (i.e., a paper already published or a working paper) detailed as follows.

Chapter 1 is revised based on the following two publications:

Yan, S. (2017a). Analysis of Extent and Timing of IFRS Adoption around the World. *Waseda Business Review*, *52*, 85–99. (In Japanese). (Yan, 2017a).

Yan, S., Suandi, A. B., Ohkawauchi, T., and Takase, K. (2018). Academic Survey on the IFRS Adoption Status around the World: focus on jurisdictions not contained in IFRS Foundation' Survery. *Sanken Series*, *49*, 123–138. (Yan et al., 2018).

Chapter 2 is revised based on the following two publications:

Yan, S. (2013). A Review of Empirical Literature on IFRSs Adoption. *The Bulletin of the Graduate School of Commerce*, *77*, 221–264. (In Japanese). (Yan, 2013)

Yan, S., Kameoka, E., and Okumura, M. (2018). The Motivations of Accounting Standards Choice: Literature on the Motivation of IFRS adoption and Hypothesis Development. *Sanken Series*, *49*, 81–110. (In Japanese). (Yan et al., 2018)

Chapter 3 is revised based on the following working paper:

Yan, S. (2018a). *Does the Convergence of IFRS Enhance Value Relevance? Evidence from A- and B-Share Markets in China.* Working paper, Waseda University. (Yan, 2018a)

Chapter 5 and Chapter 6 are based on the following publication and Yan (2018a)

Yan, S. (2017b). The Effect of IFRS Convergence on Value Relevance: Evidence

from A- and B-Share Markets in China. *The Journal of Business and Economics*, *113*, 1–12. (In Japanese). (Yan, 2017b).

Chapter 7 is based on the following working paper:

Yan, S. (2018b). *The Effect of New CAS with Convergence of IFRS on Value Relevance: Evidence from A- and H-share Markets in China*. Working paper, Waseda University. (Yan, 2018b)

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List of Abbreviations

ARC	Accounting Regulatory Committee
AGAAP	Australian GAAP
AIFRS	IFRS of Australia Version
APB	Accounting Principles Board
APE	Abnormal Pricing Errors
ARBE	Accounting Regulations for Business Enterprises
ARFIE	Accounting Regulations for Foreign Investment Enterprises
ASBE	Accounting Standards for Business Entities
CAS	Chinese Accounting Standards for Business Entities
CSMAR	China Stock Market and Accounting Research Database
CSRC	China Securities Regulatory Commission
DAC Report	Development Co-operation Report
EC	European Commission
ECOFIN	European and Financial Affairs Council
ED32	Exposure Draft No. 32 "Statement of Intent: Comparability of Financial Statements"
EFRAG	European Financial Reporting Advisory Group
EU	European Union
FCJVAR	Foreign-Chinese Joint Venture Accounting Regulations
FDI	Foreign direct investment
FV	Fair Value
GAAP	Generally Accepted Accounting Principles
GDP	Gross Domestic Product
HKCPAs	Hong Kong Institute of Certified Public Accountants
HKEX	Hong Kong Exchanges and Clearing Limited
HKFRS	Hong Kong Financial Reporting Standards
IAS	International Accounting Standards
IASB	International Accounting Standards Board
IASC	International Accounting Standards Committee
IFRS	International Financial Reporting Standards
IMF	International Monetary Fund
IOSCO	International Organization of Securities Commissions
J-GAAP	Japanese Accounting Standards
JMIS	Japan's Modified International Standards
LID	Linear Information Dynamics
MOF	Ministry of Finance of People's Republic of China
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
OECS	Organisation of Eastern Caribbean States
OHADA	The Organisation for the Harmonization of Business Law in Africa
PBOC	People's Bank of China
QFII	Qualified Foreign Institutional Investors

RPE	Raw Pricing Errors
SFAS	Statement of Financial Accounting Standards
SFC	the Securities and Futures Commission of Hong Kong
SHSC	Stock Connects of HKEX and SHSE
SHSE	Shanghai Stock Exchange
SOE	State-owned Enterprises
SPE	Standardized Pricing Errors
SZHSC	Stock Connects of HKEX and SZSE
SZSE	Shenzhen Stock Exchange
UNCTAD	United Nations Conference on Trade and Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
US-GAAP	U.S. Accounting Standards
VIF	Variance Inflation Factor
WTO	World Trade Organization

1 Introduction

1.1 Preface

In recent years, there has been a growing global movement of jurisdictions transition from individual accounting standard to International Financial Reporting Standards (IFRS) (so-called accounting standards uniformity). [1] IFRS are developed by the International Accounting Standards Committee (IASC) and the subsequent International Accounting Standards Board (IASB). As of April 3, 2019, more than 150 jurisdictions (countries or regions) have already adopted IFRS, which accounts for 95% of the total 166 jurisdictions sample (IFRS Foundation, 2018a, p.2).[2] As the IFRS Foundation states, IFRS have been developed with the aim of making "a single set of high quality, global accounting standards that require transparent and comparable information in general purpose financial statements" (IASB, 2018, p. A1). The objective of the thesis is to explore, whether, as a set of high-quality accounting standards, IFRS contribute to enhancing the quality of accounting information.

The primary benefits of the accounting standards uniformity are enhancing financial statement comparability, promoting the liquidity of the international capital markets, and achieving a lower cost of capital (Armstrong et al., 2010; Daske et al., 2013; Horton and

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[1] IFRS are used in conjunction with IFRS and International Accounting Standards (IAS) taken together, which refers to the IFRS's predecessor unless otherwise stated in this paper.

[2] The "adopt" used by IFRS Foundation includes both "require" and "permit" which mentioned in 1.4.

Serafeim, 2010). On the other hand, the disadvantages of the accounting standards uniformity cannot be disregarded, because Dye and Sunder (2001) point out that accounting standards uniformity should not be applied to diverse economic environments. In addition, Tsujiyama (2015) points out that IFRS have not penetrated the social system of each country, due to the problem concerning the specificity of accounting thinking inherent in IFRS per se.

The debates on pros and cons of IFRS adoption are due to the complexity of the worldwide IFRS adoption. The adoption methods, the adopted financial statements and IFRS version vary across individual jurisdictions. As summarized by Tsujiyama (2014), there are various combinations for IFRS adoption shown in Figure 1-1. First, the adoption firms could be classified into three categories: ① all firms (including unlisted firms), ② all listed firms or ③ some listed firms.[3] Second, the adoption methods could be divided into two patterns: ① required and ② permitted method. Third, there are two patterns in the financial statements for IFRS adoption, ① both consolidated financial statements and separate financial statements, and ② consolidated financial statements only. Fourth, for the IFRS version, it could be classified into three categories: ① the full IFRS, called as pure IFRS adoption; ② an ongoing process by which individual new or amended standards (including Interpretations) are formally approved for use in a jurisdiction (Mourik and Walton, 2018) like the European Union (EU) members and Australia, called as endorsement; and ③ the local accounting standards minimized the difference with IFRS like China and the United States, called as convergence. Therefore, there are various forms of IFRS adoption in each

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[3] Foreign firms are out of consideration.

jurisdiction according to these combinations. Furthermore, the adoption status of each jurisdiction changes over time.

However, there are many prior studies that disregard the mentioned complexity of IFRS adoption. For example, some studies investigate the effects of IFRS adoption disregarding the difference between required adoption and permitted adoption (Ramanna and Sletten 2014; Christensen et al. 2013). The studies regarding to the various and the inter-temporal IFRS adoption status may contribute to the research on IFRS adoption incentives and effects.

Firms	×	Methods	×	Financial Statements	×	IFRS version
①All firms (including unlisted firms ②All listed firms ③A part of listed firms	×	① Required (including endorsement) ② Permitted	×	① Both consolidated and separate financial statements ② Consolidated financial statements only.	×	① Pure IFRS ② Endorsement ③ Convergence with IFRS
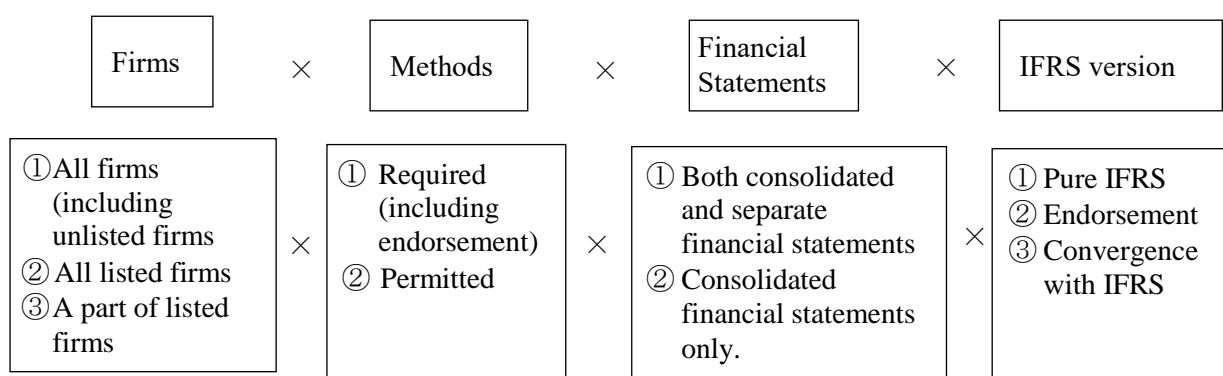
Figure 1-1 Matrix of IFRS adoption status. Source: revised basing on Tsujiyama (2014, p.56)

1.2 Overview and structure of the thesis

1.2.1 Overview

This thesis consists of eight chapters, in which Chapters 1, 2, 3 and 4 are descriptive chapters. Chapter 1 introduces the thesis and details its structure. In addition, it elaborates on the status of IFRS around the world for raising the research objective, explains the contributions (originality) of the thesis, and outlines the overall scope and limitations. Chapter 2 reviews the prior empirical studies pertaining to IFRS adoption. The primary purpose of Chapter 2 is to show the need for the study on the effects and for focusing on the firms from the single country. Chapter 3 explains the construct and methodology related to

value relevance study and argues that the Gu's (2007) pricing errors (PE) could overcome the weakness of the explanatory power measure (R^2) used in prior studies. The regression models and methodology discussed are applied in the subsequent chapters of the thesis. Chapter 4 introduces the development of China Accounting Standards for Business Entities (CAS) and the related influencing factors: economic reform, capital markets and foreign investment. The primary purpose of Chapter 4 is to provide the basic knowledge of CAS and the capital markets relating to A-, B-, and H-share.

Chapters 5 to 7 contain empirical analyses, and these chapters contribute to the thesis in two aspects as follows:

(1) Using the unique samples of Chinese firms that issued both A- and B-share, and the firms that issued A- and H-share, this thesis tests to the utmost the impact of accounting standards on the value relevance with the control of the impact of factors other than accounting standards. As detailed in Figure 2-2, the factors other than accounting standards include the country-specific ones such as political and economic environment, legal system, culture and firm-specific ones such as size and corporate government. The impacts of factors other than accounting standards are rarely well controlled in prior studies.

(2) Adopting Gu's (2007) PE, this thesis successfully overcomes the weakness of explanatory power (R^2 or adjusted R^2) which could not be used to compare between the different samples. The different samples include the case of different periods and the different dependent variables. The case of comparing the value relevance of A-, B- or H-share's accounting information among the different periods belongs to the former. The case of comparing the accounting information's value relevance in the same year of the firms that issue A- and B-shares' or A- and H-shares' simultaneously, belongs to the latter.

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Chapter 5 examines the effect of New CAS (a new set of CAS since 2007) on value relevance using the samples of Chinese firms issuing A-share. I used (1) Price/Return-earnings model, (2) Balance sheet model and (3) Compound model to examine the changes in value relevance measured by adjusted R^2 and Gu's (2007). The results indicated a decreasing quality of accounting earnings during the process of CAS' convergence with IFRS. However, the effects cannot be attributed to CAS per se due to the various factors' impacts on accounting quality explained in Chapter 2. Therefore, the further study is needed.

Chapter 6 uses A- and B-share's firm to examine the changes in value relevance measured by adjusted R^2 and Gu's (2007) PE. Empirical evidence reveals that value relevance measured by adjusted R^2 depicts a convergent trend, while value relevance measured by PEs provides a contrary result. These empirical results demonstrate the potential invalidity of the value relevance measured by R^2, predominantly used in extant studies. Hypotheses H6-1 and H6-2 could be moderately rejected based on the results of Abnormal Pricing Errors (APE), [4] that is the New CAS makes the value relevance of financial information higher than that of IFRS-based financial information. However, even though this chapter sets out to control the effects of factors other than accounting standards used by the peculiar Chinese firms that issue both A- and B-share, the segmentation of A- and B-share prices could not be absolutely controlled. Using sample of the firms issued A- and H-share may satisfy the above problem.

Chapter 7 uses A- and H-share's firm to examine the changes in value relevance measured by adjusted R^2 and Gu's (2007) PE. Hypotheses H7-1 and H7-2 are rejected based on the results of SPE, which imply the adoption of IFRS-convergent New CAS has an effect on

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[4] Details APE referred to Chapter 6.

value relevance of accounting information comparing to Old CAS. Also, the value relevance of New CAS-based accounting information becomes higher than that of IFRS-based accounting information.

Finally, Chapter 8 provides chapter summaries of preceding chapters, overall conclusions, research restrictions and future research directions.

1.2.2 Structure of the thesis
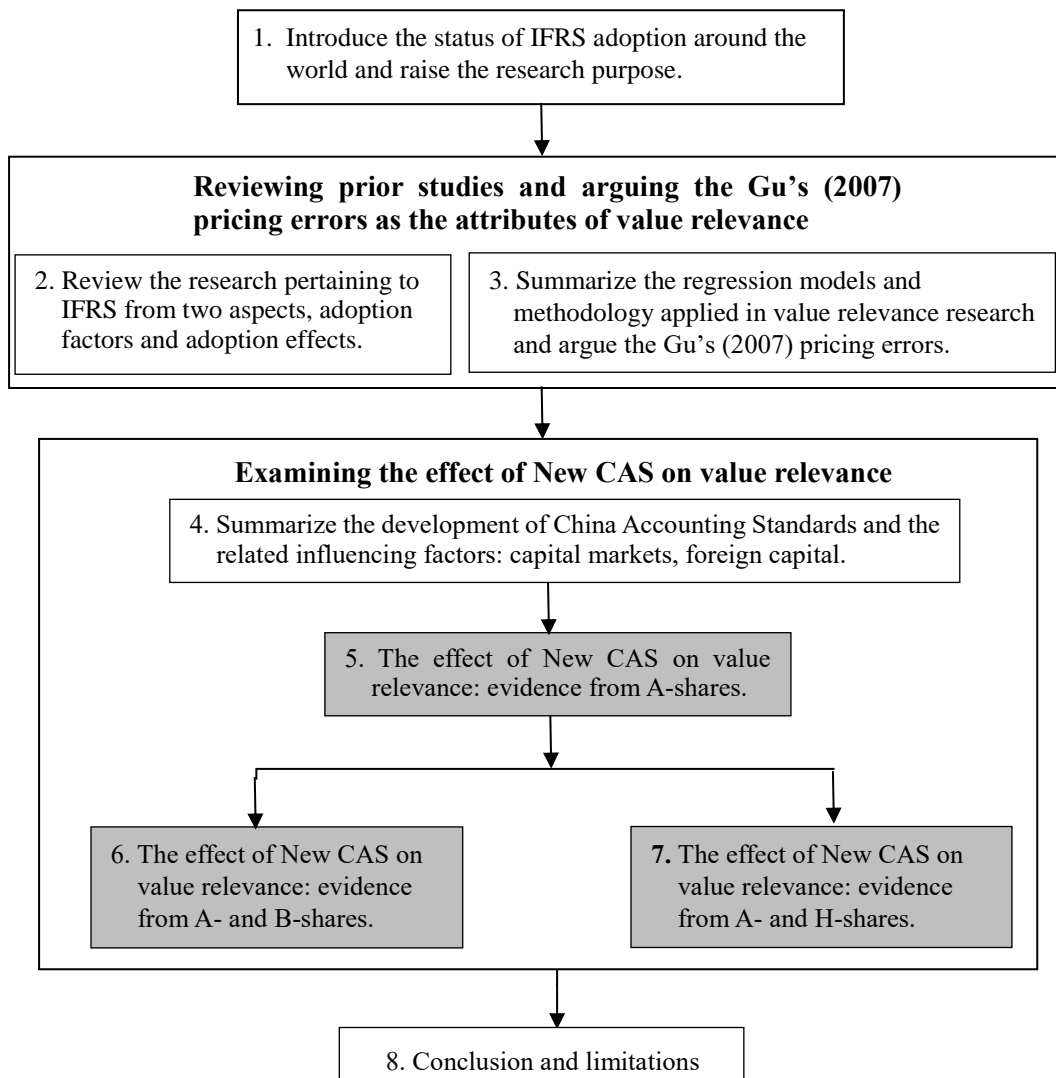
Figure 1-2 Structure of the Thesis (The grey parts are empirical chapters).

The structure of the related chapters is depicted in Figure 1-2. As indicated earlier,

Chapters 5, 6 and 7, colored in grey, are empirical chapters.

1.3 Contributions of the thesis

The contributions of this thesis stem from the several sources explained below.

First, this thesis makes great efforts to investigate the impact of accounting standards. As

is explained in Figure 2-2, the accounting quality is affected by accounting standards and

other factors such as legal and political systems, incentives of financial reporting at the same

time. Making use of the sample of Chinese firms that issue both A-share and B-share, or the

sample of Chinese firms that issue both A-share and H-share, the effect of factors other than

accounting standards could be controlled to the utmost. The factors other than accounting

standards consist of the legal and political system, economic environment, cultural

conventions, firms' reporting incentives, and so on. The effect of factors other than

accounting standards could vary among the various countries and periods. The firms that

issue A- and B-share or A- and H-share provide simultaneous financial reports based on

IFRS and CAS, respectively, which provide a suitable experimental opportunity to

investigate the accounting standards' impact by eliminating the effect of factors other than

accounting standards. While the prior research endeavors to control the effect of factors

other than accounting standards' impact by various statistical methods, the validity of such

results is in doubt.

Second, this thesis adopts Gu's (2007) PEs, which could overcome the weakness of R^2

used in prior research. It is worthwhile to note that A- and B share as well as A- and H-share

are different samples. As detailed in Chapter 3, the R^2 (or adjusted R^2), used as a linear

model fitness indicator for regression analysis, could not be compared across different samples. Therefore, Gu's (2007) PEs could make the results more robust.

Third, this thesis provides direct evidence on the question of whether accounting information becomes relevant to markets with the compulsory adoption of substantially IFRS-convergent accounting standards in regulated markets. Convergence is a supplementary choice to pure IFRS adoption. Since the costs and benefits of new accounting standards adoption differ among countries, pure IFRS adoption, regardless of the enforcement environments related to accounting standards, is not the optimal choice for all countries where there are particular economic or political institutions (debt-oriented market, shareholder-oriented market, etc.). To solve this problem, it is necessary to assess IFRS practice on a country-by-country basis (Nobes, 2006).

1.4 IFRS adoption status around the world

1.4.1 IFRS adoption status around the world depicted by IFRS Foundation

Before 2012, the survey on the worldwide IFRS adoption was primarily conducted by Deloitte's IAS Plus. The IFRS Foundation continues the survey and has investigated by sending questionnaires to standard-setters and other relevant bodies of each jurisdiction since 2013. As of April 3, 2019, the respondents include 166 jurisdictions, which are summarized in Table1-1 based on IFRS Foundation (2019).

The IFRS Foundation summarizes the survey results as follows (IFRS Foundation, 2018a).

a. 156 jurisdictions (94% of the surveyed subjects) other than Albania, Belize, Bermuda, Cayman Islands, Egypt, Macao, Paraguay, Suriname, Switzerland and Vietnam, have made a public commitment supporting a single set of high-quality global accounting standards.

b. 144 jurisdictions (87% of the surveyed subjects) require IFRS Standards for all or most domestic publicly accountable entities (listed companies and financial institutions) in their capital markets.

c. Based on the Gross Domestic Product (GDP) of 2017 (US$ 80.54 trillion), the 166 profiled jurisdictions represent 98.8% of the world's GDP. The GDP of surveyed jurisdictions that require or permit the use of IFRS for domestic publicly accountable entities (listed companies and financial institutions) constitutes 54% (47.1%+7.2%) of the GDP of all 166 jurisdictions.

d. The GDP of profiled jurisdictions that do not permit the use of IFRS Standards for any domestic publicly accountable entities constitutes 46% of the GDP of all profiled jurisdictions. Three jurisdictions (China, India and the United States) account for nearly all (94%) of the GDP of profiled jurisdictions that do not permit the use of IFRS Standards for any domestic publicly accountable entities.

Given the results of the IFRS Foundation's survey, most of the jurisdictions in the world have adopted or supported IFRS, especially the EU members. However, the five most populous jurisdictions (China, India, EU, the United States and Indonesia) and the five largest economies (the United States, EU, China, Japan and India) converge their Generally Accepted Accounting Principles (GAAP) with IFRS except for EU members that adopt IFRS.[5] Therefore, whether IFRS are a set of high-quality standards is still questioned. In order to clarify the reason of the IFRS adoption's popularity, analysis of the inter-temporal adoption status is necessary.

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[5] EU members are treated as one jurisdiction. The population and economic statistics are based on IMF (2018).

Table 1-1 Number of IFRS Adoption Jurisdictions (IFRS Foundation)

Region	Jurisdictions in the region	IFRS are required for all or most domestic listed firms	IFRS are required for some or permitted for domestic listed firms.	IFRS are neither required nor permitted for any domestic listed firms.
Europe	44	43	1	0
Africa	38	36	1	1
Middle East	13	13	0	0
Asia and Oceania	34	25	3	6
America	37	27	8	2
Totals	166	144	13	9
As % of 166	100%	87%	8%	5%
GDP (US$ billions) of profiled jurisdictions	79,596	37,521	5,831	36,244
Percent of total world GDP	98.8%	46.6%	7.2%	45.0%
Percent of profiled jurisdictions GDP	-	47.1%	7.3%	45.5%

Source: revised based on the IFRS Foundation (2019).

1.4.2 Sources of inter-temporal IFRS adoption

I collect the inter-temporal information related to IFRS adoption around the world from four sources and one questionnaire, summarized in Table 1-2. Table 1-2 shows that the four organizations have different methods of collecting information regarding the adoption of accounting standards in specific jurisdictions. However, only two organizations, which are IFRS Foundation and the World Bank, gathered information from a direct questionnaire. Nonetheless, the World Bank does not provide up-to-date information on all jurisdictions, since the issuance of each jurisdiction profiles provided range from beginning of 2000s to 2015. Therefore, IFRS Foundation's survey contains the higher reliability and more updated information than other mentioned surveys. The questionnaire was conducted by Yan et al. (2018).

Table 1-2 Previous Surveys and Questionnaire on IFRS Adoption

Organization	Source	Method of Collecting Information	Number of Jurisdictions (as of April 2019)
IFRS Foundation	IFRS Application Around the World	A survey responded to by the standard-setting and other relevant bodies in each jurisdiction	166
World Bank[6]	Reports on Observance of Standards and Codes	Information was gathered using questionnaires filled in by the World Bank staff/consultant assisted by the National Steering Committee (NSC) or by the NSC itself (varies from country to country).	98
Deloitte[7]	Use of IFRSs around the world	No information	174
PwC[8]	IFRS adoption by country	Summary of data collected from various sources	146
Waseda Accounting, Business and Economic Research Group (WABERG)	Yan et al. (2018)	A survey responded to by the standard-setting and other relevant bodies in 69 jurisdictions that do not claim the IFRS adoption year.	69

Source: summarized by the author.

I compared the number of jurisdictions surveyed by the mentioned four organizations and added jurisdictions from the list of United Nations Conference on Trade and Development (UNCTAD) member states and United Nations Educational, Scientific and Cultural Organization (UNESCO) full member states that had not been available in the four

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[6] "Reports on Observance of Standards a National Bureau of Statistics of China and Codes" (hereinafter referred to as ROSC Report) published by the World Bank. This ROSC report is a comprehensive review of accounting and auditing regulations in individual countries and discussions on related issues such as accounting education and enforcement. In this report, the application status of 98 developing countries (mainly the clients of the World Bank) is summarized (World Bank, 1999–2016).

[7] The column "Use of IFRSs around the world" in "IFRS in your pocket" (Annual) published by IAS Plus of Deloitte. In this column, the adoption status of IFRS from 2003 to 2012 on 174 jurisdictions is recorded (Deloitte, 2003–2012).

[8] "IFRS adoption by country" published by PricewaterhouseCoopers (PwC). In this document, the adoption status of IFRS in 146 jurisdictions is summarized (PwC, 2014).

surveys. As a result, I obtained 219 jurisdictions as the total number of targeted jurisdictions for our survey.[9] I excluded 71 jurisdictions where the fiscal year of IFRS adoption is unknown or no capital market exists as of 2019, resulting a sample of 148 jurisdictions.

In the case that there is a contradiction in the contents described in the four sources (e.g., the adoption year is different), I give priority to the description of IFRS Foundation due to the high reliability. Also, in the case where information is not provided by IFRS Foundation, information from the World Bank, Deloitte and PwC is comprehensively taken into consideration.

I classify the jurisdictions into three groups (Group 2 has two subclasses) for 148 jurisdictions listed in Appendix, limited to domestic firms. The following group numbers are shown in the category column of Appendix:[10]

1. The jurisdiction where IFRS are required for all or most domestic listed firms.

2. The jurisdiction where IFRS are adopted for some domestic listed firms.

   a. The jurisdiction where IFRS are required for some domestic listed firms.

   b. The jurisdiction where IFRS are permitted for domestic listed firms.

3. The jurisdiction where IFRS are neither required nor permitted for any domestic listed

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[9] The surveys by IFRS Foundation, World Bank, and Deloitte include groups of jurisdictions as one jurisdiction, which are the European Union, the Organisation of Eastern Caribbean States (OECS) Countries, and Netherlands Antilles. In order to avoid redundancy, we excluded those groups of countries/jurisdictions from our list of jurisdictions. In addition, we also include Dubai as a part of United Emirates Arab, instead of as one stand-alone jurisdiction.

[10] Required for all or most: IFRS are required for all domestic publicly accountable entities, with some small exceptions of entities. Required for some: IFRS are required only for certain entities or industries. Permitted: IFRS are permitted, along with other financial reporting standards such as US GAAP or any other countries' GAAP.

firms (including jurisdiction converged with IFRS).

Category 1 includes jurisdictions that adopt pure IFRS and endorsement approaches. Category 3 includes jurisdictions that adopt the convergence approach in addition to jurisdictions not adopting IFRS.

Table 1-3 Number of IFRS Adoption Jurisdictions

Regions	Jurisdiction No.	IFRS are required for all or most domestic listed firms	IFRS are required for some domestic listed firms.	IFRS are permitted for domestic listed firms	IFRS are neither required nor permitted for any domestic listed firms.
Europe	39	38	0	1	0
Africa	38	33	1	0	4
Middle East	9	8	1	0	0
Asia and Oceania	32	24	1	2	5
America	30	23	3	3	1
Totals	148	126	6	6	10
Ratio	100%	85%	4%	4%	7%
Accumulated Ratio	—	85%	89%	93%	100%

Source: created by the author based on the Appendix.

Table 1-3 summarizes the survey results for each jurisdiction of Appendix, which is classified according to the region. Table 1-3 indicates the jurisdictions of required or permitted adoption IFRS are 138, which is a considerably high proportion of 148 jurisdictions (over 93%). This is roughly consistent with the survey of IFRS Foundation (95%). However, the number of jurisdictions that were required to adopt IFRS for all or most of the listed firms is 18 less than the survey of IFRS Foundation. The reason for the differences is that I exclude jurisdictions whose adoption years are unknown but are included in the survey of IFRS Foundation.

1.4.3 Inter-temporal changes of IFRS adoption

Although the pros and cons of IFRS adoption have not been verified, some prior studies pertaining to IFRS adoption analyze the effects of IFRS adoption on the assumption that IFRS is a set of high-quality standards. However, it is unclear whether the jurisdictions that adopt or are interested in IFRS target the high-quality. The inter-temporal changes of numbers for IFRS adoption jurisdictions may provide some clues.
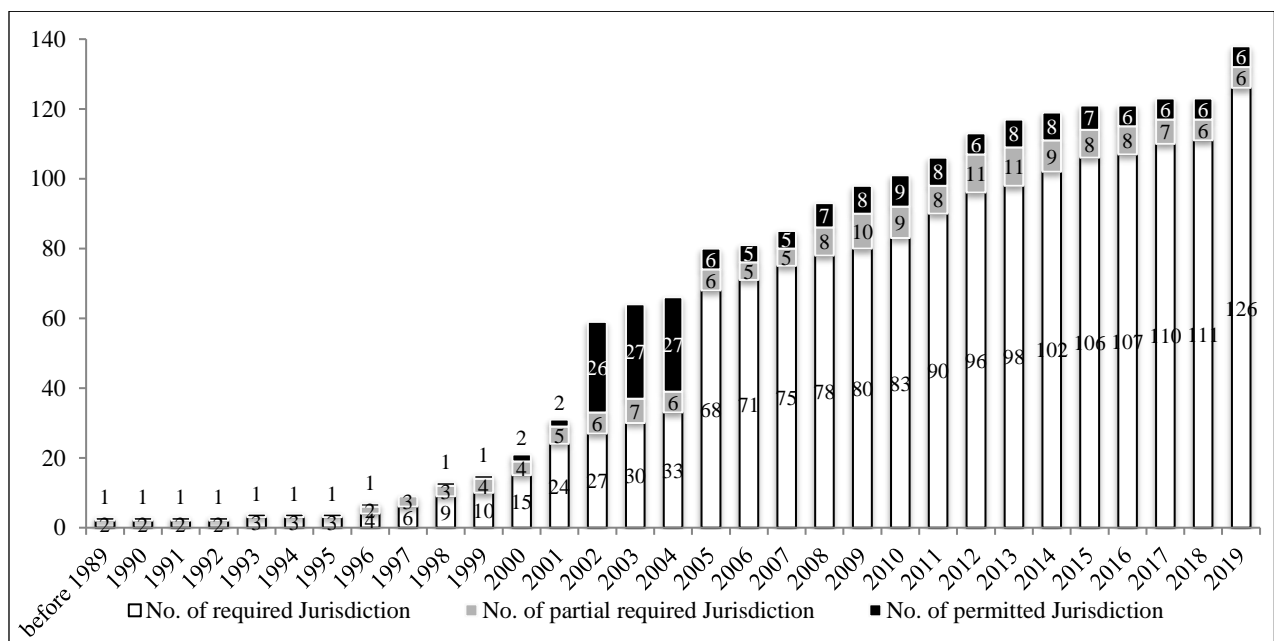
Figure 1-3 Inter-temporal trends of IFRS adoption jurisdiction basing on the groups. Source: created by the author. The bars of "before 1973" contains the jurisdictions from 1973 to 1989.

The inter-temporal transitions of the IFRS adoption jurisdictions' number are shown in Figure 1-3, which dates back to 1973, the year IASC was established. The inter-temporal transitions are divided into three groups based on the above categories. The numbers are the jurisdictions belonging to each category.

Focusing on the overall trend of the bar graph in Figure 1-3, the changes in the number of adoption jurisdictions can be divided into three periods, pre-2000, 2001–2004, and post-

2005. Prior to 1989, there were only three jurisdictions adopting IFRS, Bangladesh, Oman, Trinidad and Tobago, (including jurisdictions that permit IFRS adoption), and as of 2000, 21 jurisdictions finally adopted IFRS. Since 2001 the number of IFRS adoption jurisdiction has increased sharply, especially in 2002, when the number of adoption jurisdictions increased from 31 in 2001 to 59. Furthermore, the number of adopting jurisdictions increased from 66 in 2004 to 80 in 2005.

Excluding the permitted adoption group 2b (black bars), groups 1 and 2a (gray bars and white bars, respectively) indicate the trends of mandatory adoption jurisdictions. Since there are few firms to adopt IFRS in the jurisdictions where IFRS are permitted, the trend of the IFRS adoption may analyzed more precisely by excluding the jurisdiction permitting IFRS adoption (group 2b).

Focusing on the grey and white bar graph, prior to 2000 the required adoption jurisdictions had been increasing slightly. The number of jurisdictions sharply increased in 2001 and 2005, especially in 2005. The increase is 35 (from 39 jurisdictions in 2004 to74 jurisdictions in 2005) and 10 (from 19 jurisdictions in 2000 to 29 jurisdictions in 2001). The adopters' number has been gradually increasing after 2005. Furthermore, 15 jurisdictions adopted IFRS between 2018 and 2019.

In addition, Category 2a includes partial required jurisdictions where IFRS are forced to be adopted only for some firms. For example, Belarus has only adopted IFRS for listed banking and nonbank financial institutions from 2008. The partial mandatory adoption of IFRS does not accurately reflect the status of IFRS adoption in the jurisdiction.

Therefore, it is necessary to exclude such jurisdictions from the sample and focus on Category 1, namely the white bars, which represents the mandatory adoption of IFRS for all or most listed firms. The trends of the mandatory IFRS adoption (Category 1) for the most or all firms are similar to the mandatory adoption jurisdiction (Category 1 and Category 2a).

The possible reason for the inter-temporal trends would imply the reasons of the jurisdiction for IFRS adoption.

1.5 Potential reasons for IFRS adoption

1.5.1 Impact of IOSCO

One reason for the rapid increase of IFRS adoption jurisdictions in 2001 may be due to the acceptance of IFRS by the International Organization of Securities Commissions (IOSCO).

In order to respond to the globalization of financing, the IASC has issued 31 IASs and 47 exposure drafts from its inception in 1973 to the 1990s (Salter et al., 1996; IASC, 1992). While IASs are promulgated to reduce cross-national differences in financial reports, namely to harmonize global accounting practices, a number of options or allowed alternative treatments are contained in earlier IASs (Salter et al., 1996). Therefore, the IASs were criticized as being ineffective due to the many options and were considered as far more likely to be accepted (Evans et al., 1994).

As a result, except for countries that do not have the capacity to develop accounting standards themselves (e.g., Oman, Uganda, Trinidad and Tobago), few countries adopted IASs in the 1990s. It is consistent with the lower rate of IFRS adoption jurisdictions during the pre-2000 period, as shown in Figure 1-2. In order to rectify this situation, IASC issued and revised Exposure Draft No. 32 "Comparability of Financial Statements" (ED32) in 1989 and 1990, respectively, to reduce the range of accounting policy choices (IASC, 1990).

An important turning point is the acceptance by IOSCO. In order to eliminate barriers to cross-border trading of securities for responding to the integration of international financial markets, IOSCO presented to IASC a comprehensive list of accounting standards covering

30 standards and 17 related interpretations, called as core standards in 1993 (IOSCO, 2000). After reviewing the core standards, IOSCO recommended the use of IAS for cross-border securities offerings in 2000 (IOSCO, 2000). The recommendation of IOSCO could attract the attention of countries that place importance on cross-border financing, shown as an increasing trend of the number of IFRS adoption jurisdictions from 2000 in Figure 1-2. Therefore, the reason for the increase of IFRS adoption jurisdictions from 2000 is probably due to acceptance by IOSCO.

1.5.2 Impact of European firms

In 2002, the European Parliament and the Council of the EU promulgated a regulation requiring listed companies, including banks and insurance companies, to prepare their consolidated accounts in accordance with IFRS from 2005 onwards (EU, 2002).

In 2005, 7,000 firms in 25 European counties shifted from national accounting standards to IFRS (IFRS Foundation, 2018a). The accounting standards unification is closely related to the unification of the capital market established in EU (Büthe and Mattli, 2011). The mandatory adoption of IFRS in EU could have encouraged a worldwide adoption of IFRS, especially for countries with economic ties to EU (e.g., countries with high cross-border trade) (Ramanna and Sletten, 2014). The numbers of adoption jurisdictions have increased rapidly since 2002, and 2005 could be thought to be caused by the accounting standards' unification in EU.

1.5.3 Impact of other international organizations

World Trade Organization (WTO) member countries that became interested in accounting issues due to the effect on "trade in services" decided to accept IFRS at the Singapore Ministerial Conference in 1996 (Büthe and Mattli, 2011). In a statement the WTO

announced that these member states will move to the completion of IAS by the International Federation of Accountants (IFAC), IASC and IOSCO (WTO, 1996). This indicates that WTO has admitted the authority of the IASC on the development of IAS.

According to G-7 (1997), the G-7 Ministers of Finance have supported the IASC activities and also the activities of the World Bank; meanwhile, the International Monetary Fund and the Basel Committee on Banking Supervision, together stated to support IASC for developing IAS. It is noteworthy that the World Bank seeks to use IAS as a condition for doing loan agreements (Büthe and Mattli, 2011). Thus, the rapid increase of IFRS adoption jurisdictions since the early 2000s is closely related to the support by authorities such as the EU, the IOSCO and the World Bank.

In 2018, the Organisation for the Harmonization of Business Law in Africa (OHADA) regulated that all listed companies and companies seeking financing in any West and Central African Regional capital market must adopt the IFRS in their financial reporting after January 1, 2019 (IFRS Foundation, 2018b, 2019).[11] Because the OHADA has legitimate authority to enforce the IFRS adoption among all 17 African countries, the transition to IFRS

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[11] In October 1993, to enhance regional economic development and create transparent investment context, 17 West and Central African countries established the Organisation for the Harmonization of Business Law in Africa. The 17 countries are Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Comoros, Côte d'Ivoire, Democratic Republic of Congo, Equatorial Guinea, Gabon, Guinea, Guinea-Bissau, Mali, Niger, Republic of the Congo, Senegal, and Togo. On January 26, 2017, the Council of Ministers of OHADA adopted the OHADA Uniform Act on Accounting Law and Financial Reporting. That Act adopted an OHADA accounting system called SYSCOHADA, which is an elaboration of the French Plan Comptable. The small and medium-sized entities (SMEs) in OHADA countries, excluding banking companies, financial market players, insurance companies and social security institutions, apply the SYSCOHADA accounting system.

by the OHADA members' companies significantly contributed to the rapid increase of IFRS adoption jurisdiction in 2019.

According to the IFRS Foundation's (2019) questionnaire answered by the members of the Organisation for the Harmonisation of Business Law in Africa (OHADA), IFRS are required starting January 1, 2019, for listed companies and companies seeking financing in a public capital market. "OHADA was established with the objective of fostering economic development in West and Central Africa by creating a better investment climate so as to attract investment and enhance growth" (IFRS Foundation, 2018b, pp. 1-2). OHADA has authority to adopt accounting standards and the members must abide by those standards. Therefore, the rapid increase of IFRS adoption jurisdictions in 2019 is due to the transition to IFRS by OHADA's members.

1.5.4 Economic impact on IFRS adoption

Some jurisdictions voluntarily adopt IFRS, not because of the request by the authoritative organizations. The economic ties may explain the reason for the jurisdictions' IFRS adoption. Aiming to further delve into the potential reason for the increasing IFRS adoption jurisdictions, I divide the jurisdictions shown in Figure 1-3 into two groups, developed and developing countries. The different trends of the two groups may provide some clues concerning IFRS adoption's trend.

There is no worldwide unified standard regarding the definitions of developed countries and developing countries. This thesis refers to the jurisdiction list based on 36 countries belonging to the Organisation for Economic Co-operation and Development (OECD) and the "Development Co-operation Report" issued by the Development Assistance Committee (DAC Report) of OECD from 1970 to 2013. The jurisdictions included in the DAC Report are considered as developing countries because they receive the financial assistance provide

by the Official Development Assistance (ODA). Table 1-4 lists the 40 developed countries that are the OECD member countries and the jurisdictions not listed in the DAC Report.

Table 1-4 List of Developed Jurisdictions

No	Jurisdiction	Accepted year	No	Jurisdiction	Accepted year	No	Jurisdiction	Accepted year
1	Australia	1971	15	Hungary	1996	29	Poland	1996
2	Austria	1961	16	Iceland	1961	30	Portugal	1961
3	Belgium	1961	17	Ireland	1961	31	Slovak Republic	2000
4	Canada	1961	18	Israel	2010	32	Slovenia	2010
5	Chile	2010	19	Italy	1962	33	Singapore	1997
6	Cyprus	2001	20	Japan	1964	34	Spain	1961
7	Czech Republic	1995	21	Korea	1996	35	Sweden	1961
8	Denmark	1961	22	Latvia	2016	36	Switzerland	1961
9	Estonia	2010	23	Lithuania	2015	37	Taiwan	1997
10	Finland	1969	24	Luxembourg	1961	38	Turkey	1961
11	France	1961	25	Mexico	1994	39	United Kingdom	1961
12	Germany	1961	26	Netherlands	1961	40	United States	1961
13	Greece	1961	27	New Zealand	1973			
14	Hong Kong	1997	28	Norway	1961			

Source: created by the author based on OECD (2019) and DAC Report (1970−2013).

In Figure 1-4, the bar charts depict the numbers of jurisdictions where IFRS are mandatorily adopted for all or most listed companies (Category 1). The white part and the black part represent IFRS adoption number of developing and developed countries, respectively. It can be confirmed that all IFRS adoption jurisdictions for all or most listed firms before 2004 are developing countries. By 2019, IFRS adoption jurisdictions of developing countries extends to 73% of the total jurisdictions (92/126). It also shows a rapid increase in 2005, contributed by the developed countries. As mentioned earlier, they are mandatory adopters located in EU. Furthermore, the number of the developed countries varies little after 2005 relative to developing countries. Thus, the different trends of the developed and developing countries in Figure 1-4 indicate that the developing countries primarily contribute to the increase of IFRS adoption.
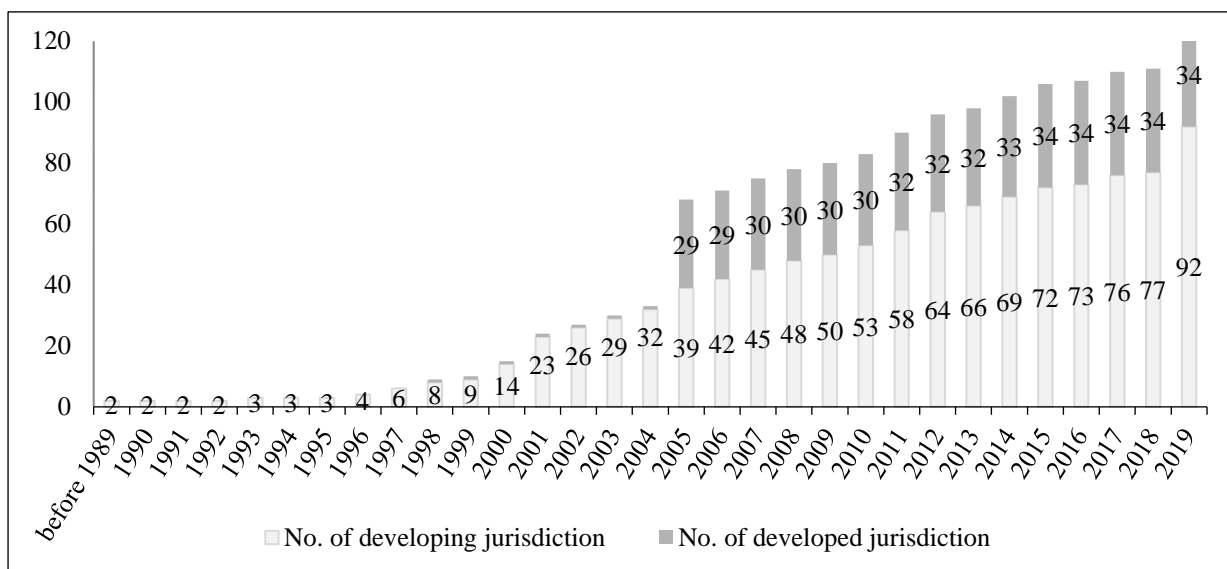
Figure 1-4 Number of developing jurisdiction where IFRS are required adoption for all or most firms. Created based on Table 1-4 and Figure 1-3.

One of the reasons for developing countries to adopt IFRS could be that there is not enough ability to develop accounting standards by themselves, such as the jurisdictions appeared in 1990s. Adopting IFRS directly will require less cost than developing standards by themselves. However, the trend of the developing counties does not vary drastically before 2000. Therefore, in addition to the reduction of the standard development costs, there may be other possible reasons behind the drastic increase in IFRS adoption jurisdiction for developing countries after 2000.

One of the possible reasons is the network effects. Ramanna and Sletten (2014) find that a non-IFRS adoption jurisdiction expects to benefit from lower trading costs by entering the network of IFRS adoption jurisdictions. Based on the evidence from Ramamma and Sletten (2014), I could assume the network effects of IFRS adoption jurisdictions may be automatically formed as the number of IFRS adoption jurisdictions increased due to the regulation after 2000 by EU, IOSCO, World Bank, and others. Therefore, the network effects may be related to the increase of IFRS adoption for developing countries.

However, it cannot be denied that the possibility of the "high-quality" of IFRS attracts

worldwide attention. To explore whether IFRS are high-quality accounting standards or

whether IFRS contribute to enhancing the quality of accounting information is the objective

of the thesis.

Appendix IFRS adoption status around world

No	Jurisdiction	Region	Adopted IFRS	Category	Adoption Year
1	Algeria	Africa	convergence	3	
2	Anguilla	America	pure IFRS	2a	2001
				1	2006
3	Antigua and Barbuda	America	pure IFRS	1	2001
4	Argentina	America	endorsement	2b	2010
				2a	2012
5	Armenia	Asia and Oceania	endorsement	2a	2009
				1	2011
6	Australia	Asia and Oceania	endorsement	1	2005
7	Austria	Europe	endorsement	2b	2002
				1	2005
8	Azerbaijan	Asia and Oceania	pure IFRS	1	2008
9	Bahamas	America	pure IFRS	1	1993
10	Bahrain	Middle East	pure IFRS	1	2001
11	Bangladesh	Asia and Oceania	endorsement	2b	1987
				1	1997
12	Belarus	Europe	pure IFRS	2a	2008
				1	2016
13	Belgium	Europe	endorsement	2b	2002
				1	2005
14	Benin	Africa	pure IFRS	1	2019
15	Bhutan	Asia and Oceania	pure IFRS	2b	2000
16	Bolivia	America	pure IFRS	1	2015
17	Bosnia and Herzegovina	Europe	pure IFRS	1	2006
18	Botswana	Africa	pure IFRS	1	2003
19	Brazil	America	endorsement	2b	2007
				1	2010
20	Bulgaria	Europe	endorsement	2a	1997
				1	2003
21	Burkina Faso	Africa	pure IFRS	1	2012
22	Cambodia	Asia and Oceania	pure IFRS	1	2012
23	Cameroon	Africa		1	2011
24	Canada	America	endorsement	2b	2005
				2a	2011
				1	2014
25	Central African Republic	Africa	pure IFRS	1	2019
26	Chad	Africa	pure IFRS	1	2019
27	Chile	America	endorsement	2a	2009
				1	2011
28	China	Asia and Oceania	convergence	3	
29	Colombia	America	endorsement	2b	2013
				1	2015
30	Comoros	Africa	pure IFRS	1	2019

No	Jurisdiction	Region	Adopted IFRS	Category	Adoption Year
31	Congo (Republic of)	Africa	pure IFRS	1	2019
32	Costa Rica	America	endorsement	1	2002
33	Côte d'Ivoire	Africa	pure IFRS	1	2019
34	Croatia	Europe	endorsement	1	2005
35	Cyprus	Europe	endorsement	1	2005
36	Czech Republic	Europe	endorsement	2b	2002
				1	2005
37	Democratic Republic of the Congo	Africa	pure IFRS	1	2019
38	Denmark	Europe	endorsement	2b	2002
				1	2005
39	Dominica	America	pure IFRS	1	2001
40	Dominican Republic	America	pure IFRS	1	2013
41	Ecuador	America	pure IFRS	2a	2010
				1	2012
42	Egypt	Africa	convergence	3	
43	El Salvador	America	pure IFRS	1	2011
44	Equatorial Guinea	Africa	pure IFRS	1	2019
45	Estonia	Europe	endorsement	1	1998
46	Eswatini	Africa	pure IFRS	1	2009
47	Fiji	Asia and Oceania	pure IFRS	1	2007
48	Finland	Europe	endorsement	2b	2002
				1	2005
49	France	Europe	endorsement	2b	2002
				1	2005
50	Gabon	Africa	pure IFRS	1	2019
51	Georgia	Asia and Oceania	pure IFRS	1	2000
52	Germany	Europe	endorsement	2b	1998
				1	2005
53	Ghana	Africa	pure IFRS	1	2007
54	Greece	Europe	endorsement	2b	2002
				1	2005
55	Grenada	America	pure IFRS	1	2001
56	Guatemala	America	pure IFRS	2b	2008
57	Guinea	Africa	pure IFRS	1	2019
58	Guinea-Bissau	Africa	pure IFRS	1	2019
59	Guyana	America	pure IFRS	1	2000
60	Hong Kong	Asia and Oceania	endorsement	1	2005
61	Hungary	Europe	endorsement	2b	2002
				1	2005
62	Iceland	Europe	endorsement	2b	2002
				1	2005
63	India	Asia and Oceania	convergence	3	
64	Indonesia	Asia and Oceania	convergence	3	
65	Iran	Asia and Oceania	pure IFRS	2b	2013
				2a	2016
				1	2017

No	Jurisdiction	Region	Adopted IFRS	Category	Adoption Year
66	Iraq	Middle East	pure IFRS	1	2004
67	Ireland	Europe	endorsement	2b	2002
				1	2005
68	Israel	Middle East	pure IFRS	2a	2008
69	Italy	Europe	endorsement	2b	2002
				1	2005
70	Jamaica	America	pure IFRS	1	2000
71	Japan	Asia and Oceania	pure IFRS	2b	2010
72	Jordan	Middle East	endorsement	1	1997
73	Kazakhstan	Asia and Oceania	pure IFRS	2a	2003
				1	2005
74	Kenya	Africa	pure IFRS	1	1999
75	Kyrgyzstan	Asia and Oceania	pure IFRS	2b	2002
				2a	2006
				1	2009
76	Latvia	Europe	endorsement	2b	2002
				1	2005
77	Lithuania	Europe	endorsement	2b	2002
				1	2005
78	Luxembourg	Europe	endorsement	2b	2002
				1	2005
79	Macedonia	Europe	endorsement	1	1998
80	Malawi	Africa	pure IFRS	1	2001
81	Malaysia	Asia and Oceania	endorsement	2a	2012
				1	2018
82	Maldives	Asia and Oceania	pure IFRS	2a	1996
				1	2010
83	Mali	Africa	pure IFRS	1	2019
84	Malta	Europe	endorsement	2b	2002
				1	2005
85	Mauritius	Africa	pure IFRS	1	2001
86	Mexico	America	pure IFRS	2b	2008
				2a	2012
87	Moldova (Republic of)	Europe	endorsement	1	2011
88	Mongolia	Asia and Oceania	pure IFRS	1	2000
89	Montenegro	Europe	pure IFRS	1	2002
90	Montserrat	America	pure IFRS	1	2001
91	Morocco	Africa	pure IFRS	2a	2008
92	Mozambique	Africa	pure IFRS	2a	2007
				1	2010
93	Namibia	Africa	pure IFRS	1	2005
94	Nepal	Asia and Oceania	endorsement	1	2014
95	Netherlands	Europe	endorsement	1	2005
96	New Zealand	Asia and Oceania	endorsement	2b	2005
				1	2007
97	Nicaragua	America	pure IFRS	2b	2011

No	Jurisdiction	Region	Adopted IFRS	Category	Adoption Year
98	Niger	Africa	pure IFRS	1	2019
99	Nigeria	Africa	pure IFRS	2a	2012
				1	2013
100	Norway	Europe	endorsement	2b	2002
				1	2005
101	Oman	Middle East	pure IFRS	1	1986
102	Pakistan	Asia and Oceania	endorsement	1	2015
103	Palestine	Middle East	pure IFRS	2a	2002
				1	2007
104	Panama	America	pure IFRS	1	2000
105	Papua New Guinea	Asia and Oceania	pure IFRS	1	2017
106	Paraguay	America	no adoption	2b	2005
107	Peru	America	endorsement	2a	2012
108	Philippines	Asia and Oceania	endorsement	2a	2005
				1	2011
109	Poland	Europe	endorsement	2b	2002
				1	2005
110	Portugal	Europe	endorsement	2b	2002
				1	2005
111	Qatar	Asia and Oceania	pure IFRS	1	2002
112	Romania	Europe	endorsement	1	2005
113	Russia (Russian Federation)	Europe	endorsement	1	2012
114	Rwanda	Africa	pure IFRS	1	2008
115	Saint Kitts & Nevis	America	pure IFRS	1	2001
116	Saint Vincent and the Grenadines	America	pure IFRS	1	2001
117	Saudi Arabia	Middle East	pure IFRS	1	2017
118	Senegal	Africa	pure IFRS	1	2019
119	Serbia	Europe	pure IFRS	2a	2003
				1	2004
120	Seychelles	Africa		3	
121	Sierra Leone	Africa	pure IFRS	1	2014
122	Slovakia	Europe	endorsement	2b	2002
				1	2005
123	Slovenia	Europe	endorsement	2b	2002
				1	2005
124	South Africa	Africa	pure IFRS	1	2003
125	South Korea	Asia and Oceania	endorsement	2b	2009
				1	2011
126	Spain	Europe	endorsement	2b	2002
				1	2005
127	Sri Lanka	Asia and Oceania	endorsement	1	2012
128	Sweden	Europe	endorsement	2b	2002
				1	2005
129	Switzerland	Europe	endorsement	2b	2005
130	Syria	Middle East	pure IFRS	1	2005

No	Jurisdiction	Region	Adopted IFRS	Category	Adoption Year
131	Taiwan	Asia and Oceania	endorsement	2a	2013
				1	2015
132	Tanzania (United Republic of)	Africa	pure IFRS	1	2004
133	Thailand	Asia and Oceania	convergence	3	
134	Togo	Africa	pure IFRS	1	2019
135	Trinidad and Tobago	America	pure IFRS	1	1973
136	Turkey	Asia and Oceania	pure IFRS	2b	2003
				1	2005
137	Tunisia	Africa		3	
138	Uganda	Africa	pure IFRS	1	1998
139	Ukraine	Europe	endorsement	2a	2011
				1	2012
140	United Arab Emirates	Middle East	pure IFRS	2a	1999
				1	2006
141	United Kingdom	Europe	endorsement	2b	2002
				1	2005
142	United States	America	convergence	3	
143	Uruguay	America	endorsement	2a	2009
				1	2014
144	Uzbekistan	Asia and Oceania	endorsement	2a	1996
145	Venezuela	America	endorsement	1	2008
146	Vietnam	Asia and Oceania		3	
147	Zambia	Africa	pure IFRS	1	2005
148	Zimbabwe	Africa	pure IFRS	1	1996

Source: created by the author based on the sources of Table 1-2.

2 Literature Review on IFRS adoption: Factors and Effects

2.1 Introduction

As described in Chapter 1, it is hard to conclude that the incentive for IFRS adoption around the world is the "high-quality" of IFRS. Whether IFRS are a set of high-quality accounting standards and what factors influence countries or firms to adopt IFRS generate enormous interest among academics and practitioners. Empirical studies on the IFRS adoption can be categorized mainly into two categories. One category is the study on the incentives of the IFRS adoption, namely the factors study. The other category is the study on the effects of the IFRS adoption, namely the effects study. In addition, the studies on the factors could be subdivided into factors pertaining to country-level and firm-level. The effects studies include the impact of IFRS adoption on the accounting quality, the impact on economic consequences (cost of capital, market liquidity, market response, information asymmetry, corporate valuation, and analysts' predictions) and others.[12] A set of high-quality accounting standards are expected to increase the transparency of accounting information, which results in the reduction of information asymmetry and cost of capital as well as the increase of market liquidity and firm value. Therefore, the impact on economic

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[12] Studies on other effects include the impact of IFRS on international trade and finance, international investment (Márquez-Ramos, 2008; Beneish et al., 2012). Because the prior studies are attributed to macroeconomics, I omit the details in the paper.

consequences is indirectly affected by accounting standards through the impact on accounting quality. The structure of empirical studies related to the IFRS adoption is depicted in Figure 2-1.
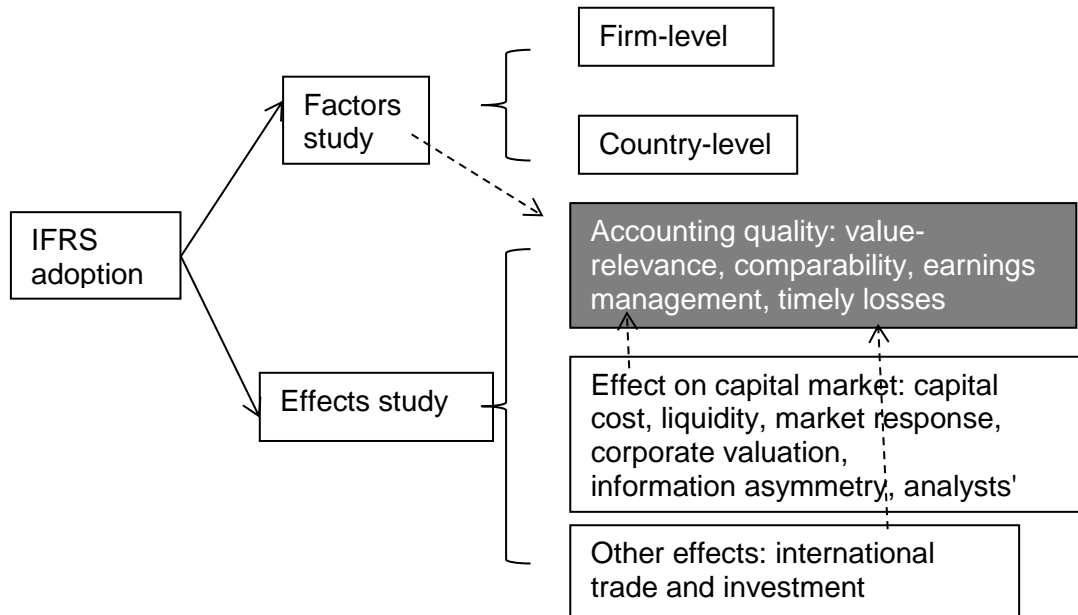
Figure 2-1 (a)   Empirical studies structure pertaining to IFRS adoption (empirical association).Created by the author.
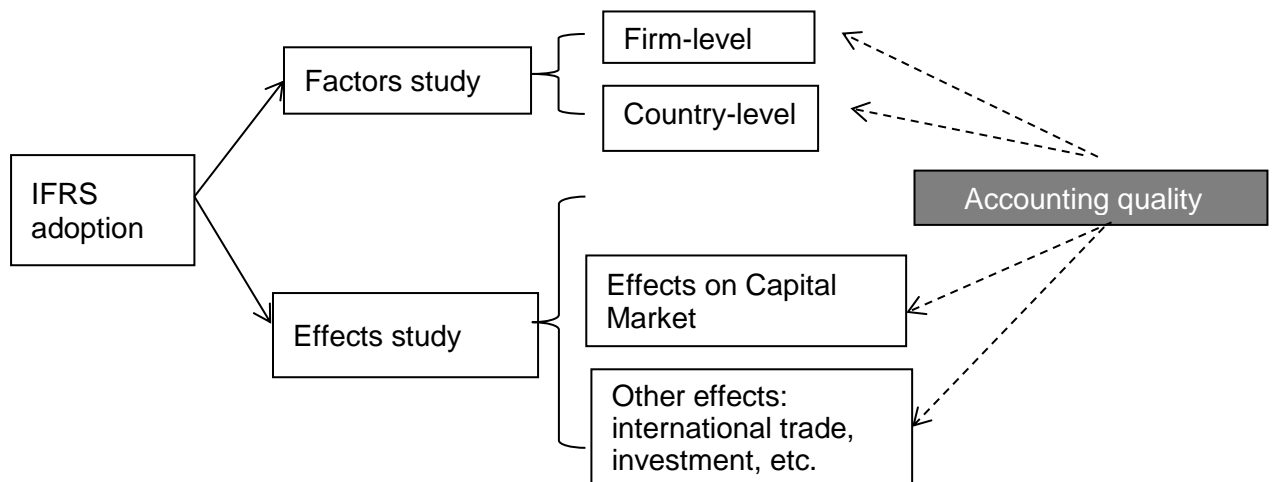
Figure 2-1(b)   Empirical studies structure pertaining to IFRS adoption (causal relationship). Created by the author.

Chapter 2 aims to review the empirical studies on IFRS adoption and ascertain the

research orientation. In Section 2.2, I review prior research relating to IFRS adoption factors. In Section 2.3, I review prior research pertaining to IFRS adoption consequences. In Section 2.4, based on the preceding review, I raise the research objectives that should be ascertained in the later chapters.

2.2 Studies on the factors of IFRS adoption

In this section, I focus on prior studies on the factors of IFRS adoption and classify them into two categories, firm level and country level.

2.2.1 Studies on the factors of IFRS adoption at firm level

Prior studies have examined the factors of firms' IFRS adoption and find various factors such as size, internationality, corporate governance, profitability, capital intensity, growth opportunities, capital financing, auditor type, differences between accounting standards, and membership (André et al., 2012; Bassemir, 2012; Christensen et al., 2015; Dumontier and Raffournier, 1998; El-Gazzar et al., 1999; Francis et al., 2008; Gassen and Sellhorn, 2006; Günther et al., 2009; Sato and Takeda, 2017; Wu and Zhang, 2009; Inoue and Ishikawa, 2014; Kameoka et al., 2018). Table 2-1 summaries the detailed information of the factors of the prior studies.

Studies on the factors of firms' IFRS adoption focus on voluntary adoption early using the samples of firms located in Switzerland and Germany. This is probably because IFRS are permitted relatively early in both countries, in 1992 in Switzerland (Achleitner, A-K., 1995) and in 1993 in Germany (Gassen and Sellhorn, 2006).

Using a sample of 133 Swiss firms for the year 1994, Dumontier and Raffournier (1998)

show that the size, internationality, listing status, capital intensive investment and ownership diffusion are significantly correlated with IFRS voluntary adoption for Swiss firms. This indicates that in Switzerland, listed firms that are larger, more internationally diversified, less capital intensive and more diffuse in ownership are likely to voluntarily comply with IFRS.

Gassen and Sellhorn (2006) examine characteristics of firms using IFRS on a sample of German listed firms in the period from 1998 to 2004. They find that size, international exposure, dispersion of ownership, and recent IPOs are important drivers. That is adopting IFRS is especially attractive for larger, more fund procurement activities abroad, more diffuse ownership and younger firms.

Günther et al. (2009) focus on ownership structures on voluntary IFRS adopter with a sample of German listed firms in the period from 1998 to 2008. The results show that they found that the ownership concentration, the foreign ownership, and the bank ownership are significantly negatively correlated with IFRS adoption. The possible interpretation for the ownership concentration and bank ownership is that controlling shareholders and bank shareholders hold relatively large shares in German firms and might therefore deem private communication channels as being more efficient. The possible interpretation for foreign ownership is that foreign investors could make a discount to the use of IFRS if these are weakly implemented and enforced. Therefore, the German firms with more controlling shareholders, bank shareholders and more foreign shareholders are reluctant to adopting IFRS.

Christensen et al. (2015) used German listed firms in the period of 1998 to 2005 in order to examine the interaction between accounting standards and factors. They confirm that on average, the voluntary adopters have higher growth, issue more equity and debt securities,

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have greater sales, are larger and listed on more exchanges, are more likely to be audited by a large auditor, and have less closely held shares.

In addition, some studies examine the factors of IFRS adoption using Japanese listed firms (Inoue and Ishikawa, 2014; Sato and Takeda, 2017; Kameoka et al., 2019). Japanese listed firms can choose among four sets of accounting standards for preparing their consolidated financial statements: (1) Japanese Accounting Standards (J-GAAP), (2) U.S. Accounting Standards (US-GAAP), (3) IFRS, or (4) Japan's Modified International Standards (JMIS). If the quality of J-GAAP, US-GAAP and IFRS are equivalent as stated by the European Commission (EC), the research on factors of adopting IFRS for Japanese listed firms can provide more meaningful implication than the research on firms shifted from lower quality accounting standards to IFRS.[13]

Inoue and Ishikawa (2014) initially investigated the factors and consequences of IFRS voluntary adoption by conducting a pilot test using 25 Japanese firms. The results of the factors research indicate the foreign shareholders ratio and research and development (R&D) expense affect the IFRS adoption for Japanese firms.

Sato and Takeda (2017) used a sample of Japanese listed firms from 2010 to 2016, mainly concentrating on corporate governance factors. They captured corporate governance factors such as (1) high foreign shareholders ratio, (2) high auditor's quality, (3) low leverage, (4) featuring a nomination committee, and (5) inclusion in JPX-NIKKEI 400, the new market index, as "American-type governance structure," namely, focusing on shareholders. While the Japanese governance structure is characterized as mainly focusing on creditors, Sato and

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[13] In 2008, the EC announced the conclusion of its equivalence of third-country GAAPs, in which J-GAAP and US-GAAP are found to be equivalent to IFRS (EC, 2008).

Takeda (2017) conclude that Japanese firms with American-type governance structure are more likely to adopt IFRS.

Kameoka et al. (2019) investigate the network effects of IFRS adoption for Japanese firms besides the effects of corporate governance and differences between accounting standards. They choose three samples in 2007–2017. They used firms adopted IFRS, firms announced to adopt IFRS and firms consulted about IFRS to examine the factor of IFRS adoption. By using the sample of firms consulted about IFRS, which is different from IFRS earlier adopters or potential adopters, they get new insight into firms' incentives to adopt IFRS. While corporate governance becomes a weak factor for potential adopters, network effects remain a significant factor for both earlier and potential adopters. This research suggests that network effects give firms stronger incentive to adopt IFRS.

The above-mentioned studies use the samples of firms located in a single country. There are also studies that use the sample of the firms located in multiple countries (El-Gazzar et al., 1999). El-Gazzar et al. (1999) analyze the factors of voluntarily adoption of IFRS using listed firms in 34 countries from 1995 to 1997. The results indicate that the possibility of IFRS adoption is higher for the firms that are located in the countries of EU, have more foreign sales, and have higher profitability. It is necessary to control the different characteristics of each country such as GDP, corporate governance type, whether as a member EU, to clarify the universal factors for accounting standards selection in the multiple-countries sample.

2.2.2 Studies on the adoption factors of IFRS by countries

Although there are quite a few prior studies on the firm-level factors of IFRS adoption, there are few studies on the country-level factors of IFRS adoption (Hope et al., 2006;

Ramanna and Sletten, 2014).

Hope et al. (2006) examine the country-level motivation for IFRS adoption using a sample of 38 countries as of 2004 (including 2005 in the robustness check), when the number of countries voluntarily adopting IFRS had increased. Hope et al. (2006) focus on the extent of investor protection and the degree of accessibility to capital markets as the country-specific factors affecting IFRS adoption. As a result, the possibility of IFRS adoption is higher for the countries that have a weak investor protection system and the openness of the capital market than countries that do not. The interpretation is that the IFRS adoptions are expected to enhance the environment for investor protection, rather than the cost of establishing and revising the local laws for the counties with weak investor protection system. For the countries with an open capital market, the IFRS adoption is expected to be more attractive to foreign investors, which is implied as the motivation of IFRS adoption for the country.

Ramanna and Sletten (2014) focus on the rapid transition to IFRS worldwide during the period from 2003 to 2008 and assume the correlation with the network benefits (network effect). The network effect means the countries that have not yet applied IFRS will participate in the network of the countries that have already adopted IFRS, and aim to benefit from the lower transaction costs. Ramanna and Sletten (2014) proxy the trade amount among countries as the network effect and test the hypothesis. As a result, they find evidence that the network effects are a significant factor in the time-series growth in IFRS adoption across countries, especially to countries with economic ties with the EU.

2.3 Studies on the effects of IFRS adoption

The studies on the effects of IFRS adoption are mainly concerned with the quality of

accounting information, economic consequences (market reaction, cost of capital, market liquidity and analysts' forecast) and others. The economic consequences are indirectly affected by IFRS adoption through the effects on the accounting quality. Therefore, the studies pertaining to the effects on accounting quality can be considered as the basis of the studies on effects. In order to eliminate the self-selection bias inherent in voluntary adoption, section 2.3 concentrates on the studies pertaining to the effects of mandatory IFRS adoption, which are summarized in Table 2-2. First, we outline the effects of IFRS adoption on the accounting quality.

2.3.1 The effects on the accounting quality

Accounting information is conveyed to various users such as investors, managers, creditors, and governments through financial reports. For the accounting quality, there are many prior studies related to the quality of earnings, which is considered as the core item of financial information. The attributes of earnings quality are diverse. For example, Francis et al. (2004) make use of accrual quality, persistence, predictability, smoothness, value relevance, timeliness, and conservatism as attributes of earnings quality. Barth et al. (2008) examine accounting quality based on three attributes: earnings management, timely loss recognition, and value relevance. Furthermore, there are studies that investigate comparability, reliability, and transparency.(Horton and Serafeim, 2010; Neel, 2017; Prather-Kinsey et al., 2008).

Prather-Kinsey et al. (2008), and Paananen and Lin (2009) focus on the differences not only between the periods of pre-IFRS adoption and post-IFRS adoption but also between periods of voluntary and mandatory adoption. The effect on accounting quality of IFRS adoption for different periods is expected to be different due to the continual revision of

IFRS. Paananen and Lin (2009) divide the sample into three parts: IAS adoption period (2000–2002), IFRS voluntary adoption period (2003–2004) and IFRS mandatory adoption period (2005–2006) using the German firms. The results suggest that the accounting quality measured by earnings smoothing, timely loss recognition, and value relevance decreases after the mandatory adoption of IFRS.

Wu et al. (2017) examine the effect of Taiwanese domestic GAAP converged with IFRS on the value relevance using a sample from 1990–2011. Taiwan GAAP follow US GAAP due to the standard development during 1984–1999 and are converged with IFRS from 2000 to 2012. Value relevance is measured by Gu's (2007) abnormal price error. The results depict a decrease of value relevance, which indicates the convergence with IFRS cannot improve the value relevance for the firms already reported based on a set of high-quality accounting standards.

Capkun et al. (2008) examine the earnings management of European listed firms shifted to IFRS in 2005. If firms with a lower return on assets (ROA) manage earnings for a higher increase in ROA in the IFRS transition period, it is considered as earnings management. Capkun et al. find that the earnings and ROA of 2005 are increasing compared to those of 2004, indicating that the degree of earnings management increased during the IFRS adoption period. For the value relevance, the IFRS-based earnings are value-relevant (even with mentioned earning management). Only the local GAAP based book value of equity is value relevant. However, the mandatory adoption period of IFRS (merely in 2005) is too short to conclude whether the earnings management is due to the manager, namely agency, problem, or a mistake of the financial statements for the initial transition to IFRS in 2005.

Neel (2017) investigates the IFRS adoption effects on comparability that affects the economic outcomes such as firm valuation, stock liquidity and analyst properties. From a

sample of 1,861 firms from 23 countries in 2001−2008, the results indicate that firms with a large increase in comparability exhibit better economic outcomes to mandatory IFRS adoption, relative to all other firms. While Neel (2017) first linked the accounting quality and economic outcomes, the problem of the measurement of comparability would make the conclusion questionable.

There are also studies on the effects of individual standards on the quality of accounting information. Chalmers et al. (2008) examine the value relevance of accounting information for intangible assets disclosed under Australian GAAP (AGAAP) and IFRS of Australia version (AIFRS).[14] Using 599 firms listed in Australia as a sample, the results show that for goodwill, the accounting information based on AIFRS has more value relevance than that based on AGAAP. AIFRS require no-amortization and impairment, while AGAAP require regular amortization. With respect to the information of intangible assets other than goodwill, the value relevance is not investigated according to AIFRS. AIFRS require regular amortization, while AGAAP require the conditional amortization for the intangible assets.[15] The results imply that the accounting information of impairment has more value relevance than that of amortization for goodwill.

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[14] AGGAP refer to the accounting standards adopted in Australia prior to the adoption of IFRS in 2005. AIFRS refer to Australian accounting standards equivalent to IFRS and have been adopted since 2005.

[15] Conditional amortization is so referred to because the amortization is not permitted until the book value exceeds the fair value of the intangible assets. On the other hand, AIFRS require the research expenses to be recognized as expense, while the development expenses are capitalized under certain conditions. Furthermore, AIFRS require the amortization for the intangible assets whose usage period is restricted.

2.3.2 The effects on capital market

The adoption of IFRS is expected to increase the transparency of accounting information under the assumption that IFRS are a set of high-quality accounting standards. The transparency of accounting information will reduce the information asymmetry and cost of capital as well as increase the market liquidity and firm value. Therefore, the capital market will respond positively to the adoption of IFRS.

Prather-Kinsey et al. (2008) examine the value relevance of the book value of the equity and earnings, information content, cost of equity and the legal system's effect using European firms adopting IFRS in 2005. As a result, the financial reports of the firms are more value-relevant and informative and thus result in a lower cost of capital after adoption of IFRS. Furthermore, firms from civil law countries experienced more significant market consequences from implementing IFRS than firms from common law countries.

Armstrong et al. (2010) investigate the European equity market reactions to 16 events from 2002 to 2005 associated with the adoption of IFRS.[16] The findings suggest that

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[16] The 16 events are as follows. The assessed effect on likelihood of IFRS adoption is in parentheses. Increase is referred to as the positive predicted market reaction and decrease otherwise.

(1) European Parliament passes resolution requiring all EU-listed companies to use IFRS by 2005 on March 12, 2002. (Increase)

(2) European Financial Reporting Advisory Group (EFRAG) issues draft recommendation to endorse all extant IFRS on May 14, 2002. (Increase)

(3) EFRAG issues final recommendation to endorse all extant IFRS on June 19, 2002. (Increase)

(4) French President Jacques Chirac sends letter to the President of the EC, Romano Prodi, expressing concerns about IAS 39 and its potential negative effect on Europe on July 4, 2003. (Decrease)

investors expected net benefits to IFRS adoption in Europe associated with increases in information quality, decreases in information asymmetry, more rigorous enforcement of the standards, and convergence.

Horton et al. (2013) focus on the effect of mandatory IFRS adoption on firms' information environment and examine what attributes of IFRS cause the impact. Using 8,124 firms from 46 countries, they find that IFRS improve the information environment measured by forecast accuracy through providing higher-quality information and comparability effects.

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(5) Frits Bolkestein, who is a commissioner of the EC, is responsible for internal markets, taxation, and customs union, sends letter to Sir David Tweedie supporting goal of adoption on July 9, 2003. (Increase)

(6) European and Financial Affairs Council (ECOFIN) and Accounting Regulatory Committee (ARC) support adoption of IFRS on July 16, 2003. (Increase)

(7) The EC endorses all extant IFRS, except IAS 32 and IAS 39 on September 29, 2003. (Increase)

(8) Bolkestein pledges to postpone endorsement of IAS 32 and IAS 39 until issues are resolved; sets up consultative group to facilitate resolution on February 3, 2004. (Increase)

(9) HSBC announces intentions to implement IAS 39 in full on March 30, 2004. (Increase)

(10) European Financial Reporting Advisory Group (EFRAG) issues draft recommendation to endorse IAS 32 and IAS 39 on June 4, 2004. (Increase)

(11) EFRAG issues final recommendation to endorse IAS 32 and IAS 39 on July 8, 2004. (Increase)

(12) The ARC recommends endorsement of IAS 39, but recommends provisions relating to the fair value option and portfolio hedging of demand deposits be carved out on October 1, 2004. (Decrease)

(13) The EC endorses IAS 39 with both carve-out provisions on November 19, 2004. (Decrease)

(14) IASB issues revised IAS 39 with new fair value option on June 16, 2005. (Increase)

(15) The ARC recommends endorsement of revised fair value option, thereby eliminating one of the carve-outs on July 8, 2005. (Increase)

(16) The EC endorses revised fair value option, thereby eliminating one of the carve-outs on November 15, 2005. (Increase)

Muller et al. (2008) examine information asymmetry measure by bid-ask spreads of European real estate firms' different forms of fair value disclosures for investment property. IAS 40 requires the mandatory provision of investment property fair values either through recognition in the primary financial statements or through required footnote disclosure, which ceases the voluntary disclosure under domestic accounting standards. From a sample of 77 real estate firms for 13 European countries, the results indicate IFRS do not fully eliminate the documented differences in information asymmetry.

There are studies on the effect of IFRS adoption on analyst environment. Byard et al. (2011) examine the effect of the mandatory adoption of IFRS on analysts' forecast ability, measured by forecast errors and dispersions. Using a sample of 1,168 firms from 20 European countries, they find decreases in forecast errors and dispersions for the IFRS adopted firms domiciled in countries with both strong enforcement regimes and domestic accounting standards that differ from IFRS. Furthermore, the forecast errors and dispersion decrease for the IFRS adopted firms with stronger incentives for transparent financial information in the countries with weak enforcement regimes. The results suggest the importance of enforcement regimes and firm-level reporting incentives in valuing the effect of IFRS adoption.

Similar to Byard et al. (2011), Christensen et al. (2013) also highlight that the observed effects in capital market are attributed to enforcement regimes other than IFRS adoption. Using the IFRS mandatory adopted firms from 35 countries and the data selected in 2001−2009, they find that changes in reporting enforcement play a critical role for the impact on market liquidity measured by bid-ask spreads, other than the shift from local GAAP to IFRS.

2.4 Chapter conclusion

The studies related to the factors and effects of IFRS adoption are based on the hypothesis that IFRS produce positive economic consequences because of the high-quality and the comparability through accounting standards uniformity. The economic consequences are indirectly affected by IFRS adoption through the effects on the accounting quality. Therefore, the studies pertaining to the effects on accounting quality can be considered as the basis of the studies on effects.

As summarized in section 2.2, there are various factors of IFRS adoption at firm- and country-level, which include internationality, corporate governance, accounting standards difference, and network effects. The various incentives of firms or countries' accounting standards choice may have an impact on the accounting quality. Therefore, the effects of IFRS may vary depending on the various incentives.

As shown in Table 2-2, the empirical studies provide inconsistent results. The inconsistency owes not only to the limitations of methodology or data but also to the ignorance of potential effects not attributable to IFRS. For example, the changes of the enforcement regimes, the various legal system and reporting incentives could also have impacts on the economic consequences (Byard et al., 2011; Christensen et al., 2013; Paananen and Lin, 2009). The ignorance may overstate the effects of IFRS adoption.

Figure 2-2 depicts a schematic framework describing determinants of accounting quality. It shows that accounting quality is affected not only by accounting standards but also by legal and political systems, and incentives of financial reporting. The accounting standards are a complementary component of the country's overall institutional system and are determined by country's institutional setting and firms' incentives for financial reporting

(Ball, 2016; Soderstrom and Sun, 2007). The interdependence between accounting standards and the country's institutional setting and firms' incentives may mitigate the effects of accounting standards shift. Therefore, for the study on the effect of IFRS adoption, controlling for the above mentioned country and firm-level factors becomes an important task in the empirical research design. The A-, B- and H-share in Chinese stock market provide an excellent opportunity to investigate the effects of accounting standards.
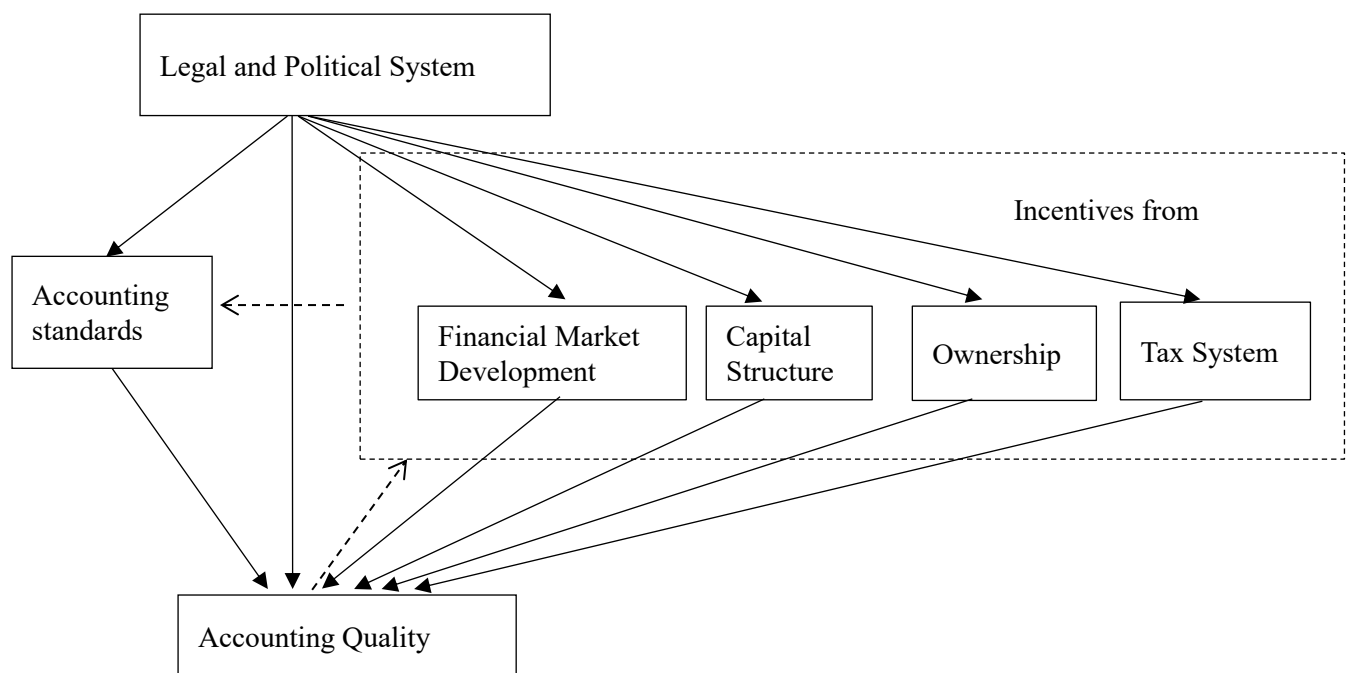
Figure 2-2 Determinates of accounting quality. Revised based on Soderstrom and Sun (2007 p. 688). (Dotted lines are added by author).

Table 2-1 Studies on the factors of IFRS adoption based on firm level

Categories	Detailed categories	Dumontier and Raffournier (1998)	Gassen and Sellhorn (2006)	Günther et al. (2009)	Christensen et al. (2015)	Inoue and Ishikawa (2014)	Sato and Takeda (2017)	Kameoka et al. (2019) *	El-Gazzar et al. (1999)
		Swiss listed IFRS adoption firms	German listed IFRS adoption firms	German listed IFRS adoption firms	German listed IFRS adoption firms	Japanese listed IFRS adoption firms	Japanese listed IFRS adoption firms	Japanese listed IFRS adoption firms	Listed IFRS adoption firms from multiple countries
Size	market capitalization of equity, total sales, assets, operating revenues, employee number, subsidiary number	●(+)	●(+)	●(+)	●(+)		●(+)	●(+)	●(+)
Internationality	geographically dispersed operations: number of foreign segments, number of foreign employees, number of foreign segments				●(+)				
	number of foreign stock exchanges, foreign stock exchange listing dummy	●(+)	●(+)	●(+)	○		○		●(+)
	foreign sales, foreign sales ratio	●(+)	●(+)	●(+)	●(+)	○		●(+)	●(+)
Corporate governance	leverage	○	○	●(−)	●(−)	●(+)	●(−)	●(−)	●(−)
	ownership dispersion (percentages of the largest shareholders)	●(−)	●(−)	●(−)	○				
	foreign ownership (dummy, foreign shareholders ratio)			●(−)		●(+)	●(+)	○	
	bank ownership (bank shareholders ratio)			●(−)	●(−)				
	number of analysts				●(+)				
Profitability	ROE, ROA, ROS, RET,	○			●(−)	○	○	○	●(−)
	current net loss ratio, EBITDA margin								

Category	Description								
Capital intensity	fixed assets/total assets, tangible/ total assets, manufacture	○							
Growth opportunities	Expected Investment growth, Asset growth, Sales growth, Employees growth			○	●(+)			○	
	Listing years		●(−)	●(−)	○		●(−)	●(−)	
External financing	bond financing								
	public offering of stock (including IPO)				○				
Auditors' quality	Big 6/5/4	●(+)			○		●(+)	●(+)	
Differences between difference accounting standards	Intangible asset, R&D					●(+)		●(+)	
	goodwill					○		○	
Membership	EU members, Hitachi or Honda group						○		●(+)
Network effects	IFRS adopted foreign subsidiaries' ratio, IFRS adopted foreign exchange dummy, IFRS adopted firms' market value's ratio (within the same industry)						○		●(+)

○and ● mean insignificant and significant, respectively. The sign in parentheses depicts the positive or negative association.

* Foreign sales ratio is regarded as network effect proxy in Kameoka et al., (2019).

Table 2-2 Studies on the consequences of IFRS mandatory adoption

Study	Sample	Accounting quality	Effect on capital market	Potential effects other than IFRS	H: IFRS produce positive economic consequences
Armstrong et al. (2010)	3256 firms from 18 European countries in 2002−2005		16 events of IFRS		support
Byard et al. (2011)	1,168 firms from 20 European countries in 2003−2006		forecast errors and dispersion	enforcement regimes and reporting incentives	semi-support
Capkun et al. (2008)	1,722 big firms shift from local GAAP to IFRS in 2004−2005 from 9 European countries	earnings management, value relevance			support
Chalmers et al. (2008)	599 Australia listed firms in 2006	value relevance			support
Christensen et al. (2013)	firms from 35 IFRS mandatory adopted countries in 2001−2009		liquidity	enforcement regimes	reject
Horton et al. (2013)	8,124 firms from 46 countries		analysis accuracy		support
Muller et al. (2008)	77 real estate firms for 13 European countries		information asymmetry		reject
Neel (2017)	1841 listed firms from 23 countries	comparability	Tobin's Q, stock liquidity, analyst forecast accuracy, and analyst forecast agreement		support
Paananen and Lin (2009)	107 German firms in 2000−2002.	earnings smoothing, timely losses recognition, value relevance			reject
Prather-Kinsey et al. (2008)	157 firms shifted to IFRS in 2005 from 16 European countries	information content, value relevance	cost of equity	legal system	support
Wu et al. (2017)	10,037 firm-year Taiwan listed firms in 1990−2011	value relevance			reject

Source: created by the author

3 Construct and Methodology of Value Relevance of Financial Information

Table 2-2 shows that the value relevance as an attribute of accounting quality are worthy of attention. Holthausen and Watts (2001) argue that the extant value relevance research offers limited contribution to standard setting, which amounts to either associations with equity value or to equity valuation per se. They emphasize that while the value relevance research effectively displays accounting's role in providing inputs to equity in valuation, that research still ignores the other roles of accounting and other forces that determine accounting standards and practice.

In response to Holthausen and Watts (2001), Barth et al., (2001) present a different view that the value relevance research provides fruitful insights for standard setting. They argue that value relevance research is designed to assess whether particular accounting amounts reflect information that is used by investors in valuing firms' equity, not to estimate firm value, which is consistent with the primary focus (equity investment) of the standard setters. Furthermore, value-relevance research employs well-established techniques for mitigating the effects of various econometric issues that arise in value-relevance studies.

This chapter adopts the view of Barth et al., (2001). Section 3.1 describes several empirical interpretations of the construct of value relevance in financial accounting. Section 3.2 summarizes the empirical models adopted in value relevance research. Section 3.3 reviews the prior research related to the different value relevance of various accounting standards and different periods and tries to identify the methodological

problems that exist in the value relevance research related to inter-temporal changes criticized by Gu (2007). Gu's (2007) PEs are demonstrated to remedy the deficiency of coefficient of determination (explanatory power, R^2) popularly adopted in prior research. The discussion of this chapter is related to the regression models and methodology adopted in chapters 5 through 7.

3.1 Alternative interpretations of financial information's value relevance

I classify the value relevance related to financial information into three possible interpretations based on Francis and Schipper (1999) and summarize the three interpretations in Table 3-1.

Table 3-1 Interpretations of Value relevance

	Interpretations of VR	Role of accounting information	Models	
1	Valuation model contains accounting variables	Measure intrinsic value	RIM, Ohlson's (1995) model	$V_t = (1-r\alpha_1)B_t + \alpha_1 NI_t + \alpha_2 v_t$ (3-2)
2	Statistical association between accounting information and contemporaneous prices or returns	Timely measure information events, provides new information to investors for changing stock prices	Price/Return-earnings model	$AbnormalReturn_t = \beta_0 + \beta_1 EPS_t + \varepsilon_t$
3		Long window, capture or summarize information regardless of source, that affects price	Price/Return-earnings model	$P_t = \beta_0 + \beta_1 EPS_t + \varepsilon_t$ (3-4) $Return_t = \beta_0 + \beta_1 EPS_t + \beta_2 \Delta EPS_t + \varepsilon_t$ (3-5)
			Balance sheet model	$P_t = \beta_0 + \beta_1 BVPS_t + \varepsilon_t$ (3-8)
			Compound model	$P_t = \beta_0 + \beta_1 BVPS_t + \beta_2 EPS_t + \varepsilon_t$ (3-9)

Source: created by the author.

Interpretation 1 is that accounting information is value-relevant if it contains the

accounting variables used in a valuation model for estimating the firm's instinct value. The valuation models originate from discounted dividend model (DDM) and discounted cash flow model (DCFM) and then have been developed to residual income model (RIM). Before the appearance of RIM, the accounting information like earnings is only to be adopted as a predictive measure of future dividends or future cash flows. Thus, the value relevance of the accounting information is measured by the ability of earnings to predict future dividends or future cash flows (Francis and Schipper, 1999).

Interpretation 2 gained publicity since Ohlson (1995) adds the assumption of Linear Information Dynamics (LID) to RIM to derive the Equation (3-1), namely Ohlson's (1995) model. The Equation (3-1) firstly expresses the relationship between firm value and accounting variables and can be transformed to Equation (3-2). Ohlson's (1995) model illustrates a relationship between prices and book value of equity plus the present value of residual earnings and other information. The accounting variables such as the present book value or earnings can be used to value firms directly, which greatly inspires the researchers to adopt Ohlson's (1995) model to conduct valuation.

$$V_t = B_t + \alpha_1 X_t^a + \alpha_2 v_t \tag{3-1}$$

$$\begin{aligned} V_t &= B_t + \alpha_1 (NI_t - r \times B_t) + \alpha_2 v_t \\ &= (1 - r\alpha_1) B_t + \alpha_1 NI_t + \alpha_2 v_t \end{aligned} \tag{3-2}$$

Where V_t is the intrinsic value of equity at period t; B_t is book value of equity at period t; X_t^a is residual earnings at period t; v_t is the other information; r is the cost of capital (or the risk-free rate).

Interpretation 3 means value relevance is measured by the ability of financial statement information to capture or summarize information, regardless of source, that affects share

values. This interpretation does not require that financial statements to be the earliest source of information. It is consistent with the value relevance of financial reports stemming from either the content of the financial statements themselves or a settling-up role (Francis and Schipper, 1999).

Both Interpretations 2 and 3 are value relevance based on a statistical association between accounting information and contemporaneous prices or returns. Under Interpretations 2 and 3, accounting is considered to aim to provide (convey) information, and the financial information is viewed as a measure of informative events, not of value (Christensen and Demski, 2003). The difference between Interpretations 2 and 3 is the extent of timeliness.

Under Interpretation 2, value relevance is measured as "news" that causes investors to revise their former expectations, which implies that value-relevant financial information provides new information to investors for changing stock prices (Barth, 2000; Francis and Schipper, 1999). Value relevance research under Interpretation 2 begins with the portfolio returns tests of the information content of earnings (Ball and Brown, 1968; Beaver, 1968).

Under Interpretation 3, value relevance means the financial information is correlated with information used by investors. The association between the financial information and price or returns is tested over a long window rather than a short window adopted in Interpretation 2. Value relevance is measured by the ability of financial statement information to capture or summarize information, regardless of source, that affects price (Francis and Schipper, 1999). Interpretation 3 does not require the timeliness of financial information required in Interpretation 2.

Interpretation 3 could be well demonstrated by the links of Beaver (1998). There are

three links in Beaver (1998) for relating the financial information to firm value; (1) the prices and future dividends, (2) the future dividends and future accounting earnings, and (3) future accounting earnings and current accounting earnings.

Link (1) is via a valuation model. While prices may be a function of non-earnings information (i.e., dividends), the earnings and dividends are assumed to be dependent by a payout ratio. Alternatively stated, earnings are an indicator of future dividend-paying ability, which is Link (2). Link (2) refers to the relationship between earnings and the variable that is assumed to give rise to a security's value to informational content.

Link (3) expresses a stochastic process for describing earnings over time. Earnings can be viewed as the sum of permanent and transitory parts. Permanent earnings can be used to expect future earnings. Earnings are value-relevant (informative) because they reflect events that lead to an alteration of beliefs about the future dividend-paying ability of the firm. Thus, earnings are an important informational source of future dividend-paying ability rather than a measurement concept like economic earnings.

This thesis aims to test the statistical association between the market value and financial information of Chinese listed firms over 10 years, and thus is linked to Interpretation 3.

3.2 Empirical models adopted in value relevance under Interpretation 3

Under Interpretation 3, the primary models adopted in the value relevance research can be summarized into three categories: (1) Price/Return-earnings model, (2) Balance sheet model and (3) Compound model. Researchers develop individual regression models based on them.

Price/Return-earnings model investigates the association between price (or stock

returns) and the level of earnings (and change in earnings in case of stock returns)[17] concerning to Equation (3-3). Based on DDM, in a certainty setting for economic earnings, permanent earnings equal economic earnings and then equal dividends (Beaver, 1998). Equations (3-4) and (3-5) are the basic Earnings-return/price model. Equation (3-4), derived from Equation (3-3) and Beaver's (1998) links implies that accounting earnings provide information for investors to value on firms. Equation (3-5) is used for controlling the problem of heteroscedasticity of Equation (3-9).

$$P_0 = \frac{E^*}{r} \tag{3-3}$$

Where E^* is permanent earnings; P_0 is price per share; r is cost of capital.

$$P_t = \beta_0 + \beta_1 EPS_t + \varepsilon_t \tag{3-4}$$

Where P_t is price per share at period t; EPS_t is earnings per share; ε_t is error term.

$$Return_t = \beta_0 + \beta_1 EPS_t + \beta_2 \Delta EPS_t + \varepsilon_t \tag{3-5}$$

Where $Return_t$ is return at period t; EPS_t is earnings per share at period t; ΔEPS_t is earnings change at period t; ε_t is error term.

Balance sheet model investigates the association between book value of equity and price. Barth (2000) proposes Equation (3-6) as a valuation model and derives Equation (3-7), which is developed to Equation (3-8) afterwards. Contrary to Equations (3-4) and (3-5) that focus on the value relevance of financial information from the profit and loss statement, Equations (3-7) and (3-8) concentrate on the value relevance of financial

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[17] Market values are sometimes substituted for price.

information from the balance sheet. The difference between market value and book value is recognized as measurement error.

$$MVE_t = MVA_t + MVL_t \qquad (3\text{-}6)$$

Where MVE_t is market value of equity at period t; MVA_t is market value of asset at period t; MVL_t is market value of liability at period t.

$$P_t = \beta_0 + \beta_1 BA_t + \beta_2 BL_t + \varepsilon_t \qquad (3\text{-}7)$$

Where P_t is price per share at period t; BA_t is book value of asset at period t; BL_t is book value of liability at period t; ε_t is error term.

$$P_t = \beta_0 + \beta_1 BVPS_t + \varepsilon_t \qquad (3\text{-}8)$$

Compound model (Equation (3-9)) is a merger model of the Price/Return-earnings model and Balance sheet model (Equation (3-8)). Substantial research test accounting information's value relevance using Equation (3-9) and mention that Equation (3-9) originate from Ohlson's (1995) model (referred to Equation (3-2)); there is an important issue needed to be underlined here.

While Equation (3-2) provides some clues that what kind of financial information contributes to operate valuation, it is not equal to Equation (3-9). The indispensable variables, the other information v_t and the capital cost r in Equation (3-2) are not mentioned in Equation (3-9). Therefore, it is not correct to recognize Equation (3-9) as Ohlson's (1995) model.

$$P_t = \beta_0 + \beta_1 BVPS_t + \beta_2 EPS_t + \varepsilon_t \qquad (3\text{-}9)$$

Where P_t is stock price at period t; $BVPS_t$ is book value per share at period t;

EPS_t is earnings per share at period t; ε_t is error term.

Conclusively, the value relevance research focuses on the association between market value and accounting information that possesses the ability of future dividends prediction and thus contributes to the investors' valuation. Furthermore, Barth et al. (2001) stresses the value relevance research provides useful insights for standard setting. Therefore, based on Interpretation 3, this thesis examines the value relevance of IFRS-based accounting information to explore whether the IFRS are a set of high-quality accounting standards.

3.3 Methodology adopted in value relevance researches

3.3.1 Research related to value relevance

In order to clarify the models and methodology adopted in related research, this section reviews two categories of prior research related to value relevance of various financial statement disclosures (Ayers, 1998; Barth et al., 2008; Jermakowicz et al., 2007; Lev and Sougiannis, 1996) and value relevance of inter-temporal changes (Collins et al., 1997; Francis and Schipper, 1999; Lev and Zarowin, 1999).

The models adopted in both two categories of research are similar, primarily including the models mentioned in section 3.2, namely Price/Return-earnings model, Balance sheet model and Compound model. However, the methodologies are different. Research on value relevance of various financial statement disclosures examines the incremental value of accounting rules or accounting standards relative to earrings or equity and thus the sign of the coefficient is focused. Research on value relevance of inter-temporal changes examines the systematic changes over a given period of time and thus the yearly R^2s (or

adjusted R^2s) should be paid attention.

For the research on value relevance of various financial statement disclosures, the investors reach consensus that the different accounting standards have different information contents. For example, some accounting standards could provide more timely information than others; especially, the emergence of IFRS sparks heated and vast debate related to the benefits or cost of the choice among various accounting standards. Therefore, the research on value relevance among different accounting standards choice is of interest and well tested. The accounting standards choice includes single accounting standard (Ayers, 1998; Lev and Sougiannis, 1996) and a set of accounting standards (Barth et al., 2008; Jermakowicz et al., 2007).

Ayers (1998) investigates whether the net deferred tax liabilities reported according to Statement of Financial Accounting Standards No. 109, Accounting for Income Taxes (SFAS No. 109) provides incremental value relevance information over the disclosure required by Accounting Principles Board Opinions No. 11, Accounting for Income Taxes (APB No. 11). Using Balance sheet model, Ayers (1998) finds that SFAS No. 109 provides information about deferred tax assets and liabilities relevant to financial statement users.

Lev and Sougiannis (1996) investigated the value relevance of R&D capitalization using the return-earnings and price model and obtained the result that the adjusted values of earnings and book values for the R&D capitalization are significantly associated with stock prices and returns, indicating the value relevance to investors of the R&D capitalization.

Barth et al. (2008) examined whether IFRS are associated with higher accounting quality, which is measured by earnings management, timely loss recognition and value

relevance using Compound model. The results revealed that IFRS-adopting firms have improved in accounting quality between pre- and post-adoption periods.

Jermakowicz et al. (2007) measured the value relevance using Compound model and found that IFRS adoption significantly increases the value relevance of earnings relative to market prices.

For the research on value relevance of inter-temporal changes, the research related to the systematic changes of value relevance sparks from the 1990s. The professional community claims that the shift from an industrialized economy to a high-tech, service-oriented economy has made financial reports less relevant for assessing value. The claims imply historical cost-based financial statements have lost their value relevance because of wholesale changes in the economy and need sufficiently empirical test for the validity.

Whereas some prior research indicates a steady decline in the value relevance of earnings over time and suggests that the negative earnings and nonrecurring items can adversely affect the value relevance of earnings, an increased value-relevance of combined earnings and book values is reported (Collins et al., 1997; Francis and Schipper, 1999; Lev and Zarowin, 1999).

Collins et al. (1997) used R^2 as the proxy of value relevance by regressing Compound model, Price/Return-earnings model, and Balance sheet model. They conclude that a decreased value relevance of earnings and increased value relevance of balance sheets are attributable to increased reporting of losses and one-time or special items and the increased economic importance of unreported intangible assets. Furthermore, the increasing value relevance of book values has offset the decreasing value relevance of earrings.

Lev and Zarowin (1999) used Compound model, Price/Return-earnings model and

Return-Cash flow model. They show deterioration in the value relevance of earnings to investors. The documented deterioration is shown to be related to the increasing pace of change affecting business enterprises and the inadequacy of the accounting system in reflecting the consequences of change. Especially, intangible investment is explained as an important factor among the business change, resulting in the declining usefulness of financial information. The results are inconsistent with Collins et al. (1997) and are explained due to different sample periods. Francis and Schipper (1999) show similar results to Collins et al. (1997).

3.3.2 Issue on methodology adopted in value relevance research

Many researchers have investigated the value relevance measured by explanatory power, namely R^2, especially the research related to inter-temporal changes of value relevance (Collins et al., 1997; Francis and Schipper, 1999; Lev and Zarowin, 1999). The R^2 (or adjusted R^2), used as a linear model fitness indicator for regression analysis, could not be compared across different samples.[18] Prior researchers use yearly cross-sectional regressions and compare the R^2s obtained from each regression. Thus, the yearly cross-section comparability of value relevance measured by R^2 should not make sense (Gu, 2007). The reason for this is explained by using Equations (3-10), (3-11) and (3-12).

$$y_i = \alpha + \beta x_i + \varepsilon_i \qquad (3\text{-}10)$$

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[18] Different samples mean the samples of dependent variables are selected from different populations.

Equation (3-10) states the general economic relation conditional on x_i, y_i is expected to be $\alpha + \beta x_i$ with variance σ_ε^2. If the regression residuals are denoted as e_i, the R^2 from the regression is defined as:

$$R^2 = 1 - \frac{\sum_i e_i^2}{\sum_i(y_i-\bar{y})^2} = 1 - \frac{\sum_i e_i^2}{\hat{\beta}^2 \sum_i(x_i-\bar{x})^2+\sum_i e_i^2}=1 - \frac{\frac{\sum_i e_i^2}{n-1}}{\frac{\left[\hat{\beta}^2 \sum_i(x_i-\bar{x})^2+\sum_i e_i^2\right]}{n-1}} \qquad (3\text{-}11)$$

$$AdjR^2 = 1 - \frac{\sum_i e_i^2(n-2)}{\sum_i(y_i-\bar{y})^2(n-1)} = 1 - \frac{\frac{\sum_i e_i^2}{n-2}}{\frac{\left[\hat{\beta}^2 \sum_i(x_i-\bar{x})^2+\sum_i e_i^2\right]}{n-1}} \qquad (3\text{-}12)$$

According to Equation (3-11), there are three determinants of R^2:[19] (1) the estimated coefficient $\hat{\beta}$, (2) the estimated variance of independent variable $\hat{\sigma}_x^2 = \sum_i \frac{(x_i-\bar{x})^2}{n-1}$ and (3) the estimated residual variance $\hat{\sigma}_\varepsilon^2 = \sum_i \frac{e_i^2}{n-1}$ (also applied by adjusted R^2). The R^2s could be different even though the economic relation is entirely intact for all observations in different samples.

For example, Figure 3-1(a) and (b) illustrate the sensitivity of R^2 to different samples. Figure 3-1(a) illustrates that sample 1 and sample 2 deduce the similar regression equations and thus only $\hat{\sigma}_x^2$ of the two samples are different ($\hat{\sigma}_\varepsilon^2$ and $\hat{\beta}$ are similar in two samples). $\hat{\sigma}_x^2$ of sample 1 is bigger, suggesting the model's explanatory power is

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[19] Equation (3-12) defines the adjusted R^2($AdjR^2$), showing the same understanding of R^2.

worse for sample 2. Figure 3-1(b) illustrates the slope for sample 1 is steeper than that for sample 2 ($\hat{\sigma}_\varepsilon^2$ and $\hat{\sigma}_x^2$ are similar in two samples). Thus, the R^2 indicates the goodness-of-fit is higher for sample 1 than for sample 2, suggesting that the model's explanatory power is worse for sample 2. However, both samples in Figure 3-1(a) and (b) contain identical random noises $\hat{\sigma}_\varepsilon^2$, meaning the extent of fitness is the same in the two samples. Therefore, R^2 is not appropriate when using different samples. This problem applies to the yearly cross-section regression analysis over a long-term period.
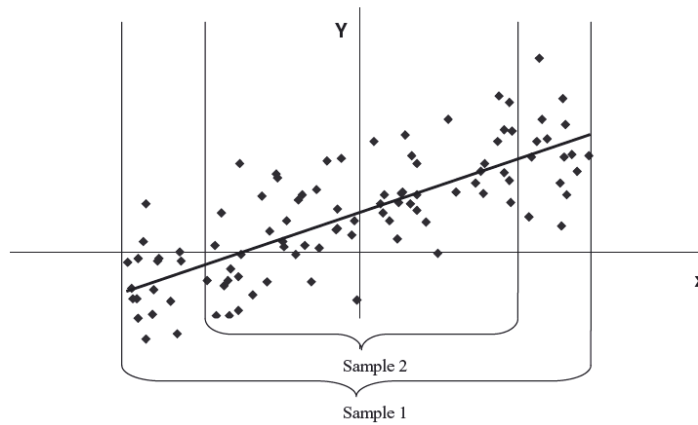
Figure 3-1 (a) Sensitivity of R^2 to different parameters. Source: Gu (2007, p.1078)
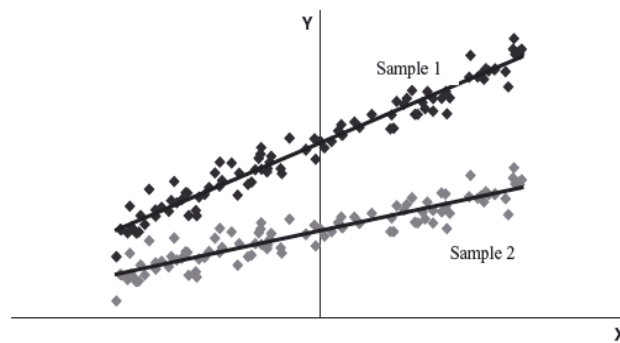
Figure 3-1 (b) Sensitivity of R^2 to different parameters. Source: Gu (2007, p.1078)

Instead of R^2, the models' explanatory powers, Gu (2007) proposes that the residual dispersion regarded as PEs should be examined for the inter-temporal changes in value relevance of financial information. The larger the PEs are, the lower the value relevance

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becomes. Accounting-based linear valuation models like Equation (3-13) are used with the stock prices or returns regressed on accounting variables. Gu (2007, p. 1081) describes this situation as follows: "The residual variances or standard deviations measure the dispersion of components in prices or returns that cannot be explained by the accounting variables. They can be interpreted as measures of the degree of PEs for given samples. Such errors do not by any means indicate market inefficiency. Rather, they are components in prices or returns not captured by accounting variables and serve as indicators of accounting inefficiency or value relevance of accounting information."

$$P_{it} = \beta_0 + \beta_1 BVPS_{it} + \beta_2 EPS_{it} + \varepsilon_{it} \tag{3-13}$$

Gu (2007) proposes three residuals desperations, which can be interpreted as measure of the degree of PEs for given samples using Equation (3-13): (1) Raw pricing errors calculated as the estimated residuals standard deviation $\hat{\sigma}_\varepsilon$; (2) Standardized pricing errors, the estimated residuals standard deviation $\hat{\sigma}_\varepsilon$ divided by $\overline{|\hat{y}|}$, the mean absolute fitted values of P_i to control for the scale effects; and (3) Abnormal pricing errors (APE) controlling for the nonlinear scale effects, which were calculated as follows.

Step 1: Run yearly cross-sectional regressions using Equation (3-13) and estimate the residual for each observation.

Step 2: Sort all observations into 10 deciles based on the absolute estimated price $|\hat{P}|$ across years.

Step 3: For each decile, the normal pricing error (benchmark) is calculated as the mean absolute estimated residuals $\overline{|\hat{\varepsilon}|}$.

Step 4: Match the yearly mean of absolute estimated price $\overline{\left|\hat{P}\right|}$ to the correspondent decile.

Step 5: APE is calculated as the absolute value of the difference between $\overline{\left|\hat{\varepsilon}\right|}$ and normal pricing errors.

3.4 Chapter conclusion

Chapter 3 summarized the empirical models adopted in value relevance research and reviewed the prior studies related to the effect of the various accounting standards. Under Interpretation 3, only the association between the market value and accounting information is investigated. For the research related to examining the effect of accounting standards shift, two issues should be considered.

First, only the association between the market value and accounting information is examined. It should be well considered that how to mitigate or eliminate the effect of factors other than accounting standards in order to investigate the effect of accounting standards shift. A-B share or A-H share of Chinese listed firms provides an excellent opportunity to overcome this concern, which will be discussed in Chapters 6 and 7.

Second, much prior research examined the value relevance measured by R^2s. The improper comparison of R^2 for different samples requires an alternative measurement of value relevance. Gu's (2007) PEs provides a substitute that is suitable not only for investigating value relevance over a given period of time but also for the different samples at the same period, like the samples of A-B share or A-H share from Chinese market.

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4 Development of China Accounting Standards

New CAS, which substantially converged with IFRS, were promulgated in February 2006 and implemented the mandatory adoption for the Chinese listed firms from 2007 (Ministry of Finance, 2006). The adoption of New CAS implies that China was entering a new era of globalization in its financial reporting practices (Ding and Su, 2008) because New CAS provide evidence on whether IFRS can work properly in markets disciplined mainly by regulators rather than market mechanism. Chapter 4 aims to provide a review of the process of New CAS's move towards IFRS and the factors driving the accounting reforms.

The remainder of the chapter is organized as follows. Section 4.1 provides a brief overview of the two drastic accounting reforms. The three factors and their impacts on the financial reporting system are discussed in Section 4.2. Section 4.3 presents a summary and conclusion.

4.1 Development of China Accounting Standards

There are two drastic turning points in China's accounting reforms history: accounting reforms in 1992 and 2006 (Ding and Su, 2008; Tang and Lau, 2000). The two accounting reforms are summarized in Figure 4-1. New CAS were issued based on Old CAS; therefore, the 1992 accounting reform can be regarded as an inevitable grounding for 2006 accounting reform.

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┌─────────────────────────────────────────────────────────────────┐
│  Accounting Law (NPC,1985; 1993; 1999; 2017ᵃ⁾)                    │
└─────────────────────────────────────────────────────────────────┘
                              ↓
┌─────────────────────────────────────────────────────────────────┐
│  Financial Accounting and Reporting Rules for Business            │
│  Enterprises (State Council, 2000)                                │
└─────────────────────────────────────────────────────────────────┘
                              ↓
```

1992's accounting reform: Internationalization period (1992~2005)ᵇ

Old CAS

| Accounting Regulations for Business Enterprises - Basic Standards (MOF, 1992) | Accounting Regulations for Business Enterprises by Individual Industries (MOF, 1992, 1998, 2000) | Accounting Regulations for Joint Stock Limited Enterprises (MOF, 1998) | Accounting Regulations for Foreign Investment Enterprises (MOF, 1992) |

ASBE – 16 Individual Standards (MOF, 1997~2005)

2006's accounting reform: Convergence period (2006~)

New CAS

ASBE - Basic Standards (MOF, 2006)

ASBE– 38 Individual Standards (MOF, 2006) (Listed firms)

| Accounting Regulations for SME (MOF, 2004) | Accounting Regulations for Financial Institutions (MOF, 2001) (Unlisted financial firms) | ARBE (MOF, 2000) (Other firms) |

Figure 4-1 Development of CAS. Source: created by the author. a. New CAS revised in 2017 further converged with IFRS. b. The parts with dotted line are replaced by New CAS.

4.1.1 1992 accounting reform: internationalization

The Accounting Law was promulgated in 1985 by the National People's Congress (NPC) as the basic regulation of accounting behavior and revised in 1993, 1999 and 2017. In 1992, in accordance to the Accounting Law issued in 1985, the Ministry of Finance of People's Republic of China (MOF), the government body with the sole responsibility for accounting standard-setting and implementation, issued the "The Accounting Standards for Business Entities" (ASBE) effective on July 1, 1993 (MOF, 1992a; MOF, 1992b). ASBE are designed to guide the preparation of accounting information and to standardize the financial reporting of all firms (Tang and Lau, 2000). ASBE have served as the foundation for developing the detailed accounting standards and therefore have been considered as the conceptual framework (Davidson et al., 1996). The Accounting Regulations for Business Enterprises (ARBE) were issued by the MOF to provide additional guidance on the implementation of ASBE for individual industry from 1992[20] (MOF, 1992d-m).

As summarized by Tang and Lau (2000), ASBE consist of four postulates (i.e., accounting entity, going concern, accounting period, and monetary measurement); twelve general accounting principles (i.e., objectivity, relevance, comparability, consistency, timely, understandability, accrual, matching, prudence, historical cost, materiality, distinction between revenue expenditure and capital expenditure); the recognition and measurement principles for the elements of financial statement (asset,

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[20] The individual industries refer to the following 13 industries: manufacturing, agricultural, financial institutions, retail, commerce, construction, communication, real estate, railway, aviation transportation, insurance, tourism and food.

liability, etc.); as well as the requirements for preparation and presentation of financial statements. Tang and Lau (2000) conclude that the promulgation of ASBE indicates China has largely abandoned the former Soviet Union style accounting model and adopted the Anglo-American model, which is regard as an international model.

Ding and Su (2008) describe the characters of the accounting standards in the 1990s as follows. In response to market development, the first accounting standard, "Disclosure of related party relationship and transactions," was promulgated in May 1997 followed by a further 15 individual standards by 2005.[21] The major difference between these 16 CASs and IFRS is the extent of flexibility over the use of fair value. During the period from 1997 to 2001, the newly promulgated standards were adopted by listed companies only, while unlisted firms continued to follow the accounting regulations, which were amended several times to gradually incorporate practices from international standards.

4.1.2 2006's accounting reform: convergence

From 2006, CAS are furthered in internationalization due to the convergence with IFRS. Basic Standards (considered equivalent to conceptual framework) and 38 individual accounting standards prescribing specific practices were issued on February 14, 2006 (MOF, 2006). Some interpretations of standards were issued in 2007 and 2008. On November 8, 2005, a memorandum was signed by a representative of China and Sir David Tweedie of the IASB and state that New CAS are substantively convergent with IFRS. The fundamental recognition and measurement changes from Old CAS to New CAS are

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[21] The CAS, as well as two regulations that are for stock enterprises and foreign investment enterprises, are set to replace the 13 accounting regulations.

detailed in Table 4-1 based on Qu et al. (2012) and Ding and Su (2008).

With the recognition of the equivalence of CAS with IFRS by Hong Kong Institute of Certified Public Accountants, EU makes the financial reports in accordance to New CAS directly acceptable without restatement in countries that have adopted IFRS (Ding and Su, 2008).

4.1.3 Retained differences between CAS and IFRS

As summarized by Ding and Su (2008), New CAS are substantively convergent with IFRS except for three points. First, the definition of related party entities excludes most state-owned enterprises (SOE) in China, while IFRS consider all SOE as related parties. Chinese SOE are in fact independent legal entities, and their business activities are no different from other companies. Treating them as related parties would unnecessarily complicate accounting and financial reporting.

Second, there is a difference concerning the reversal of impairment on assets. Regulators in China believe that impairments of tangible long-term assets are most likely to be permanent, and recovery is an exception rather than the rule. Given the prevailing poor corporate governance and widespread earnings management, it is easy to understand why reversal of impairment is not allowed in China.

Third is the concern of fair value (FV). While IFRS made significant progress in adopting FV, regulators in China are very reluctant to adopt FV. New CAS emphasize that FV should be introduced carefully and gradually, because the prices applied in unsophisticated markets may not form a good basis for fair value. Consequently, in standards relating to investment property, biochemical products, and debt reorganization, fair value is allowed only when an active market exists from which fair value can be

reliably determined and verified. The differences among Old CAS, New CAS and IFRS are summarized in Table 4-1.

Table 4-1 Differences among Old CAS, New CAS and IFRS

Item	Old CAS	New CAS	IFRS
LIFO inventory measurement approach	○	×	×
Development expense, borrowing cost	Expense	Capitalization if certain criteria are met	Capitalization if certain criteria are met
Goodwill and indefinite useful life intangible assets	Amortized	Impairment test	Impairment test
Equity method	Equity method is principle	Cost method is principle	Cost method is principle
Reversal of impairment of assets	○	×	○
FV	×	○	○[22]
Recognition of gains or losses	Equity	Profit or loss	Profit or loss
Related party entities' definition	Exclude SOE	Exclude SOE	Include SOE
Share-based payments to employees for services, accounting form financial derivatives	Off-Balance	On-Balance	On-Balance

Source: refer to Qu et al. (2012) and Ding and Su (2008).

4.2 Environmental factors driving the accounting reforms

The 1992 accounting reform was stimulated by the following environmental influences: economic reform, capital market, and foreign investment (Tang and Lau, 2000). The motivations of the 2006 accounting reform were similar to the 1992 ones, because the environmental factors driving the accounting reforms become stronger with

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[22] The extent of FV adoption based on New CAS is different to that based on IFRS. It is more restricted under New CAS in accounting for investment properties, biological assets, non-monetary asset exchanges and debt restructurings (Qu et al., 2012).

the further evolution on the transition to the market-oriented economy. The analysis on the environmental factors driving the accounting reforms is referred to in Tang and Lau (2000), Ding and Su (2008), and Lee, Walker, and Zeng, (2013).

4.2.1 Economic reform influence

The first driving force for the accounting reform is the transition from the state-controlled economy to market-oriented economy, which could be responsible for the emergence of ASBE. The economic reform from a planned to a market-oriented economy in China started in 1978. Since then, "accounting regulations and practices have also undergone a significant change of purpose, from mainly serving macro-economic planning to providing information for decision-making by investors and creditors" (Ding and Su, 2008, p.475).

The economic reform transforms China's purely state-controlled economy into a mixed economy, with foreigner owned firms and privately owned firms after 1978. The mixed economy encourages the demand for an accounting system that would serve not only the state but also other shareholders, especially for the foreigners who require accounting information in accordance with internationally acceptable standards. Furthermore, the China Securities Regulatory Commission (CSRC) and the Chinese Institute of Certified Public Accountants were founded in 1992 and 1995, respectively. The former organization is responsible for the financial disclosure requirements of listed company whereas the latter organization regulates CPAs and issues auditing standards.

4.2.2 Capital market influence

The second driving force for the accounting reform is the development of capital market. In the early 1980s, the shareholding system was adopted by some of the state-owned firms on an experimental basis, and treasury bonds started to be issued. A Chinese firm can issue six types of shares in the Chinese stock market: state share, legal person share, employee share, A-share, B-share and H-share. Only the last three types of shares could be freely traded. A-share is set as ordinary equity share available exclusively to the domestic Chinese. B-share is restricted exclusively to foreign investors or Chinese overseas investors.[23] H-share is listed in Hong Kong and can be traded freely for the investors who have access to the stock exchange located in Hong Kong.[24] There are also N-share and S-share listed in the stock exchanges located in New York and Singapore, respectively, but the markets are too small relative to A-share.

In order to facilitate the transformation of shareholders' structure, China's capital markets have been developing at the same time. The Shanghai Stock Exchange (SHSE) and Shenzhen Stock Exchange (SZSE) were established in 1990 and 1991, respectively. The number of A-share's firms listed in the two stock exchanges has increased to over 3,000, and total market capitalization has increased to 508,245 million yuan as of October 2016, which accounts for 68.35% on the basis of GDP in 2016 (see Table 4-2). The drastic development of capital market has driven Chinese accounting toward a capital market-oriented system, which could be verified by the 1992 ASBE, with the structure, content,

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[23] The regulations for A- and B-share have been revised since 2002 and are detailed in Chapter 6.

[24] The regulations for H-share have been revised since 2014, and are detailed in Chapter 7.

format, and disclosure of financial information significantly influenced by the needs of the capital market (Tang and Lau, 2000).

4.2.3 Foreign investment influence

The third driving force for the accounting reform is the increase of foreign direct investment (FDI). FDI has increased dramatically since 1990s owing to the open-doors policy. As depicted in Figure 4-2, the amount of FDI has increased sharply from 1993, with the amount over US$20 billion. The increasing trend lasts to 2017. The FDI introduces international business transactions into China's market, which creates the firm's incentives to align its accounting practices with internationally accepted accounting standards (Tang and Lau, 2000).

In order to satisfy the needs for the accounting rules related to the increasing FDI, "Foreign-Chinese Joint Venture Accounting Regulations" (FCJVAR) was issued in 1985 to introduce the international practices and was implemented on an experimental basis. Owing to the successful experience of the FCJVAR, MOF issued "Accounting Regulations for Foreign Investment Enterprises" (ARFIE) based on FCJVAR in 1992 (MOF, 1992c), shown in Figure 4-1.

As was mentioned earlier, ASBE were issued in 1992, the same period of ARFIE. In fact, ARFIE has many similarities with ASBE, suggesting that foreign investment has significant impact on the accounting reform during the period of   transferring from the central planning-oriented economic to a capital market-oriented one (Tang and Lau, 2000) .

4.3 Chapter conclusion

Chinese economic reforms, capital market foundation, and the needs of foreign investment have caused great changes in CAS reform. Through the 1992 and 2006 accounting reforms, CAS have shifted from Soviet Union style to Anglo-American style and completed the convergence with IFRS. However, the differences remained between CAS and IFRS.

Table 4-2 Inter-temporal numbers and market value of Chinese listed firms' shares

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
No. of A-share	1,113	1,176	1,267	1,272	1,325	1,441	1,516	1,610	1,955	2,234	2,387	2,383	2,509	2,726	2,952
No. of B-share	111	111	110	109	109	109	109	108	108	108	107	106	104	101	100
No. of H-share	75	93	111	122	143	148	153	159	165	171	179	185	206	231	241
Stock Market Value (100 million yuan)	38,329	42,458	37,056	32,430	89,404	327,141	121,366	243,939	265,423	214,758	230,358	230,977	372,547	531,304	508,245
in which: A-share	37,527	41,520	35,896	31,345	86,099	313,941	114,297	223,644	220,491	178,447	191,240	185,148	297,914	369,226	355,404
in which: B-share	802.57	937.23	746.22	619.73	1,289.94	2,553.15	799.88	1,812.10	2,202.05	1,448.26	1,582.29	1,673.92	1,723.79	2,211.06	1,913.12
GDP (100 million yuan)	121,717	137,422	161,840	187,319	219,439	270,232	319,516	349,081	413,030	489,301	540,367	595,244	643,974	689,052	743,586
Percent of MV on GDP	31.49%	30.90%	22.90%	17.31%	40.74%	121.06%	37.98%	69.88%	64.26%	43.89%	42.63%	38.80%	57.85%	77.11%	68.35%
in which: A-share	30.83%	30.21%	22.18%	16.73%	39.24%	116.17%	35.77%	64.07%	53.38%	36.47%	35.39%	31.10%	46.26%	53.58%	47.80%
in which: B-share	0.66%	0.68%	0.46%	0.33%	0.59%	0.94%	0.25%	0.52%	0.53%	0.30%	0.29%	0.28%	0.27%	0.32%	0.26%

Source: created by the author.
Stock data are collected from the websites of CSRC, SHSE, SZSE. Accessed on Oct 18, 2018.
SZSE: http://www.szse.cn/market/index.html.
SHSE: http://www.sse.com.cn/market/overview/.
CSRC: http://www.csrc.gov.cn/pub/newsite/sjtj/zqscyb/.
GDP data are collected from the website of National Bureau of Statistics of China. Access http://data.stats.gov.cn/ks.htm?cn=C01 on October 1, 2018.

FDI (million US$)
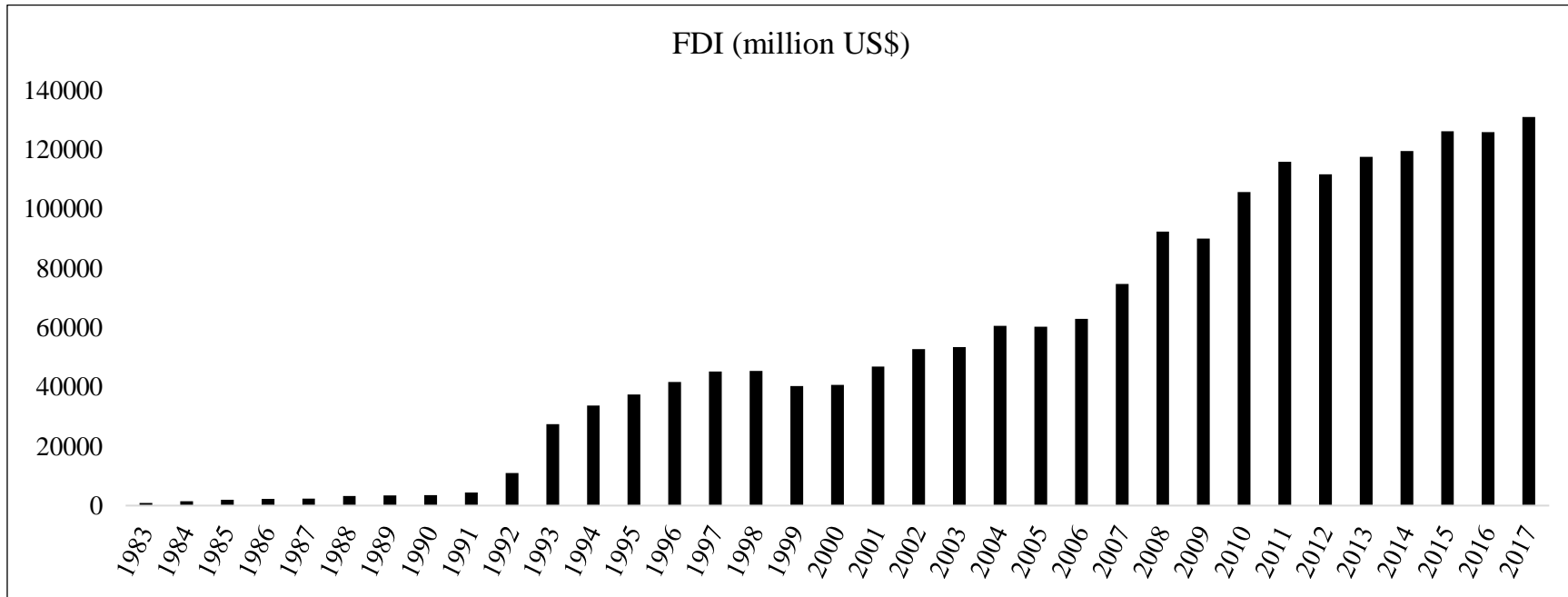
Figure 4-2 China's time-series changes of FDI. Source: created by the author based on the National data, National Bureau of Statistics of China, access http://data.stats.gov.cn/search.htm?s=FDI on Jan 22, 2019

5 The Effects of New CAS' Convergence with IFRS on Value Relevance: Evidence from A-Share Market

This chapter aims to examine whether New CAS, which converged with IFRS, is associated with higher accounting quality. The convergence with IFRS reflects combined effects of features of the financial reporting system, including accounting standards, their interpretation, enforcement, and litigation (Barth et al., 2008). I find that firms applying New CAS in China A-share market generally provide less value relevance of accounting information than the same firms under Old CAS. Firms adopting New CAS generally evidence deterioration in accounting quality from the pre- to the post-adoption period. Although I cannot be sure my findings are attributable to the change in the financial accounting standards rather than to the changes in firms' incentives and the economic environment, we provide preliminary results of the economic effect of the IFRS convergence of New CAS in China.

5.1 Introduction

This chapter is organized as follows. Section 5.2 introduces the outline of the Chinese capital market for A-share and the development of CAS and then develops testable hypotheses based on an overview of related research. Section 5.3 presents the study's research methods with model specifications. Section 5.4 discusses the sample and data. Section 5.5 presents empirical findings and explores plausible explanations for these

findings. Section 5.6 interprets the results of the robustness check. Section 5.7 concludes the chapter and provides avenues for future research.

5.2 Background, literature review and hypothesis

5.2.1 Background

As was detailed in Chapter 4, New CAS convergence with IFRS was promulgated in 2006 and implemented for all of the listed firms from 2007. Even though the listed firms in China could issue A-, B-, H-, N- and S-share, most of the listed firms issue only A-share in SHSE or SZSE. The number of the listed firms that issued A-share has nearly tripled from 2002 (1,113 firms) to 2016 (2,952 firms) (refer to Table 4-2).

5.2.2 Literature review

The studies on the value relevance of CAS have not obtained consist conclusion. Chen et al. (2001) examined whether A-shares' investors perceive the CAS-based accounting information to be value relevant based on a price model and a return model. As a result of examining the sample of all Chinese listed firms during the period between 1991 and 1998, Chen et al. (2001) reported that accounting information is value relevant to domestic A-share investors despite the immaturity of the A-share market and the perception of inadequate accounting and financial reporting.

Liu et al. (2011) examined the impact of IFRS-convergent accounting standards on the listed firms' accounting quality for the period of 2005–2008 for only A-share firms. Using Barth et al.'s (2008) model, Liu et al. (2011) divided the sample into two groups, pre-New CAS (2005–2006) and post-New CAS (2007–2008) and compared the earnings

management and value relevance between the two periods. The results indicate that accounting quality improved with decreased earnings management and increased the value relevance of accounting information after mandatory adoption of New CAS. However, when they examined the adoption effects of New CAS for only A-share firms, it was difficult to control other factors compounding with accounting standards, such as economy and legal system. In addition, the influence of the subprime mortgage crisis occurring from 2007 to 2008 would distort the results.

Lee et al. (2013) investigated the effects of New CAS by comparing the value relevance of financial information reported before (2003–2006) and after 2007 (2007–2009) using the Compound model. Different to the prior research, Lee at al. (2013) focus on the comprehensive effect of IFRS-converged CAS with a range of institutional factors, such as industry, region, corporate governance, and government subsidy using the sample of A-share firms. While the prior research suggested that China may not benefit from IFRS convergence due to the weak legal enforcement and investor protection, Lee at al. (2013) found that the Chinese firms belonging to more competitive industries, located in less-developed regions, under less state control, with greater foreign ownership and in receipt of less government subsidy, would benefit more from IFRS convergence. The mentioned firms expect more external investment through the reported accounting information under IFRS-converged CAS.

Even though Lee et al. (2013) concluded New CAS enhanced the value relevance of the A-share firms' information, the more benefits of New CAS are found in the specific firms. Therefore, the effects examined are hard to recognize as belonging to the IFRS convergence per se other than the institutional impact.

Wu et al. (2017) used Gu's (2007) APE, which is distinct from the above research, to test

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the value relevance of the financial information of Taiwanese listed firms, based on local GAAP during the 1999–2011 IFRS-convergence period. Their findings showed that for a country with a set of high-quality accounting standards, convergence with IFRS would not lead to further increase in the value relevance of financial statements. While Wu et al. (2017) improved the measurement of value relevance used in prior research, the effect of factors other than accounting standards was out of their consideration.

5.2.3 Hypothesis development

As was presented in Chapter 4, there were some differences between Old CAS and New CAS. For example, the last-in-first-out (LIFO) inventory measurement approach and the reversal of impairment of assets are accepted by Old CAS but rejected by New CAS. FV is forbidden by Old CAS but is adopted by New CAS. The differences between New CAS and Old CAS suggest that the standard setters aim to suppress earnings management that easily happened under Old CAS. But it is difficult to expect the FV accounting applied in New CAS to improve the accounting information quality because the FV is not suitable to the unmatured market (Qu and Zhang, 2015). Based on the difference between Old CAS and New CAS, I develop the hypothesis in the null form as follows:

H: The value relevance of New CAS-based financial information is the same as that of Old CAS-based financial information.

5.3 Research design

I conduct the examination in two steps. In Step 1, I examine the value relevance changes

of accounting information under CAS between the pre-convergence period (2003–2006) and those in the post-convergence period (2007–2016) using Equations (5-1) through (5-3).

$$P_{it} = \alpha_0 + \alpha_1 EPS_{it} + \alpha_2 Post_{it} + \alpha_3 EPS_{it} \times Post_{it} + \varepsilon_{it} \tag{5-1}$$

$$P_{it} = \alpha_0 + \alpha_1 BVPS_{it} + \alpha_2 Post_{it} + \alpha_3 BVPS_{it} \times Post_{it} + \varepsilon_{it} \tag{5-2}$$

$$P_{it} = \alpha_0 + \alpha_1 BVPS_{it} + \alpha_2 EPS_{it} + \alpha_3 Post_{it} + \alpha_4 BVPS_{it} \times Post_{it} + \alpha_5 EPS_{it} \times Post_{it} + \varepsilon_{it} \tag{5-3}$$

Where P_{it} is the stock price of firm i at 6 months after the fiscal year end of period t ; $BVPS_{it}$ is the book value per share of owners' equity determined under CAS for firm i at time t and deflated by A-share numbers; EPS_{it} is the net income per share determined under CAS for firm i at time t and deflated by the A -share numbers; $Post_{it}$ is a dummy variable taking the value of 1 for New CAS period in 2007–2016 and 0 otherwise; ε_{it} is the nonrandom "other information" distinct from book value and earnings per share determined under CAS.

In Step 2, I investigate the inter-temporal changes of CAS' value relevance measured by yearly adjusted explanatory power ($AdjR^2$) and Gu's (2007) PEs, respectively, using the firms listed in SHSE and SZSE. My empirical metrics of accounting quality reflect the effects attributable to the financial reporting system as well as those unattributable to the financial reporting system, including the economic environment and incentives for firms to adopt New CAS. The value relevance metrics of $AdjR^2$ and Gu's (2007) PEs are from the regression given by Equations (5-4) through (5-6).

Gu's (2007) PEs are calculated as RPE, SPE and APE. (See Chapter 3 for details)

$$P_{it} = \alpha_0 + \alpha_1 BVPS_{it} + \varepsilon_{it} \tag{5-4}$$

$$P_{it} = \alpha_0 + \alpha_1 EPS_{it} + \varepsilon_{it} \tag{5-5}$$

$$P_{it} = \alpha_0 + \alpha_1 BVPS_{it} + \alpha_2 EPS_{it} + \varepsilon_{it} \tag{5-6}$$

5.4 Sample and descriptive statistics

Chinese business firms issuing A-share with annual financial information and stock price for all periods 2003–2016 were selected for this chapter. The financial and stock price data for A-share are available in the China Stock Market and Accounting Research Database (CSMAR), which was developed by the Chinese financial services company GTA. For dropping firms without earnings or shareholders' equity book value for financial reports, a total of 11,928 firm-year observations were obtained from different industries. Firms in the banking, securities and insurance industries were excluded from the sample. Table 5-1 presents the descriptive statistics of the sample variables included in the regression models. All variables are winsorized at a 0.5% level.

Table 5-1 Descriptive statistics

Variable	Obs	Mean	SD	Min	Max
P	11928	10.563	8.437	2.100	61.880
EPS_A	11949	0.296	0.496	-1.433	2.758
BVPS_A	11949	3.818	2.335	0.295	14.669

P_{it}: the stock price of firm i at 6 months after the fiscal year end of period t; $EPS_{A_{it}}$: the net income per share determined under CAS for firm i at time t and deflated by total shares numbers; $BVPS_{A_{it}}$: the book value per share of owners' equity determined under CAS for firm i at time t and deflated by total shares numbers; ε_{it}: the nonrandom "other information" distinct from book value and earnings per share determined under CAS or IFRS.

Table 5-2 indicates the Pearson correlation among the selected variables on the A- share samples related to Equations (5-4) through (5-6). It is noted the variables EPS and BVPS are highly correlated (0.6424). Under the Variance inflation factor (VIF) test, the VIF value is less than 10, which indicates the multicollinearity problem is not critical.

	P	EPS_A	BVPS_A
P	1		
EPS_A	0.5162*	1	
BVPS_A	0.4647*	0.6424*	1

<div align="center">Table 5-2 Pearson correlation</div>

P_{it}: the stock price of firm i at 6 months after the fiscal year end of period t; EPS_{Ait}: the net income per share determined under CAS for firm i at time t and deflated by total share numbers; $BVPS_{Ait}$: the book value per share of owners' equity determined under CAS for firm i at time t and deflated by total share numbers.

5.5 Results

Table 5-3 provides empirical results on the value relevance comparison in Step 1 based on the regression of Equations (5-1) through (5-3). The cross terms ($EPS \times POST$, $BVPS \times POST$) are significantly positive in Model 1 and Model 3 and the cross term ($BVPS \times POST$) is significantly positive in Model 2. The findings suggest that the accounting information for A-share in New CAS period has incremental value relevance over the accounting information for A-share in Old CAS period.

Table 5-4 depicts the yearly-regression results for Step 2. The inter-temporal results of adjusted R^2s and Gu's (2007) PEs are described by graphs in Figures 5-1 through 5-4. Figure 5-1 shows the similar trend of adjusted R^2s calculated by Equations (5-1) through (5-3). All the adjusted R^2s increase from 2003 to 2009 and decrease after 2009, suggesting that the value relevance decreases after the adoption of New CAS. The graphs of Gu's (2007) PEs (Figures 5-2 through 5-4) provide the similar increasing trends for the whole sample period, which indicate that the adoption of New CAS provides a decreasing value relevance of accounting information. Both the results of $AdjR^2$ and PEs reject the hypothesis.

Table 5-3 Empirical results for Step 1

	Model 1	Model 2	Model 3
EPS	5.521		4.198
	[19.15]***		[12.47]***
BVPS		1.207	0.636
		[16.09]***	[7.74]***
POST	*2.441*	*0.589*	*2.021*
	[8.10]***	[1.41]	[5.07]***
EPS × POST	3.313		2.835
	[10.56]***		[7.56]***
BVPS × POST		0.360	-0.056
		[4.51]***	[-0.63]
Constant	6.037	3.635	4.384
	[21.85]***	[9.77]***	[12.43]***
Year dummy	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes
Adjusted R-square	0.494	0.425	0.508
N	11921	11921	11921

P_{it}: the stock price of firm i at 6 months after the fiscal year end of period t; $EPS_{A_{it}}$: the net income per share determined under CAS for firm i at time t and deflated by total share numbers; $BVPS_{A_{it}}$: the book value per share of owners' equity determined under CAS for firm i at time t and deflated by total share numbers; $Post_{it}$ is a dummy variable taking the value of 1 for New CAS period in 2007–2016 and 0 otherwise.
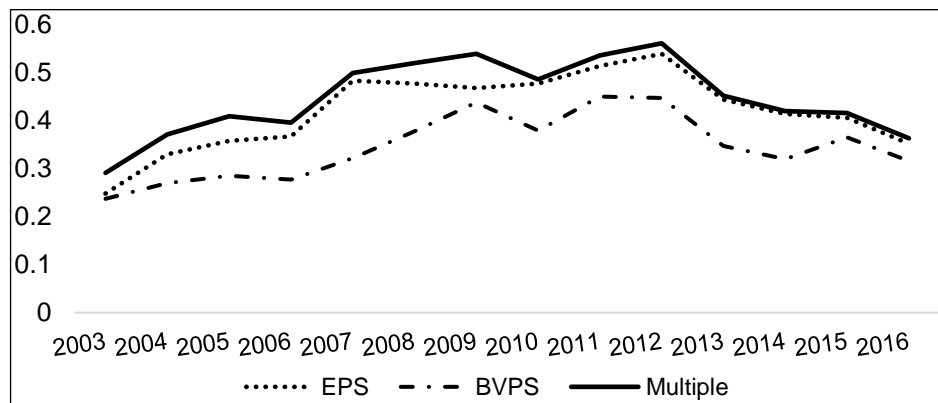
Figure 5-1 Yearly regressions (Adjusted R^2)
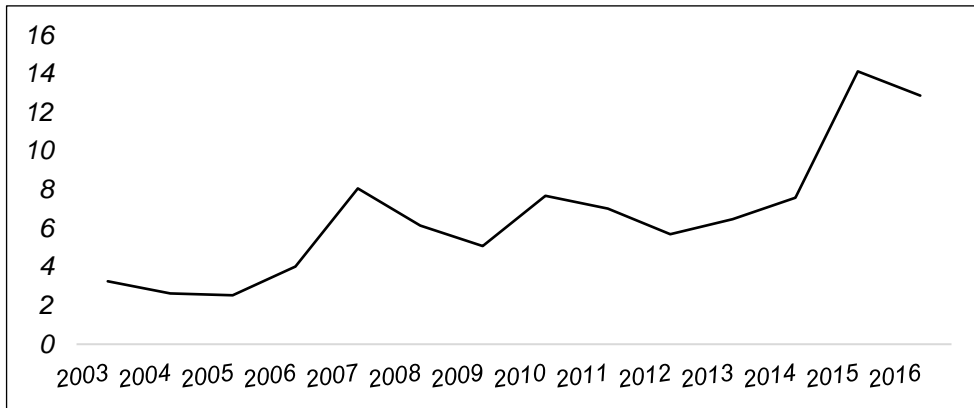
Figure 5-2 Yearly regressions (RPE_A)
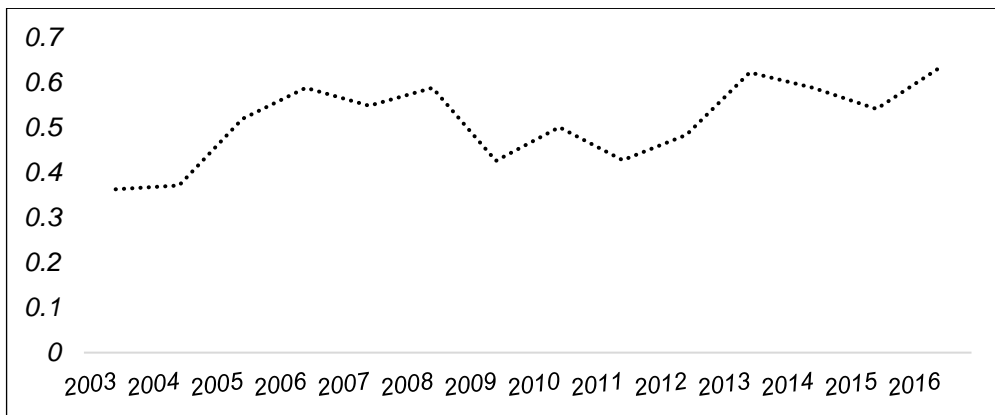
Figure 5-3 Yearly regressions (SPE_A)
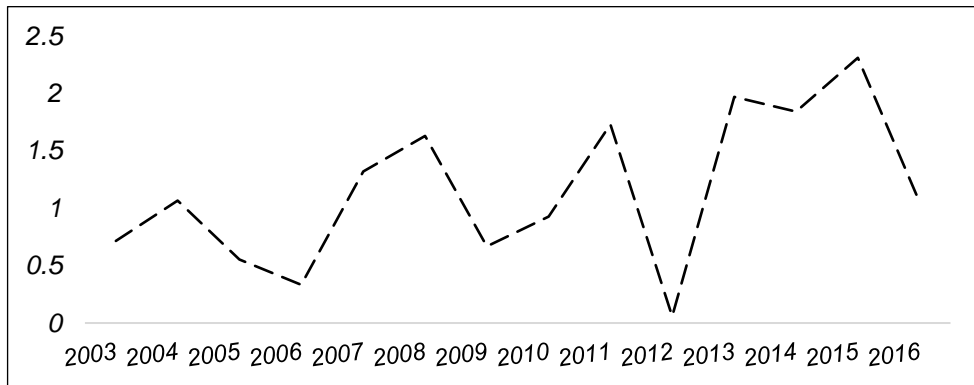
Figure 5-4 Yearly regressions (APE_A)

5.6 Robustness check

I re-conduct the examination by dividing the sample into two stock exchanges, namely

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SZSE and SHSE. Table 5-5 and Table 5-6 depict the yearly-regression results for SZSE and SHSE, respectively. The results shown in Figures 5-5 through 5-8 are for SZSE and Figures 5-9 through 5-12 are for SHSE. The results of SZSE and SHSE provide similar graphs to the results of the total sample (Figures 5-1 through 5-4). Therefore, the explanations focus on the results of SZSE.

Figure 5-5 shows the trends of adjusted R^2s calculated by Equations (5-1) through (5-3) using the sample of SZSE. The trends of adjusted R^2s are similar to that of the total sample, which increases from 2003 to 2009 and decreases after 2009, suggesting that the value relevance decreases after the adoption of New CAS.
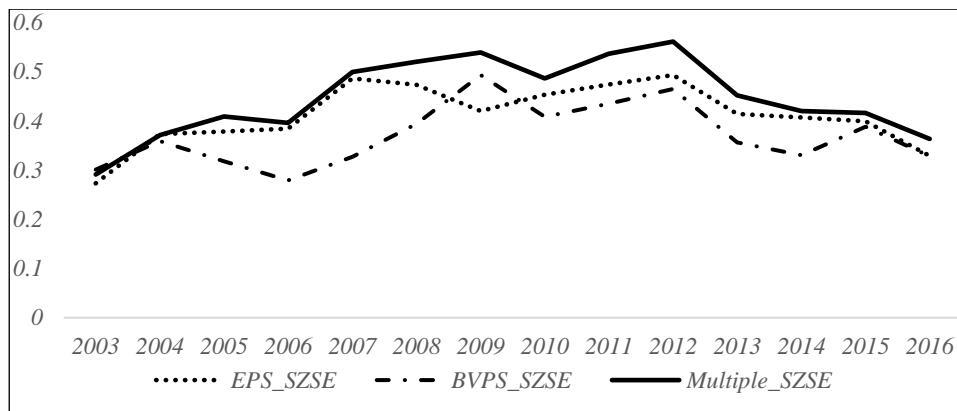
Figure 5-5 Yearly regressions for firms listed in SZSE (Adjusted R^2)
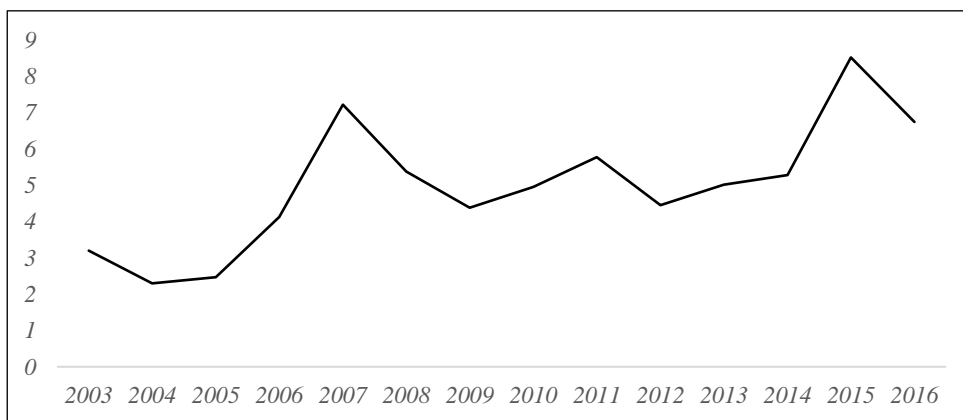
Figure 5-6 Yearly regressions for firms listed in SZSE (RPE_A)

Figure 5-7 Yearly regressions for firms listed in SZSE (SPE_A)
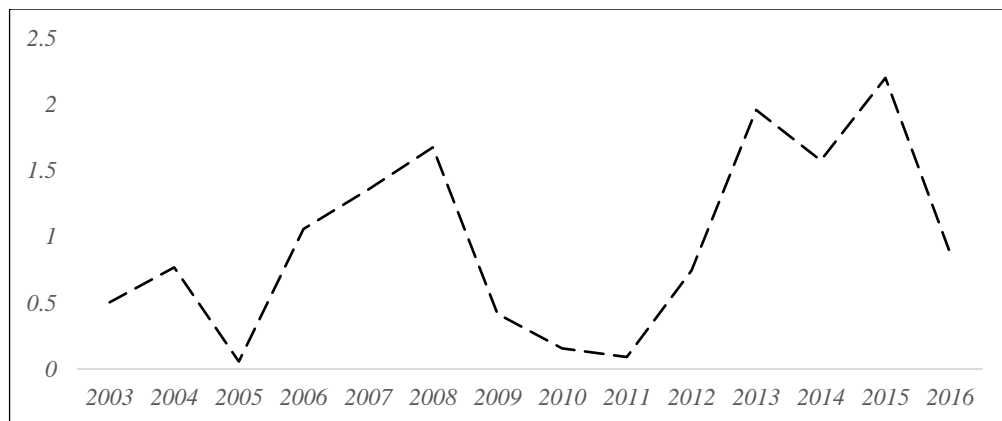
Figure 5-8 Yearly regressions for firms listed in SZSE (APE_A)

Figures 5-6 through 5-8 show the trends of RPE, SPE and APE, respectively. While there are sharp decreases for APE in 2010 and 2011, the PEs depict an increasing trend for the whole sample period, suggesting the value relevance decreases after the adoption of New CAS.
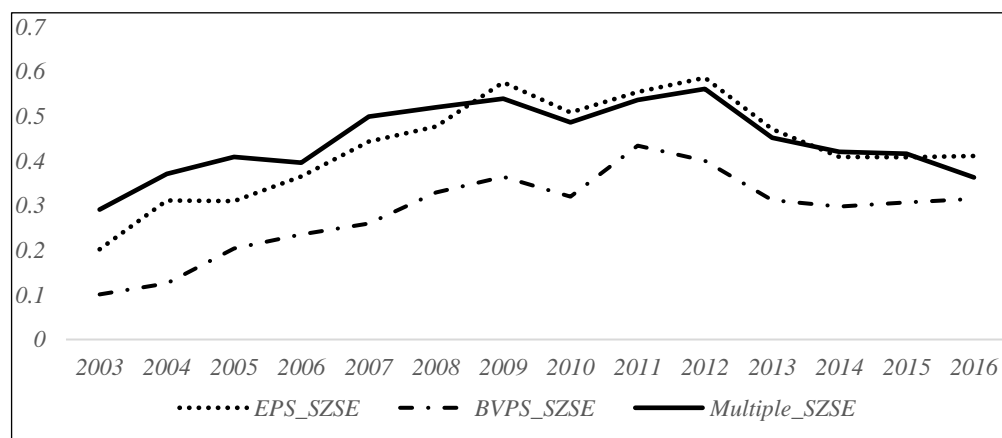
Figure 5-9 Figure Yearly regressions for firms listed in SHSE (Adjusted R^2)
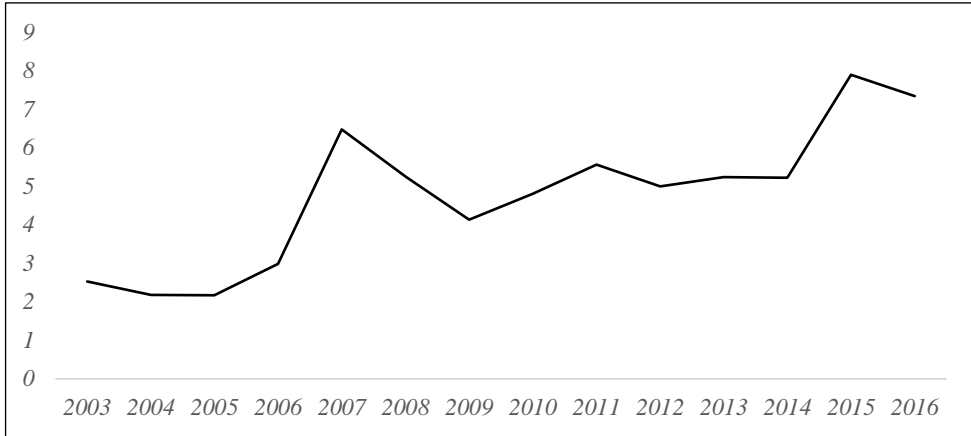
Figure 5-10 Yearly regressions for firms listed in SHSE (RPE_A)

Figure 5-11 Yearly regressions for firms listed in SHSE (SPE_A)
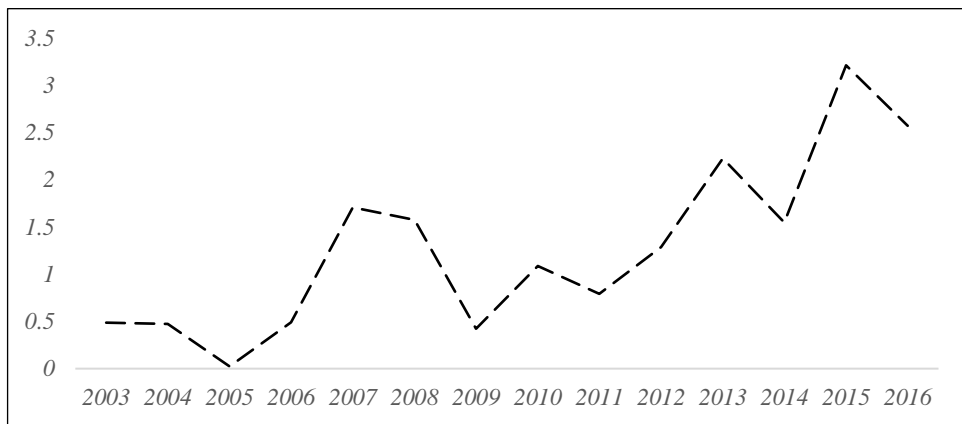
Figure 5-12 Yearly regressions for firms listed in SHSE (APE_A)

5.7 Chapter's conclusion and limitations

Chapter 5 conducted the empirical test of the effect on value relevance of New CAS using the samples of Chinese firms issuing A-share. I used (1) Price/Return-earnings model, (2) Balance sheet model and (3) Compound model to examine the changes in value relevance measured by adjusted R^2 and Gu's (2007). The results indicated a decreasing quality of accounting earnings during the process of CAS' convergence with IFRS. However, the effects cannot be attributed to CAS per se due to the various factors' impacts on accounting quality explained in Chapter 2. Therefore, further study is needed.

Table 5-4 Yearly regressions for firms listed in SHSE and SZSE

Panel A: $P_{it} = \alpha_0 + \alpha_1 EPS_{it} + \varepsilon_{it}$

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
EPS	5.053	4.686	4.561	7.908	15.315	11.172	9.224	9.012	9.502	8.506	7.587	6.791	7.745	6.694
	[12.86]***	[17.56]***	[19.07]***	[19.35]***	[26.01]***	[24.54]***	[23.94]***	[22.09]***	[22.92]***	[24.20]***	[20.72]***	[18.77]***	[14.20]***	[13.69]***
constant	7.54	5.372	3.317	4.23	10.067	5.441	8.054	4.154	4.551	3.33	2.804	3.682	13.578	8.475
	[19.55]***	[18.29]***	[10.98]***	[8.92]***	[11.48]***	[7.96]***	[13.60]***	[6.66]***	[6.30]***	[5.53]***	[4.36]***	[5.58]***	[13.12]***	[9.57]***
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj R^2	0.248	0.33	0.358	0.367	0.483	0.477	0.468	0.477	0.514	0.539	0.444	0.414	0.406	0.352

Panel B: $P_{it} = \alpha_0 + \alpha_1 BVPS_{it} + \varepsilon_{it}$

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
BVPS	1.007	0.958	1.1	1.631	2.829	2.369	1.967	1.539	1.865	1.56	1.293	1.103	1.345	1.058
	[12.34]***	[14.76]***	[15.69]***	[15.14]***	[18.17]***	[19.51]***	[22.38]***	[16.93]***	[19.29]***	[18.90]***	[15.79]***	[13.95]***	[11.70]***	[11.63]***
constant	5.604	3.446	0.918	1.045	5.669	0.721	4.496	2.284	1.248	0.651	0.681	1.507	9.929	5.784
	[12.67]***	[9.72]***	[2.48]*	[1.80]	[5.09]***	[0.88]	[6.75]***	[3.13]**	[1.50]	[0.91]	[0.90]	[1.93]	[8.36]***	[5.78]***
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj R^2	0.237	0.27	0.285	0.277	0.322	0.378	0.438	0.379	0.45	0.447	0.347	0.32	0.365	0.316

Panel C: $P_{it} = \alpha_0 + \alpha_1 BVPS_{it} + \alpha_2 EPS_{it} + \varepsilon_{it}$

Multiple	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
EPS	3.437	3.479	3.435	6.135	12.735	8.377	6.049	7.448	6.979	6.571	6.3	5.778	5.999	5.044
	[7.67]***	[11.30]***	[12.88]***	[12.51]***	[16.71]***	[15.27]***	[13.17]***	[12.81]***	[12.11]***	[14.35]***	[12.32]***	[11.69]***	[8.33]***	[7.71]***
BVPS	0.635	0.518	0.614	0.753	0.917	1.127	1.127	0.445	0.778	0.626	0.378	0.3	0.539	0.445
	[6.88]***	[7.22]***	[8.29]***	[6.23]***	[5.21]***	[8.40]***	[11.05]***	[3.74]***	[6.16]***	[6.38]***	[3.58]***	[2.99]**	[3.67]***	[3.76]***
constant	6.075	4.107	1.789	2.474	7.813	2.644	5.262	3.21	2.59	1.656	1.781	2.744	11.619	6.872
	[14.11]***	[12.29]***	[5.21]***	[4.56]***	[8.09]***	[3.60]***	[8.68]***	[4.80]***	[3.34]***	[2.57]*	[2.55]*	[3.77]***	[10.04]***	[7.04]***
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj R^2	0.291	0.371	0.409	0.396	0.499	0.52	0.539	0.486	0.536	0.561	0.452	0.42	0.416	0.363
N	825	853	853	853	853	853	853	854	854	854	854	854	854	854

Table 5-5 Yearly regressions for firms listed in SZSE

Panel A: $P_{it} = \alpha_0 + \alpha_1 \ EPS_{it} + \varepsilon_{it}$

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
EPS_SZSE	5.82	5.09	4.929	8.683	16.089	11.268	8.589	9.29	9.346	7.378	6.9	6.447	7.037	5.269
	[9.96]***	[13.85]***	[15.18]***	[15.44]***	[20.45]***	[19.13]***	[16.36]***	[16.02]***	[16.24]***	[16.92]***	[14.64]***	[13.67]***	[9.46]***	[8.26]***
constant	7.523	5.347	3.333	4.441	9.929	5.844	8.446	4.15	4.422	4.111	3.069	4.007	13.468	8.587
	[14.31]***	[14.34]***	[8.39]***	[6.88]***	[8.65]***	[6.69]***	[10.86]***	[5.13]***	[4.69]***	[5.62]***	[3.82]***	[4.80]***	[10.02]***	[7.99]***
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj R²	0.273	0.373	0.378	0.384	0.486	0.473	0.42	0.453	0.474	0.493	0.414	0.407	0.399	0.329

Panel B: $P_{it} = \alpha_0 + \alpha_1 \ BVPS_{it} + \varepsilon_{it}$

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
BVPS_SZSE	1.2	1.061	1.201	1.757	2.85	2.369	1.949	1.602	1.803	1.465	1.208	1.036	1.351	0.93
	[11.00]***	[13.30]***	[12.98]***	[11.63]***	[14.45]***	[16.04]***	[19.34]***	[14.16]***	[14.58]***	[15.69]***	[12.39]***	[10.55]***	[8.95]***	[8.21]***
constant	5.125	3.018	0.497	0.617	5.054	1.34	4.61	2.255	1.611	1.372	1.113	2.073	9.353	5.895
	[8.64]***	[6.80]***	[1.01]	[0.77]	[3.47]***	[1.31]	[5.84]***	[2.51]*	[1.52]	[1.68]	[1.22]	[2.13]*	[6.12]***	[4.90]***
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj R²	0.301	0.359	0.318	0.279	0.327	0.394	0.493	0.408	0.435	0.465	0.356	0.33	0.388	0.328

Panel C: $P_{it} = \alpha_0 + \alpha_1 \ BVPS_{it} + \alpha_2 EPS_{it} + \varepsilon_{it}$

Multiple	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
EPS_SZSE	3.299	3.366	3.635	6.868	13.172	8.1	4.478	6.473	6.381	4.841	5.143	5.347	4.62	3.156
	[4.85]***	[7.91]***	[10.28]***	[10.44]***	[13.07]***	[11.46]***	[7.69]***	[8.26]***	[8.33]***	[8.62]***	[7.86]***	[8.23]***	[4.74]***	[3.63]***
BVPS_SZSE	0.842	0.649	0.712	0.816	0.992	1.209	1.391	0.761	0.895	0.788	0.492	0.311	0.739	0.544
	[6.50]***	[7.11]***	[7.40]***	[4.99]***	[4.49]***	[7.32]***	[11.63]***	[5.19]***	[5.64]***	[6.74]***	[3.81]***	[2.45]*	[3.77]***	[3.52]***
constant	5.573	3.677	1.469	2.439	7.389	2.95	5.003	2.602	2.266	2.019	1.776	3.05	10.663	6.589
	[9.52]***	[8.64]***	[3.24]**	[3.27]**	[5.87]***	[3.22]**	[6.70]***	[3.09]**	[2.29]*	[2.64]**	[2.06]*	[3.33]***	[7.02]***	[5.47]***
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj R²	0.335	0.433	0.443	0.414	0.506	0.527	0.549	0.482	0.507	0.537	0.43	0.413	0.415	0.345
N	500	528	528	528	528	528	528	529	529	529	529	529	529	529

Table 5-6 Yearly regressions for firms listed in SHSE

Panel A: $P_{it} = \alpha_0 + \alpha_1\ EPS_{it} + \varepsilon_{it}$

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
EPS_SHSE	3.87	4.273	3.876	6.777	13.497	11	9.942	8.889	9.715	10.356	8.87	7.26	8.733	8.567
	[7.46]***	[10.81]***	[10.47]***	[11.89]***	[14.48]***	[14.37]***	[17.71]***	[14.54]***	[15.41]***	[16.74]***	[14.37]***	[12.46]***	[10.60]***	[10.80]***
constant	7.494	5.358	3.332	4.022	10.625	4.756	7.503	4.016	4.819	2.164	2.423	3.235	13.864	8.718
	[14.45]***	[11.96]***	[7.36]***	[6.44]***	[7.75]***	[4.33]***	[8.65]***	[4.02]***	[4.18]***	[2.07]*	[2.23]*	[2.97]**	[8.51]***	[5.72]***
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj R²	0.202	0.311	0.31	0.365	0.443	0.477	0.576	0.508	0.554	0.586	0.471	0.409	0.408	0.411

Panel B: $P_{it} = \alpha_0 + \alpha_1\ BVPS_{it} + \varepsilon_{it}$

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
BVPS_SHSE	0.553	0.686	0.888	1.286	2.711	2.325	1.939	1.456	1.913	1.746	1.514	1.291	1.421	1.29
	[4.34]***	[5.88]***	[7.67]***	[8.40]***	[9.53]***	[10.03]***	[10.89]***	[8.82]***	[11.36]***	[10.44]***	[9.79]***	[9.36]***	[7.51]***	[7.86]***
constant	6.609	4.32	1.693	2.128	6.892	-0.193	4.468	2.236	0.862	-0.602	-0.321	0.212	10.511	5.728
	[10.48]***	[7.48]***	[2.99]**	[2.70]**	[3.83]***	[-0.14]	[3.72]***	[1.75]	[0.61]	[-0.44]	[-0.24]	[0.16]	[5.46]***	[3.21]**
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj R²	0.101	0.126	0.204	0.235	0.26	0.329	0.364	0.32	0.434	0.4	0.312	0.298	0.307	0.315

Panel C: $P_{it} = \alpha_0 + \alpha_1\ BVPS_{it} + \alpha_2 EPS_{it} + \varepsilon_{it}$

Multiple	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
EPS_SHSE	3.489	3.956	3.141	5.787	12.199	9.036	9.036	9.791	8.457	9.28	8.079	6.009	7.679	7.273
	[6.08]***	[8.67]***	[7.32]***	[7.81]***	[9.57]***	[9.62]***	[11.83]***	[10.29]***	[8.77]***	[11.28]***	[9.15]***	[7.56]***	[6.97]***	[6.98]***
BVPS_SHSE	0.204	0.166	0.404	0.376	0.503	0.872	0.345	-0.27	0.393	0.364	0.243	0.396	0.336	0.38
	[1.54]	[1.39]	[3.24]**	[2.08]*	[1.49]	[3.47]***	[1.74]	[-1.24]	[1.72]	[1.97]*	[1.25]	[2.30]*	[1.44]	[1.90]
constant	7.037	4.994	2.414	3.238	9.446	2.471	6.647	4.613	3.767	1.197	1.749	1.956	12.735	7.415
	[11.80]***	[9.64]***	[4.57]***	[4.46]***	[5.98]***	[1.96]	[6.68]***	[4.16]***	[2.90]**	[1.04]	[1.44]	[1.61]	[7.05]***	[4.46]***
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj R²	0.206	0.314	0.333	0.373	0.445	0.498	0.579	0.509	0.558	0.59	0.472	0.418	0.41	0.417
N	325	325	325	325	325	325	325	325	325	325	325	325	325	325

6 The Effects of New CAS' Convergence with IFRS on Value Relevance: Evidence from A- and B-Share Markets

This chapter, using a sample of Chinese firms that issue both A-share based on CAS and B-share based on IFRS, investigates whether the convergence of CAS with IFRS has enhanced value relevance from 2003 to 2013. The B-share firms were used to control for the impact of the factors other than accounting standards.

I first estimated the price-levels models and the lagged-price-deflated return models for the relation between market values and accounting information and then compared the informative contents for the pre-convergence period (2003–2006) to those for the post-convergence period (2010–2013).

I then examined value relevance measured by explanatory powers and PEs over time. This chapter documents significant increase in the contents of A-share's financial information after the convergence. While the A-share's value relevance measured by adjusted R^2 is increasing over time, the value relevance measured by PEs is decreasing.

These findings suggest that, even though the CAS-based accounting information (earnings and book values) and the reconciliation of accounting information from CAS to IFRS have incremental information contents, their value relevance in relation to the A-share proxy for PEs is decreasing after the convergence with the same trends in the IFRS-based accounting information.

6.1 Introduction

As was indicated in Chapter 4, in February 2006 the CSRC mandated new substantially IFRS-convergent accounting standards, namely New CAS, to be applicable to Chinese listed firms as of 2007. This mandate was a turning point in Chinese accounting regulation. China, which became the world's second-largest economy in 2017 as a result of high growth, has been processing convergence between CAS and IFRS promulgated by the IASB. Distinct from the pure adoption of IFRS, which would require abandoning the local GAAP of individual countries, convergence requires continuing to adopt national accounting standards while minimizing their differences from IFRS.

The mandatory adoption of New CAS attracted major worldwide attention, not only because of the increasing demand by investors for more relevant and reliable information from Chinese capital markets, thus far mainly disciplined by regulators rather than market mechanisms. In addition, this move was a step toward the aim of a single global set of high-quality accounting standards set by IASB. Thus, the birth of New CAS suggested that China was entering a new era of globalization in its financial reporting practices (Ding and Su, 2008). However, there is still no clear conclusion as to whether New CAS, converged with IFRS, would enhance the quality of Chinese firms' financial information. This chapter aims to investigate the effect of New CAS on value relevance, one aspect of accounting information quality.

This chapter offers distinct investigative characteristics from prior literature. I first tested the value relevance affected by New CAS using a peculiar sample of Chinese firms that issue both A-share (CAS-based accounting information) and B-share (IFRS-based

accounting information) to differentiate the impact of the accounting standard and other enforcement factors stemming from varied environments. The literature on the effect of IFRS on value relevance has rarely successfully differentiated the impact of accounting standards and other enforcement factors of different domestic periods or different countries. National accounting standards are closely related to individual domestic environment, such as a country's economic situation, legal regulations, cultural conventions and political system. Thus, domestic environment varies among different countries and periods.

This chapter uses a sample of Chinese firms that issue both A-share and B-share and could successfully control for different countries' environments, which are rarely well controlled in samples of multiple countries. The sample could also successfully differentiate between different periods' impact based on accounting standards and other enforcement factors, which are hardly well controlled in comparison to the effects of pre-IFRS and post-IFRS periods in a single country.[25] It is worthwhile to note that A- and B-share are different samples. As indicated in Chapter 3, to investigate the value relevance affected only by New CAS, this chapter adopted Gu's (2007) PEs, which could overcome the weakness of regression R^2.

This chapter is organized as follows. Section 6.2 introduces the outline of the Chinese capital market and the development of CAS and then develops testable hypotheses based on an overview of related research. Section 6.3 presents the research methods of this study with model specifications. Section 6.4 discusses the sample and data. Section 6.5 presents

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[25] See section 2.1 for details.

empirical findings and explores plausible explanations for these findings. Section 6.6 interprets the results of the robustness check. Section 6.7 concludes the chapter and provides avenues for future research.

6.2 Background, literature review and hypotheses

6.2.1 The capital market environment in China

As was detailed in Chapter 4, the internationalization of CAS is closely related to the development of Chinese capital markets. After 1978, the planned-to-market economic reform transformed China's purely state-controlled economy into a mixed economy (Ding and Su, 2008). China's two stock exchanges, the SHSE and the SZSE, were established in late 1990 and early 1991, respectively, with the purpose of raising capital for SOE, which faced difficulties surviving in competition with foreign and private enterprises (Chen et al., 2009; Ding and Su, 2008; Lin and Chen, 2005; Wu et al., 2012). The two stock exchanges expanded China's economic ties with other countries, resulting in a drastic increase in international trade and foreign capital inflow (Ge and Lin, 1993; Liu et al., 2011). As a result, the Chinese capital market has become one of the world's fastest growing capital markets (Chen and Thomas, 2003; Friedmann and Sanddorf-Köhle, 2002).

Since 2001, China's stock market has experienced transformation from the segmentation to the integration of the A-share and B-share market. China's stock markets re-opened in the early 1990s with two major stock markets in mainland China, the A-share and B-share market, both traded in the SHSE and SZSE and issued by firms

incorporated in mainland China (Sun, 2014).

According to Lin and Chen (2005), the B-share market was designed as a reform experimentation in order to attract foreign investors, build a standardized stock market and provide references for the development of the immature A-share market. A-share is priced in the local currency, Renminbi yuan, and B-share is quoted in U.S. dollars and HK dollars in SHSE and SZSE, respectively. Firms issuing A-share must prepare the CAS-based financial reports, and B-share firms must prepare IFRS-based financial reports audited by the international auditing firms (CSRC, 2001). Practically, those firms that issue both A- and B-share are allowed to simultaneously disclose their primary financial reports based on CAS and the CAS-IFRS reconciled key accounting figures (such as equity and net income).

Before early 2001, trading in A-share was restricted exclusively to domestic investors and trading in B-share to foreign investors or Chinese overseas investors (CSRC, 2001; Sun, 2014; Wu et al., 2002). Both the A- and B-share of the same company entitle the holder to equal voting rights and claims against the company's earnings and net assets, despite the segmentation of the A-and B-share markets (Lin and Chen, 2005; Wu et al., 2012). In order to resolve this stock market segmentation, the B-share market was completely opened to domestic investors, trading in U.S. dollars, on June 1, 2001. From December 1, 2002, foreign investors could trade A-share under the Qualified Foreign Institutional Investors (QFII) system implemented by the SHSE (CSRC and PBOC, 2002). The integration of the A- and B-share stock markets is expected to harmonize A-share market with the international capital market and to promote sharing information among A- and B-share (Wu et al., 2012). As a result of opening to domestic investors, the B-

share market showed a drastic response, which led to a rapid increase in the number of investors and a surge in stock prices (Wu et al., 2002).[26]

Table 6-1 presents a summary of the two stock exchanges in China (US\$≈RMB ¥6.00). The asymmetric information between A- and B-share had been improved since 2001 (Wu et al., 2002; Wu et al., 2012). As of March 2018, 1,405 A-share and 51 B-share firms are listed on the SHSE, with a trading volume of approximately RMB 179 billion (with a market value of approximately RMB 33.4 trillion); 2,094 A-share and 49 B-share firms are listed on the SZSE, with a trading volume of approximately RMB 239 billion (with a market value of approximately RMB 22.94 trillion). Accordingly, the A- and B-share markets' integration affords a rare opportunity for accounting value relevance research to identify the different effects between local GAAP and IFRS.

6.2.2 The development of CAS

As was detailed in Chapter 4, along with development of capital markets and economic system reform, China's accounting standards have been moving toward IFRS. Since 1979,

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[26] According to Wu et al. (2002), from January 2001 to May 2001, the SHSE increased the number of B-share (owner) from 152,000 to 729,000. There was a 3.7 times increase in a period of less than half a year. In the SZSE, the number of accounts (owner) of B-share has increased from 130,000 to 449,000, and the increase is similarly 2.5 times. The Shanghai B-stock index rose 2.78 times from 83.20 on February 19, 2001, to 231.89 on June 1, 2001. By contrast, the rate of increase in the Shanghai A-stock index of synchronism was only 10.9%. The Shenzhen B-stock index rose 2.2 times from 127.21 to 409.61 during the same period, but the rate of increase in the Shenzhen A stock index was less than 10%, at only 8.6%.

there have been serious attempts to align China's accounting system with international practices, aimed to prepare a set of accounting regulations for joint ventures with foreign investments. As a result, the first accounting regulation, the Accounting Regulations For Joint Ventures was launched in 1985, incorporating concepts such as accruals, matching, distinction between capital expenditures and expenses, and conservatism as a financial reporting principle for the first time in China (Ding and Su, 2008; Huang and Ma, 2001; Qu et al., 2012).

In 1992, the Accounting Standard for Business Entities (similar to a conceptual framework in other countries) was issued, and the government announced an ambitious plan to launch over 30 new accounting standards in the next few years, making historical progress in China's accounting reforms (Ding and Su, 2008). Until the convergence with IFRS, the integrated Accounting Regulations for Business Entities, which were made for different industries before the Accounting Regulations for Financial Companies and the Accounting Regulations for Small Business, were issued in 2001, 2003, and 2005 (Huang and Ma, 2001).

On November 8, 2005, the MOF signed a memorandum with the IASB, called the Beijing Agreement, to affirm that China's new accounting standards were substantively convergent with IFRS. In February 2006, following the Beijing Agreement, the MOF released the China Accounting Standards-Basic Standard, converged with IFRS and 38 China Accounting Standards called New CAS, and enforced on listed firms since January 1, 2007.

Table 6-1 Comparisons between trading and disclosure regulations for A-and B-share

Share	Stock Exchange	Currency	Share Number	Market Value (Billion Yuan)	Investors		Accounting standards		Disclosure
					Before 2001	After 2002	Before 2006	After 2007	
A	SHSE	RMB	1,405	33,300	Domestic Chinese	Domestic Chinese＋**QFII**	CAS	New CAS	Financial reports
	SZSE	RMB	2,094	22,864					
B	SHSE	U.S. dollar	51	92	Foreigners and oversea Chinese	Foreigners, oversea Chinese＋**domestic Chinese**	IFRS		CAS-IFRS reconciliation net incomes and equity
	SZSE	HK dollar	49	77					

Source: SHSE・SZSE, web data accessed on March 4, 2018.
Bond: the differences between before and after 2001.

However, New CAS still departs from IFRS on two major issues (Ding and Su, 2008). First is the definition of a related party. China excludes most SOE, while IFRS regards all SOE as related parties. In fact, Chinese SOE are independent legal entities and their business activities are the same as those of other firms, so the IFRS' recognition would result in unnecessarily complicated accounting and financial reporting in China. Second is the difference regarding the reversal of impairment on depreciable assets. Chinese regulators believe that impairments of tangible long-term assets are the most likely to be permanent, and recovery is an exception rather than the rule. It is understandable that reversal of impairment in China is not allowed because of the prevailing corporate governance and for the prevention of widespread earnings management.

6.2.3 Literature review

Many studies focus on IFRS quality using samples from non-Chinese firms and reveal positive results. Barth et al. (2008) examined whether the application of IFRS is associated with higher accounting quality, which is measured by earnings management, timely loss recognition and value relevance, using samples from 21 voluntarily applying IFRS countries from 1990 to 2003. The results revealed that IFRS-adopting firms have improved in accounting quality between pre- and post-adoption periods. However, relative to using a sample from individual counties, focusing on multinational firms makes it difficult to control the potentially confounding effects of country-specific factors unrelated to the financial reporting system.

Focusing on individual country's firms would supply more robust evidence. Jermakowicz et al. (2007) and Cormier et al. (2009) examined the accounting quality

affected by IFRS adoption using German and French firms, respectively. Jermakowicz et al. (2007) measured the value relevance of book values of earnings and equity in explaining the market values of 30 large firms during the period 1995–2004, and found that IFRS adoption significantly increased the value relevance of earnings relative to market prices. To reduce the self-selection bias problem when using a sample of voluntarily adopted firms suggested by prior research (Barth et al., 2008; Gassen and Sellhorn, 2006), Cormier et al. (2009) investigated the value relevance of mandatory and optional equity adjustments recognized as a result of the first-time adoption of IFRS using 2005 French firms. Their results, that mandatory equity adjustments are more valued than French GAAP equity, suggest that the first-time adoption of IFRS by French firms is perceived as a signal of an increase in the quality of financial reports.

Studies on the effects of IFRS on accounting quality that used Chinese firms mainly examined the value relevance of earnings and equity, and used samples from before 2001, the market segmentation period. Abdel-khalik et al. (1999) examined the value relevance of accounting information during the period 1994–1995 in both A- and B-share markets using an event study approach. Their results showed that earnings and unexpected returns are correlated for A-share but not for B-share, suggesting that the CAS-based accounting information is more value relevant to the A-share's price, while IFRS-based accounting information is not value relevant to the B-share's price.

Bao and Chow (1999) examined which set of accounting information, reported accounting information based on CAS or those based on IFRS, is more closely associated with stock prices. The sample consisted of listed Chinese firms that issued A- and B-shares simultaneously during the period 1992–1996. The results showed that the IFRS-

based earnings and book value have greater information content than the CAS-based ones.

Lin and Chen (2005) investigated the incremental value relevance of the reconciliation of accounts from CAS to IFRS by those Chinese listed companies that simultaneously issued A- and B-share during the period 1995–2000, applying both a price-levels model and a returns model. They found that the CAS-based earnings and book values of equity are more relevant to A- and B-share, and suggested that CAS-based in contrast to IFRS-based accounting information is more value-relevant in the Chinese stock market for the period studied.

The studies above, carried out during the A- and B-share market segmentation period (before 2001), make it difficult to examine the value relevance of the CAS-based accounting information to the prices of B-share and vice versa. Accordingly, comparisons between the CAS- and IFRS-based accounting information' value relevance of A-and B-share prices are meaningless in this context. Unlike Lin and Chen (2005), Liu et al. (2011) examined the impact of IFRS-convergent accounting standards on the listed firms' accounting quality for the period of 2005–2008 for only A-share firms.

Using Barth et al.'s (2008) model, Liu et al. (2011) divided the sample into two groups, pre-New CAS (2005–2006) and post-New CAS (2007–2008) and compared the earnings management and value relevance between the two periods. The results indicate that accounting quality improved with decreased earnings management and increased the value relevance of accounting information after mandatory adoption of New CAS. However, when examining the adoption effects of New CAS for only A-share firms, it is difficult to control for other factors compounding with accounting standards, such as economy and legal system. In addition, the influence of the subprime mortgage crisis

occurring from 2007 to 2008 would distort the results.

6.2.4 Hypothesis development

The inconsistent conclusions from the prior literatures are attributable to not only the sample's periods but also the intrinsic problem of IFRS. To realize the goal of developing a single set of high-quality global accounting standards, IFRS are designed as principles-based standards. The principles-based standards could be a two-edged sword. They may provide accounting information that better reflects a firm's intrinsic value, resulting in improvement of the accounting quality. On the other hand, the principles-based standards could provide more opportunity of discretionary earnings management for firms, resulting in the decrease in accounting quality.

After 2001, IFRS had removed several selections, resulting in fewer discretionary options than before. Limiting alternatives could increase accounting quality because this limits management's discretionary management in determining accounting information (Ashbaugh and Pincus, 2001; Barth et al., 2008; Ewert and Wagenhofer, 2005). This is because, ceteris paribus, limiting opportunistic discretion by managers increases the reliability and the transparency of the accounting information. Thus, post-2001, IFRS-based accounting information would enable higher quality than that based on IFRS.

New CAS is converged with IFRS by minimizing the differences from IFRS to local GAAP. IFRS are written standards largely derived from U.K. and U.S. national standards, so IFRS are based on the practices of the English-speaking countries and account for strong equity-outsider markets in which the control of companies is widespread among a large number of outside equity shareholders (Hove, 1990; Liu et al., 2011; Sunder, 2009).

China has been regarded as a successful example of market transformation from regulated centrally-controlled mechanisms to market self-decided mechanisms (Ding and Su, 2008). However, the understanding of IFRS may not be perfectly coincident with countries, so whether New CAS could realize the goal of convergence is questionable.

Furthermore, the differences remain between New CAS and IFRS, as were detailed in Chapter 4. Hence, the hypotheses are developed in the null form as follows:

H6-1: The value relevance of New CAS-based financial information is the same as that of Old CAS-based financial information.

H6-2: The value relevance of New CAS-based financial information is the same as that of IFRS-based financial information.

6.3 Research design

It should be noted that the prior studies have limitations in sample selection, test periods and test methods. For example, Liu et al. (2011) and Wu et al. (2017), which compared accounting quality between pre- and post-IFRS converged local GAAP periods, could not successfully control for the effects other than accounting standards. In particular, the influence of the subprime mortgage crisis of 2008 was not considered. Lin and Chen (2005) only tested the incremental value relevance of the CAS-IFRS reconciliation accounts without clarifying the effect of the IFRS-convergent New CAS. The 1990s samples tested by prior studies (Abdel-khalik et al., 1999; Chen et al., 2001; Lin and Chen, 2005) were far from satisfactory, as this is the period in which the A- and B-share markets

were segmented and the quality of IFRS was lower.

This chapter incorporated important modifications in research design to test the impact on value relevance of New CAS, choosing 2003–2013 as the test period. This is a longer and more balanced period for comparing the differences between the pre- and post-New CAS period than that used in the earlier literature. I tested the value relevance effect of the IFRS-convergent New CAS by applying the Compound model in two steps. In step 1, I re-examined the value relevance between the pre-New CAS (2003–2006) and the post-New CAS (2010–2013) periods for the CAS-based and IFRS-based financial information to the A-share and B-share price (see Equations 6-3 and 6-4). Although step 1 tests the incremental value relevance of New CAS, it could not identify whether the incremental value relevance is the effect of New CAS. In step 2, I examined the over-time value relevance changes measured by annual regression adjusted R^2s and Gu's (2007) PEs from 2003 to 2013. The differences between the PEs of A- and B-share indicate the effect of New CAS.

6.3.1 Comparison between pre-convergence and post-convergence periods

In detail, in step 1, I employed the Compound models in Equations (6-1) and (6-2) to test the value relevance of the accounting information to equity valuation in the Chinese stock market, and I then compared the value relevance in the pre-convergence period (2003–2006) with those in the post-convergence period (2010–2013).

Since the segmentation of A- and B-share markets has been dissolved since 2002, Equation (6-1) added the variables expressing the reconciliation between CAS and IFRS to the Equation (6-2), which could additionally test whether the IFRS reconciliation

contains incremental value to the A- and B-share markets after controlling for the reported

numbers based on CAS. Thus:

$$P_{it} = \beta_0 + \beta_1 BVPS_{it} + \beta_2 EPS_{it} + \beta_3 POST_{it} + \beta_4 BVPS_{it} \times POST_{it} + \beta_5 EPS_{it} \times POST_{it} + \varepsilon_{it} \qquad (6\text{-}1)$$

$$P_{it} = \beta_0 + \beta_1 BVPS_{it} + \beta_2 EPS_{it} + \beta_3 BVPS_{it}^{IFRS-CAS} + \beta_4 EPS_{it}^{IFRS-CAS} + \beta_5 POST_{it} + \beta_6 BVPS_{it} \times POST_{it}$$
$$+ \beta_7 EPS_{it} \times POST_{it} + \beta_8 BVPS_{it}^{IFRS-CAS} \times POST_{it} + \beta_9 EPS_{it}^{IFRS-CAS} \times POST_{it} + \varepsilon_{it} \qquad (6\text{-}2)$$

Where P_{it} is the stock price of firm i at 6 months after the fiscal year end of period

t;[27] $BVPS_{it}$ is the book value per share of owners' equity determined under CAS or IFRS

for firm i at time t and deflated by A- and B-share's numbers of shares respectively;

EPS_{it} is the net income per share determined under CAS or IFRS for firm i at time t and

deflated by the A- and B-share numbers of shares respectively; $POST_{it}$ is a dummy

variable taking the value of 1 for New CAS period in 2010–2013 and 0 otherwise; ε_{it} is

the nonrandom "other information" distinct from book value and earnings per share

determined under CAS or IFRS.

Differences in value relevance between the two periods under study are expected to be

reflected in significantly positive coefficients for the terms interacting with POST: β_4 and

β_5 in Equation (6-1) and β_6, β_7, β_8, and β_9 in Equation (6-2).

The test of pre- and post-New CAS comparisons could illustrate the changes of

accounting information's value relevance in different periods, but it is hard to differentiate

the effects of the accounting standards from other factor's effects. This chapter thus

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[27] The existing regulations require Chinese-listed firms to publish their annual financial reports
within 4 months after the end of each calendar year. Therefore, with a margin, the stock prices
were measured on the date 6 months after the fiscal yearend. All variables were measured in
Chinese currency (RMB), so the foreign currency amounts for B-share are converted into RMB
based on the exchange rates at the end of each reporting year.

further investigates the effects of the accounting standards by comparing New CAS- and the IFRS-based accounting information's value relevance using yearly cross-section regression in the same periods.

6.3.2 Inter-temporal changes in value relevance

6.3.2.1 Explanatory powers

In step 2, I examined the inter-temporal changes in value relevance of accounting information measured by the adjusted R^2, which has often been examined in prior studies (Barth et al., 2008; Lin and Chen, 2005; Wu et al., 2012) and Gu's (2007) PE. Gu (2007) criticized that the R^2 (or the adjusted R^2), used as a linear model fitness indicator for regression analysis, could not be compared across different samples. Thus, the yearly cross-section comparability of value relevance cannot be measured by R^2. The reason for this is explained in Chapter 3 in detail.

6.3.2.2 Pricing errors

Instead of R^2, Gu (2007) proposes that the residual dispersion be regarded as PEs and should be examined for the inter-temporal changes in value relevance of accounting information. The larger the PEs are, the lower the value relevance becomes. Accounting-based linear valuation models similar to Equation (6-3) are used with the stock prices or returns regressed on accounting variables. Gu (2007, p.1081) describes this situation as follows: "The residual variances or standard deviations measure the dispersion of components in prices or returns that cannot be explained by the accounting variables. They can be interpreted as measures of the degree of PEs for given samples. Such errors

do not by any means indicate market inefficiency. Rather, they are components in prices or returns not captured by accounting variables and serve as indicators of accounting inefficiency or value relevance of accounting information."

$$P_{it} = \beta_0 + \beta_1 BVPS_{it} + \beta_2 EPS_{it} + \beta_3 POST_{it} + \beta_4 BVPS_{it} \times POST_{it} + \beta_5 EPS_{it} \times POST_{it} + \varepsilon_{it} \tag{6-3}$$

$$P_{it} = \beta_0 + \beta_1 BVPS_{it} + \beta_2 EPS_{it} + \beta_3 BVPS_{it}^{IFRS-CAS} + \beta_4 EPS_{it}^{IFRS-CAS} + \beta_5 POST_{it} + \beta_6 BVPS_{it} \times POST_{it}$$
$$+ \beta_7 EPS_{it} \times POST_{it} + \beta_8 BVPS_{it}^{IFRS-CAS} \times POST_{it} + \beta_9 EPS_{it}^{IFRS-CAS} \times POST_{it} + \varepsilon_{it} \tag{6-4}$$

Where the definitions of the variables are the same as Equation (6-1) and Equation (6-2).

After calculating the adjusted R^2s of the accounting information of A- and B-share firms, this chapter calculated the following Gu's (2007) PEs for given samples, to re-examine the value relevance of accounting information to prices using the regression of Equations (6-3) and (6-4). (Details referred to Chapter 3.)

6.4 Sample and descriptive statistics

Chinese business firms both issuing A- and B-share with annual financial information and stock price for all periods 2003–2013 were selected for this chapter. The financial and stock price data for A-share are available in the CSMAR, which was developed by the Chinese financial services company GTA, while the financial and stock price data of B-share are collected from the annual financial reports published on the websites. Only the firms issuing both A- and B-share simultaneously were used. There is not A-share's firm which belongs to banking, securities and insurance industries issue B-share. After dropping the firms without earnings and shareholders' equity book value for B-share

financial reports, a total of 836 firm-year observations were obtained from different industries. No sample firm is in the banking, securities and insurance industries. Table 6-2 presents the descriptive statistics of the sample variables between periods included in the regression models. All non-dummy variables are winsorized at a 0.5% level.

Table 6-2 Descriptive statistics

Panel A: Descriptive statistics for Step 1

Periods	Variables	A-share					B-share				
		Mean	SD	Min	Max	N	Mean	SD	Min	Max	N
2003–2006	P	7.18	3.84	2.02	37.61	304	3.97	2.45	1.12	23.20	304
	$BVPS$	2.59	1.40	0.19	7.01	304	2.55	1.40	0.18	7.22	304
	EPS	0.16	0.35	-1.23	1.18	304	0.20	0.45	-1.25	2.72	304
	$BVPS^{IFRS-CAS}$	-0.02	0.17	-0.70	0.78	304	-	-	-	-	-
	$EPS^{IFRS-CAS}$	0.04	0.22	-0.12	1.64	304	-	-	-	-	-
2010–2013	P	11.00	9.60	2.02	66.00	304	5.98	6.11	1.12	42.63	304
	$BVPS$	3.72	2.53	0.19	11.89	304	3.73	2.56	0.18	12.45	304
	EPS	0.40	0.55	-1.20	2.36	304	0.41	0.56	-1.20	2.72	304
	$BVPS^{IFRS-CAS}$	0.01	0.09	-0.14	0.78	304	-	-	-	-	-
	$EPS^{IFRS-CAS}$	0.00	0.01	0.00	0.08	304	-	-	-	-	-

Panel B: Descriptive statistics for Step 2

Share	Variables	Mean	SD	Min	Max	N
A	P	9.73	7.84	2.02	66.00	836
	$BVPS$	3.11	2.07	0.19	11.89	836
	EPS	0.27	0.45	-1.23	2.36	836
	$BVPS^{IFRS-CAS}$	0.00	0.13	-0.70	0.78	836
	$EPS^{IFRS-CAS}$	0.02	0.13	-0.12	1.64	836
B	P	5.37	5.01	1.12	42.63	836
	$BVPS$	3.10	2.10	0.18	12.45	836
	EPS	0.29	0.49	-1.25	2.72	836

P_{it}: the stock price of firm i at 6 months after the fiscal year end of period t; $BVPS_{it}$: the book value per share of owners' equity determined under CAS or IFRS for firm i at time t and deflated by total share numbers; EPS_{it}: the net income per share determined under CAS or IFRS for firm i at time t and deflated by total share numbers; $BVPS^{IFRS-CAS}$: the CAS-IFRS reconciliation amounts of book values. $EPS^{IFRS-CAS}$: the CAS-IFRS reconciliation amounts of earnings.

<div align="center">Table 6-3 Correlation matrix</div>

Panel A: Correlation matrix of A-share

	P	BVPS	BVPS$^{\text{IFRS-CAS}}$	EPS	EPS$^{\text{IFRS-CAS}}$
P	1				
BVPS	0.5104*	1			
BVPS$^{\text{IFRS-CAS}}$	0.1289*	0.1627*	1		
EPS	0.6792*	0.7465*	0.1397*	1	
EPS$^{\text{IFRS-CAS}}$	-0.0464	-0.0147	-0.0213	-0.0254	1

Panel B: Correlation matrix of B-share

	P	BVPS	BVPS$^{\text{IFRS-CAS}}$	EPS	EPS$^{\text{IFRS-CAS}}$
P	1				
BVPS	0.6054*	1			
BVPS$^{\text{IFRS-CAS}}$	0.1155	0.2516*	1		
EPS	0.6898*	0.6929*	0.1291*	1	
EPS$^{\text{IFRS-CAS}}$	-0.0328	-0.0141	-0.0213	0.3244*	1

P_{it}: the stock price of firm i at 6 months after the fiscal year end of period t; $BVPS_{it}$: the book value per share of owners' equity determined under CAS or IFRS for firm i at time t and deflated by total share numbers; EPS_{it}: the net income per share determined under CAS or IFRS for firm i at time t and deflated by total share numbers; $BVPS^{\text{IFRS-CAS}}$: the CAS-IFRS reconciliation amounts of book values. $EPS^{\text{IFRS-CAS}}$: the CAS-IFRS reconciliation amounts of earnings.

As indicated in Table 6-2, in the 2003–2006 period, before New CAS, the A-share price was 1.81 times the B-share price (the means of the A- and B-share prices are ¥7.18 and ¥3.97, respectively). After New CAS, in the 2010–2013 period, the A-share price was 1.83 times the B-share price (the means of A- and B-share prices are ¥11.00 and ¥ 5.98, respectively). For both periods, it was shown that segmentation exists between the A-and B-share's markets.

Table 6-3 indicates the Pearson correlation among the selected variables on the A- and B-share samples related to the Equations (6-3) and (6-4), respectively. It is noted under both A- and B-share, the variables EPS and BVPS have high correlation (0.7465 for A-share and 0.6929 for B-share). Under the VIF test, the VIF values are less than 10, which indicates the multicollinearity problem is not critical.

6.5 Results

6.5.1 Comparison between pre-convergence and post-convergence

Table 6-4 provides empirical results on the value relevance comparison in step 1 based on the regression of Equations (6-1) and (6-2). The findings reveal that the accounting information for A- and B-share has incremental value relevance after the mandatory adoption of the IFRS-convergent New CAS. Model (1) and Model (3) are based on Equation (6-1), and Model (2) and Model (4) are based on the Equation (6-2). Coefficients of shareholders' equity book value ($BVPS \times POST$) in Model (3) and earnings ($EPS \times POST$) in Model (1) and Model (3) are significant at a 1% level. Hence, the earnings of both A- and B-share have incremental value relevance after the mandatory adoption of the IFRS-convergent New CAS. For the coefficients of the reconciliation of shareholders' equity book and earnings ($BVPS^{IFRS-CAS} \times POST$, $EPS^{IFRS-CAS} \times POST$) in Model (2) and Model (4), both of $BVPS^{IFRS-CAS} \times POST$ and $EPS^{IFRS-CAS} \times POST$ are significant at 5% level. Hence, the CAS-IFRS reconciliations of shareholders' equity book and earnings have incremental value relevance to A- and B-share after the mandatory adoption of the IFRS-convergent New CAS. However, as per Equations (6-1) and (6-2), the incremental value relevance effect could not distinguish the impact of accounting standards from other factors, such as improvements of the economic environment and the enhancement of the legal system, which affect the entire capital market. Therefore, the additional tests are required.

6.5.2 Inter-temporal changes in value relevance

6.5.2.1 Explanatory powers

This chapter tested the adjusted R^2 of A- and B-share accounting information used in prior studies (Lin and Chen, 2005; Wu et al. 2012) for the comparison with Gu's (2007) approach. Annual cross-sectional regressions were run for Equation (6-3) and Equation (6-4). Tables 6-5 and 6-6 summarize the annual cross-sectional regression results of Equations (6-3) and (6-4), respectively. Figure 6-1 and Figure 6-2 depict the adjusted R^2 of A- and B-share accounting information changes during 2003–2013 for Equations (6-3) and (6-4), respectively. The pattern for Equation (6-4) is very similar to that for Equation (6-3), with an increasing trend in the adjusted R^2 for both A- and B-share.

Figure 6-1 depicts that the adjusted R^2 of Equation (6-3) using A-share is smaller than that using B-share during the whole period except for the years 2003 and 2009. The gap between A- and B-share's adjusted R^2 gradually narrows during the period 2003–2013. Ignoring the year 2006, I found that the adjusted R^2s of both A- and B-share have an increasing and convergent trend before 2011 and a slightly decreasing trend after 2011. The gap of the adjusted R^2 between the A- and B-share indicates the effect of the differences between CAS and IFRS, which are free from the effect of other factors. Therefore, according to the adjusted R^2 changes, it could be concluded that although the CAS-based value relevance is smaller than the IFRS-based one, the IFRS-converged New CAS enhanced the Chinese firms' value relevance and realized the convergence with IFRS.

Table 6-4 Value relevance comparison based on Equations (6-1) and (6-2)

$$P_{it} = \beta_0 + \beta_1 BVPS_{it} + \beta_2 EPS_{it} + \beta_3 POST_{it} + \beta_4 BVPS_{it} \times POST_{it} + \beta_5 EPS_{it} \times POST_{it} + \varepsilon_{it} \tag{6-1}$$

$$P_{it} = \beta_0 + \beta_1 BVPS_{it} + \beta_2 EPS_{it} + \beta_3 BVPS_{it}^{IFRS-CAS} + \beta_4 EPS_{it}^{IFRS-CAS} + \beta_5 POST_{it} + \beta_6 BVPS_{it} \times POST_{it} \tag{6-2}$$
$$+ \beta_7 EPS_{it} \times POST_{it} + \beta_8 BVPS_{it}^{IFRS-CAS} \times POST_{it} + \beta_9 EPS_{it}^{IFRS-CAS} \times POST_{it} + \varepsilon_{it}$$

	A-share		B-share	
	Model (1)	Model (2)	Model (3)	Model (4)
BVPS	0.403	0.417	0.642	0.558
	[1.74]	[1.82]	[5.29]***	[4.34]***
EPS	5.123	5.084	1.708	2.787
	[5.59]***	[5.61]***	[4.47]***	[5.63]***
$BVPS^{IFRS\text{-}CAS}$		-1.123		-1.980
		[-0.72]		[-2.17]*
$EPS^{IFRS\text{-}CAS}$		-0.283		-3.213
		[-0.24]		[-3.51]***
POST	-3.682	-4.267	-1.037	-1.709
	[-3.74]***	[-4.33]***	[-1.87]	[-3.07]**
BVPS×POST	-0.510	-0.351	-0.469	-0.213
	[-1.79]	[-1.23]	[-3.01]**	[-1.33]
EPS×POST	7.709	7.930	6.200	5.161
	[6.13]***	[6.36]***	[9.88]***	[7.53]***
$BVPS^{IFRS-CAS} \times POST$		-7.876		-6.726
		[-2.29]*		[-3.40]***
$EPS^{IFRS-CAS} \times POST$		-161.473		-81.792
		[-3.44]***		[-3.05]**
constant	5.064	5.296	1.936	2.246
	[5.87]***	[6.15]***	[3.97]***	[4.61]***
Industry dummies	YES	YES	YES	YES
Year dummies	YES	YES	YES	YES
$AdjR^2$	0.685	0.693	0.729	0.748
N	608	608	608	608

The t statistics are in brackets. * Significance at the 5% level. ** Significance at the 1% level.
*** Significance at the 0.1% level.
P_{it}: the stock price of firm i at 6 months after the fiscal year end of period t; $BVPS_{it}$: the book value per share of owners' equity determined under CAS or IFRS for firm i at time t and deflated by total share numbers; EPS_{it}: the net income per share determined under CAS or IFRS for firm i at time t and deflated by total share numbers; $POST_{it}$: a dummy variable taking the value of 1 for New CAS period in 2010– 2013 and 0 otherwise; $BVPS^{IFRS-CAS}$: CAS-IFRS reconciliation amounts of book values. $EPS^{IFRS-CAS}$: the CAS-IFRS reconciliation amounts of earnings. ε_{it}: the nonrandom "other information" distinct from book value and earnings per share determined under CAS or IFRS.

However, these findings are not valid. As was detailed in Chapter 3, the value relevance measured by adjusted R^2 would not be valid for across-sample comparison. Not only the samples of A- and B-share but also the samples for annual cross-section regressions are across-samples. Therefore, the results obtained by adjusted R^2 should be questioned. The appropriate method is necessary and Gu's (2007) PEs could be tried.
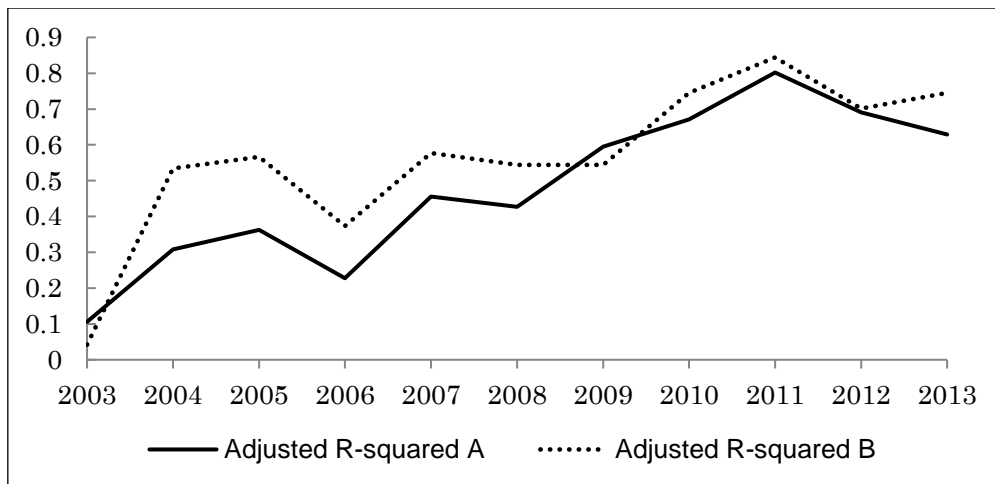
Figure 6-1 Inter-temporal changes of adjusted R^2 from 2003–2013 (Equation (6-3)). Adjusted R-squared A and Adjusted R-squared B are for Equation (6-3).
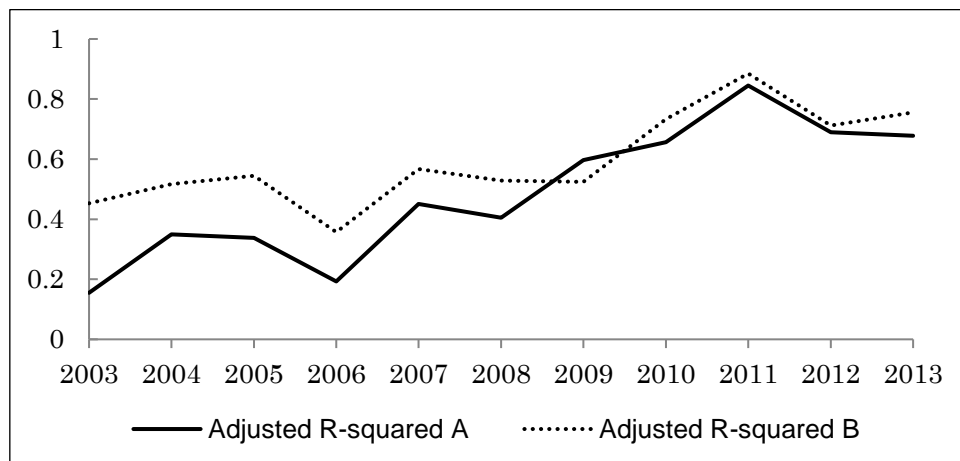
Figure 6-2 Inter-temporal changes of adjusted R^2 from 2003–2013 (Equation (6-4)). Adjusted R-squared A and Adjusted R-squared B are for Equation (6-4).

6.5.2.2 Pricing errors

This section examines Gu's (2007) PEs of A- and B-share accounting information. Gu's (2007) approach provides the basis for across-sample comparisons, which could not be achieved by adjusted R^2. Figures 6-3 through 6-5 depict the RPEs, SPEs and APEs of A- and B-share accounting information changes during 2003–2013 for Equation (6-3).
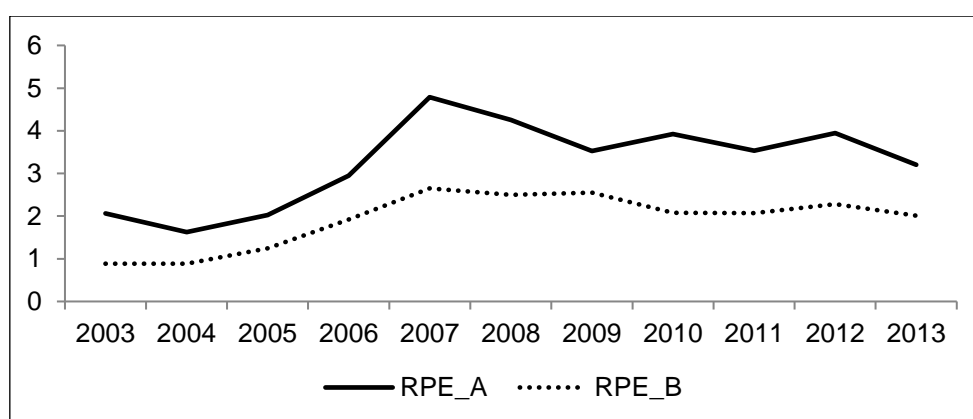
Figure 6-3 Inter-temporal changes of RPE (Equation (6-3)). RPE_A/RPE_B are raw pricing errors of A- and B-share, respectively.

Figure 6-3 depicts RPEs for A- and B-share. It shows increasing trends of RPEs before 2007 and the RPEs staying steady after 2007 for both A- and B-share. The A-share's RPE is bigger than the B-share's one for the whole sample period, which indicates that the value relevance of CAS-based accounting information is lower than that of IFRS-based accounting information. The findings could indicate that hypothesis H6-2 is rejected. While hypothesis H6-1 could not be rejected, the results conclude that the value relevance of New CAS-based financial information is lower than that of IFRS-based financial information.

Table 6-5 Annual cross-sectional regression of Equation (6-3) using A-/B-share's sample

Panel A：cross-sectional regressions for A-share in period 2003–2013 (Equation (6-3))　　$P_{it} = \beta_0 + \beta_1 BVPS_{it} + \beta_2 EPS_{it} + \varepsilon_{it}$

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
BVPS	0.411	0.647	0.262	-0.531	0.126	-0.716	0.749	-0.29	-1.077	0.173	1.259
	[1.10]	[2.06]*	[0.70]	[-0.93]	[0.16]	[-1.14]	[1.42]	[-0.50]	[-1.84]	[0.32]	[2.08]*
EPS	4.34	2.6	7.959	10.977	17.882	16.441	11.281	13.402	18.404	11.144	2.837
	[2.46]*	[2.34]*	[4.05]***	[3.89]***	[4.37]***	[5.38]***	[4.62]***	[4.84]***	[6.67]***	[4.08]***	[0.93]
Constant	6.186	4.074	2.01	4.35	13.752	8.189	7.911	4.319	5.894	2.405	1.291
	[5.10]***	[4.14]***	[1.69]	[2.43]*	[4.78]***	[3.24]**	[3.73]***	[1.85]	[2.69]*	[1.02]	[0.66]
Industry dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Adjusted R-square	0.106	0.308	0.363	0.228	0.456	0.427	0.595	0.671	0.802	0.691	0.629
N	76	76	76	76	76	76	76	76	76	76	76

Panel B：cross-sectional regression for B-share in period 2003-2013 (Equation (6-3))　　$P_{it} = \beta_0 + \beta_1 BVPS_{it} + \beta_2 EPS_{it} + \varepsilon_{it}$

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
BVPS	0.391	0.749	0.524	0.107	0.574	0.014	0.361	0.043	-0.326	0.075	0.981
	[2.87]**	[4.60]***	[2.42]*	[0.30]	[1.38]	[0.04]	[0.98]	[0.15]	[-1.02]	[0.25]	[2.58]*
EPS	0.452	1.079	6.096	7.364	9.882	10.671	8.214	8.104	10.816	7.652	3.002
	[1.10]	[1.89]	[5.22]***	[4.15]***	[4.38]***	[5.96]***	[4.70]***	[6.07]***	[7.30]***	[4.97]***	[1.56]
Constant	3.282	1.658	0.037	1.861	7.224	3.438	2.840	1.701	2.111	0.734	0.212
	[6.31]***	[3.17]**	[0.05]	[1.63]	[4.55]***	[2.32]*	[1.85]	[1.39]	[1.66]	[0.54]	[0.17]
Industry dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Adjusted R-square	0.042	0.534	0.566	0.373	0.577	0.544	0.544	0.745	0.844	0.701	0.745
N	76	76	76	76	76	76	76	76	76	76	76

t statistics in brackets　　* p<0.5 ** p<0.01 ***p<0.001

P_{it}: the stock price of firm *i* at 6 months after the fiscal year end of period *t*; $BVPS_{it}$: the book value per share of owners' equity determined under CAS or IFRS for firm *i* at time *t* and deflated by total share numbers; EPS_{it}: the net income per share determined under CAS or IFRS for firm *i* at time *t* and deflated by total share numbers; ε_{it}: the nonrandom "other information" distinct from book value and earnings per share determined under CAS or IFRS.

Table 6-6 Annual cross-sectional regression of Equation (6-4) using A-/B-share's sample

Panel A Cross-sectional regressions for A-share in period 2003−2013 (Equation (6-4)) $P_{it} = \beta_0 + \beta_1 BVPS_{it} + \beta_2 EPS_{it} + \beta_3 BVPS_{it}^{IFRS-CAS} + \beta_4 EPS_{it}^{IFRS-CAS} + \varepsilon_{it}$

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
BVPS	0.427	0.594	0.302	-0.619	-0.023	-0.573	0.305	-0.122	-1.041	0.211	1.217
	[1.15]	[1.93]	[0.76]	[-1.02]	[-0.03]	[-0.78]	[0.51]	[-0.18]	[-1.72]	[0.38]	[2.15]*
EPS	3.995	2.685	7.943	10.781	18.135	16.096	12.221	13.137	20.467	12.018	4.432
	[2.32]*	[2.43]*	[3.95]***	[3.70]***	[4.37]***	[5.10]***	[4.84]***	[4.37]***	[7.61]***	[4.25]***	[1.47]
$BVPS^{IFRS-CAS}$	1.023	4.738	1.458	2.603	4.262	-2.543	11.639	-4.684	-7.444	-4.633	-1.599
	[0.39]	[2.11]*	[0.34]	[0.55]	[0.61]	[-0.27]	[1.49]	[-0.52]	[-1.03]	[-0.54]	[-0.24]
$EPS^{IFRS-CAS}$	-3.014	3.492	3.802	-1.864	-79.429	-127.329	29.544	-56.297	-644.884	-388.394	-720.432
	[-2.04]*	[0.57]	[0.60]	[-0.19]	[-1.11]	[-0.67]	[0.23]	[-0.28]	[-3.47]**	[-1.25]	[-2.79]**
Constant	6.296	4.389	1.701	4.647	13.798	7.947	7.899	4.289	5.486	2.210	0.490
	[5.34]***	[4.48]***	[1.23]	[2.43]*	[4.78]***	[3.06]**	[3.74]***	[1.80]	[2.82]**	[0.93]	[0.27]
Industry dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Adjusted R-square	0.155	0.349	0.338	0.193	0.451	0.405	0.597	0.656	0.845	0.689	0.678
N	76	76	76	76	76	76	76	76	76	76	76

Panel B Cross-sectional regressions for B-share in period 2003–2013 (Equation (6-4)) $P_{it} = \beta_0 + \beta_1 BVPS_{it} + \beta_2 EPS_{it} + \beta_3 BVPS_{it}^{IFRS-CAS} + \beta_4 EPS_{it}^{IFRS-CAS} + \varepsilon_{it}$

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
BVPS	0.192	0.706	0.498	0.137	0.516	0.175	0.223	0.135	-0.034	0.208	0.960
	[1.68]	[4.01]***	[2.04]*	[0.35]	[1.13]	[0.41]	[0.50]	[0.39]	[-0.10]	[0.69]	[2.58]*
EPS	2.149	1.279	6.240	7.867	10.268	10.384	8.520	7.853	11.156	8.114	4.236
	[4.32]***	[2.02]	[5.02]***	[4.20]***	[4.43]***	[5.61]***	[4.55]***	[5.36]***	[7.90]***	[5.21]***	[2.13]*
$BVPS^{IFRS-CAS}$	-2.267	0.302	-0.660	-1.270	0.109	-3.405	3.398	-2.394	-9.786	-8.836	-6.030
	[-2.67]*	[0.23]	[-0.25]	[-0.40]	[0.03]	[-0.60]	[0.56]	[-0.49]	[-2.31]*	[-1.79]	[-1.34]
$EPS^{IFRS-CAS}$	-3.534	-2.619	-1.615	-4.813	-41.168	-63.261	5.345	11.309	-354.220	-132.672	-281.454
	[-4.49]***	[-0.71]	[-0.40]	[-0.73]	[-1.02]	[-0.57]	[0.06]	[0.11]	[-3.36]**	[-0.75]	[-1.65]
Constant	3.186	1.776	0.152	1.756	7.284	3.250	2.865	1.707	1.723	0.767	-0.004
	[7.95]***	[3.17]**	[0.18]	[1.42]	[4.51]***	[2.13]*	[1.83]	[1.36]	[1.56]	[0.57]	[-0.00]
Industry dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Adjusted R-square	0.453	0.517	0.545	0.357	0.567	0.529	0.524	0.733	0.885	0.712	0.756
N	76	76	76	76	76	76	76	76	76	76	76

t statistics in brackets   * p<0.5 ** p<0.01 ***p<0.001

P_{it}: the stock price of firm i at 6 months after the fiscal year end of period t; $BVPS_{it}$: the book value per share of owners' equity determined under CAS or IFRS for firm i at time t and deflated by total share numbers; EPS_{it}: the net income per share determined under CAS or IFRS for firm i at time t and deflated by total share. numbers; ε_{it}: the nonrandom "other information" distinct from book value and earnings per share determined under CAS or IFRS. BVPSIFRS-CAS: the CAS-IFRS reconciliation amounts of book values. EPSIFRS-CAS: the CAS-IFRS reconciliation amounts of earnings.
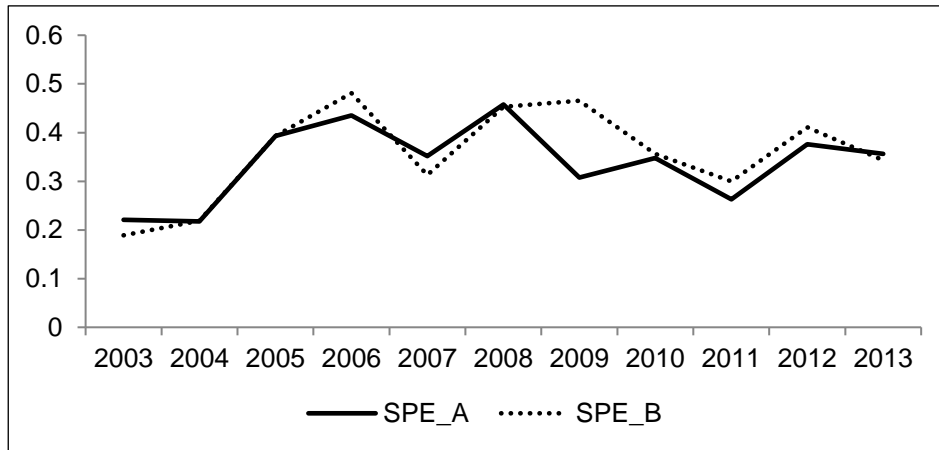
Figure 6-4 Inter-temporal changes of SPE (Equation (6-3)). Note: SPE_A/SPE_B are standardized pricing errors of A- and B-share, respectively

Figure 6-4 depicts SPEs (namely, the scale-controlled RPE) of Equation (6-3) using A-share and B-share. The A-share's SPE is similar to B-share's one until 2008 and becomes smaller than B-share's SPE after 2008. Figure 6-4 indicates that hypotheses H6-1 and H6-2 could be rejected in favor of the value relevance of New-CAS-based financial information. The results of Figure 6-4 imply that New CAS makes the value relevance of CAS-based accounting information higher than that of IFRS-based accounting information, while the value relevance of the Old CAS-based information is similar to that of the IFRS-based information.
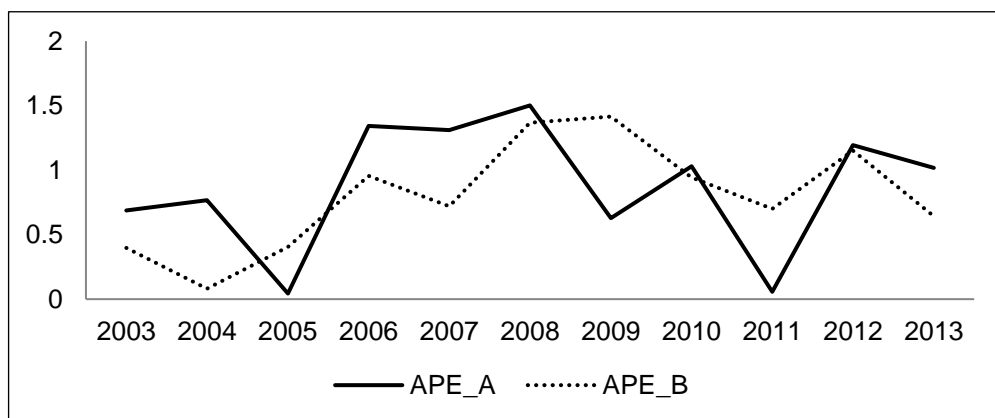
Figure 6-5 Inter-temporal changes of APE (Equation (6-3)). Note: APE_A/APE_B are abnormal pricing errors of A- and B-share respectively.

Figure 6-5 depicts APEs (namely, the scale-controlled RPE by decile) for A- and B-share. The A-share's APEs swing up and down compared to B-share's APEs for the whole sample period, which implies it is unable to reach a conclusion.

Figures 6-6 through 6-8 depict the RPEs, SPEs and APEs of A- and B-share accounting information changes during 2003 to 2013 for Equation (6-4). As Figures 6-6 through 6-8 depict the similar to Figure 6-6 through Figure 6-8, the descriptions of the results pertaining to Figures 6-6 through 6-8 are omitted.
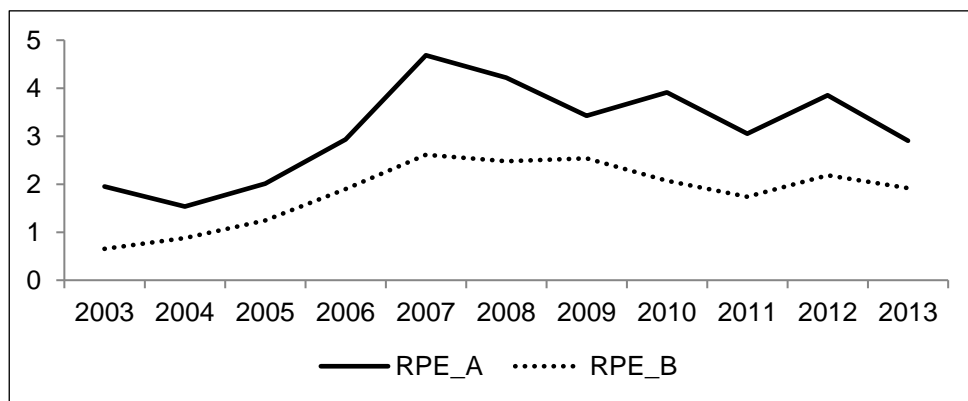

Figure 6-6 Inter-temporal changes of RPE (Equation (6-4)). RPE_A/RPE_B are raw pricing errors of A- and B-share respectively.
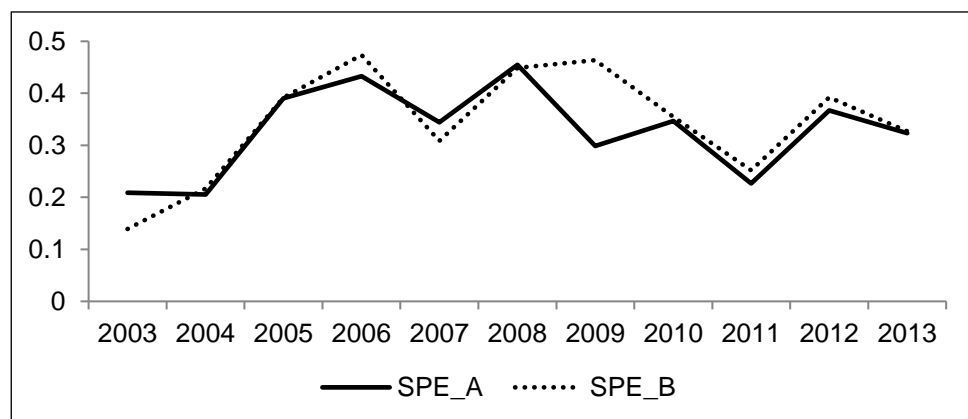
Figure 6-7 Inter-temporal changes of SPE (Equation (6-4)). Notes：SPE_A/SPE_B are standardized pricing errors of A- and B-share, respectively.
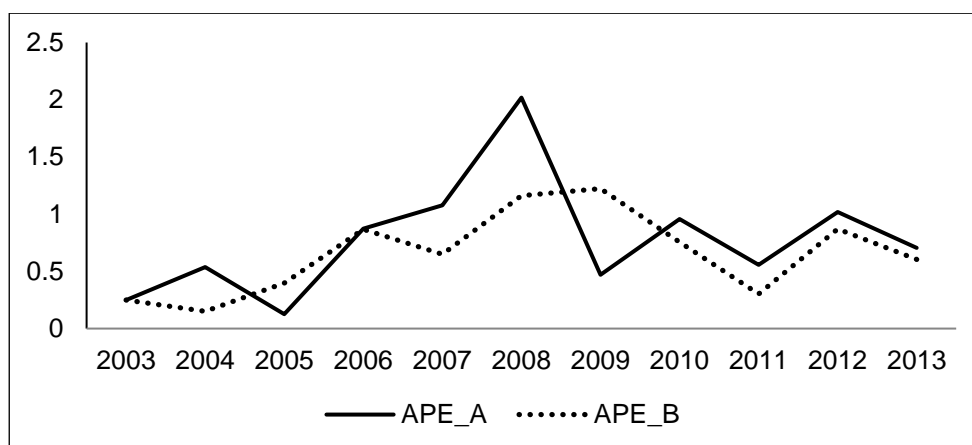

Figure 6-8 Inter-temporal changes of APE (Equation (6-4)). Note: APE_A/APE_B are abnormal pricing errors of A- and B-share, respectively

Based on Figures 6-3 and 6-4, hypothesis H6-1 could be rejected; that is, the value relevance of New-CAS-based financial information varies from that of IFRS-based financial information. However, the statistical significance of differences between CAS-based financial information's value relevance and IFRS-based financial information's value relevance has not been tested.

As was detailed in Chapter 3, RPE is calculated as the standard deviation of estimated residuals. After running yearly cross-sectional regressions, only one RPE number could be obtained by calculating the standard deviation of the estimated residuals for individual year for A- and B-share, respectively.[28] Aiming to exam statistical significance of the differences between A- and B-share's RPEs or APEs, I perform a bootstrap analysis.

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[28] SPE is calculated by dividing RPE by $\overline{|\hat{y}|}$ (the mean absolute fitted values of P_i), which is to control for the scale effects. APE is calculated by RPE minus normal pricing errors. Therefore, for individual year, only one SPE and APE are obtained for A- and B-share, respectively.

Table 6-7 Bootstrap analysis results of PE_df (A- and B-share's sample)

Year	N	RPE_df=0 (rep=2000)							SPE_df=0 (rep=2000)							APE_df=0 (rep=2000)						
		Observed Value	Bias	Bootstrap Std. Err	95% Conf. Interval				Observed Value	Bias	Bootstrap Std. Err	95% Conf. Interval				Observed Value	Bias	Bootstrap Std. Err	95% Conf. Interval			
					P		BC					P		BC					P		BC	
2003	76	1.175	-0.208	0.296	0.436	1.549	0.756	1.862	0.032	0.001	0.036	-0.037	0.107	-0.037	0.106	0.290	-0.084	0.367	-0.416	1.060	-0.232	1.366
2004	76	0.740	-0.149	0.115	0.356	0.817	0.664	1.001	-0.001	0.006	0.024	-0.038	0.052	-0.044	0.046	0.685	-0.450	0.340	-0.333	0.990	0.414	1.735
2005	76	0.778	-0.278	0.267	0.073	1.010	0.377	1.287	0.000	-0.014	0.041	-0.090	0.060	-0.070	0.081	-0.361	0.269	0.446	-0.964	0.753	-1.541	0.215
2006	76	1.025	-0.273	0.383	0.055	1.386	0.367	1.620	-0.046	0.018	0.054	-0.152	0.061	-0.198	0.026	0.387	-0.361	0.495	-0.952	0.941	-0.258	1.491
2007	76	2.138	-0.432	0.316	1.017	2.232	2.027	2.604	0.039	0.002	0.025	-0.002	0.090	-0.003	0.090	0.591	-0.073	0.535	-0.477	1.777	-0.174	2.497
2008	76	1.751	-0.391	0.378	0.512	1.974	1.491	2.442	0.005	0.021	0.038	-0.044	0.096	-0.067	0.070	0.133	0.119	0.499	-1.092	0.676	-1.365	0.451
2009	76	0.977	-0.022	0.308	0.402	1.556	0.447	1.588	-0.158	0.085	0.077	-0.191	0.034	-0.233	-0.100	-0.788	0.383	0.459	-1.349	0.457	-1.946	-0.281
2010	76	1.851	-0.457	0.399	0.582	2.038	1.655	2.318	-0.008	0.016	0.038	-0.074	0.074	-0.109	0.048	0.086	0.076	0.548	-0.905	1.157	-1.092	0.995
2011	76	1.463	-0.285	0.296	0.569	1.712	1.189	2.047	-0.037	0.023	0.031	-0.076	0.042	-0.108	0.011	-0.644	0.391	0.517	-1.262	0.676	-3.331	-0.097
2012	76	1.659	-0.402	0.497	0.304	2.100	0.940	2.606	-0.035	0.027	0.051	-0.107	0.080	-0.148	0.046	0.041	0.068	0.626	-1.104	1.247	-1.316	1.143
2013	76	1.194	-0.253	0.368	0.253	1.617	0.626	2.030	0.013	0.002	0.047	-0.070	0.107	-0.071	0.107	0.375	-0.201	0.502	-0.617	1.044	-0.220	1.657

RPE_df is the difference between RPE_A and RPE_B.
SPE_df is the difference between SPE_A and SPE_B.
APE_df is the difference between APE_A and APE_B.
N is the yearly sample size, based on which the RPE or SPE is calculated.
P is percentile confidence interval.
BC is bias-corrected confidence interval.

The bootstrap analysis proceeds as follows. Step 1, I draw a random sample with replacement and compute the yearly paired PEs using Equations (6-3) for A- and B-share's firms, respectively. Because A- and B-share's sample is balanced, the size of bootstrapped sample is 76 for each sample year. Step 2, I repeat Step 1 2,000 times and obtain three sets of estimates $\left\{\widehat{PE_\iota}\right\}_{i=1}^{i=2000}$ for A- and B-share, respectively.[29] Step 3, based on the $\left\{\widehat{PE_\iota}\right\}$ obtained in Step 2, I calculate $\left\{\widehat{PE_{df}}_\iota\right\}$, the differences between A- and B-share's $\left\{\widehat{PE_\iota}\right\}$, respectively. Thereafter I use the standard errors of the $\left\{\widehat{PE_{df}}_\iota\right\}$ as the standard errors of PE_df. PE_df is the difference between A- and B-share's RPE, SPE and APE, calculated using the original A- and B-share's sample. I use $\left\{\widehat{PE_{df}}_\iota\right\}$ to obtain bootstrapped percentile confidence intervals for the difference between A- and B-share's PEs.

Table 6-7 summarizes the bootstrap results of PE_df for A- and B-share's sample using Equation (6-3).

Column P is the percentile confidence interval of the $\left\{\widehat{PE_{df}}_\iota\right\}$'s bootstrap distribution. Column BC is the bias-corrected percentile confidence interval, which is used to correct the median bias of the value of the statistic calculated with the original sample (Efron and Tibshirani, 1986).

For the RPE_df, 0 lies outside the 95% confidence interval for the whole sample period based on P and BC, respectively. Therefore, the difference between A-share and B-share's RPE (Column of observed value) has positive statistical significance (RPE_A > RPE_B).

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[29] A total of 50 – 200 replications are generally adequate for estimates of standard error and thus are adequate for normal-approximation confidence intervals (Mooney and Duvall, 1993). I set 2,000 replications for more precision. PE is used to denote RPE, SPE and APE, similarly hereinafter.

This statistical significance could reject hypothesis H6-2, implying that the value relevance of CAS-based financial information is lower than that of IFRS-based financial information. However, the difference between Old CAS and New CAS could not be identified.

For the SPE_df, 0 lies outside the 95% confidence interval only in 2009 based on BC. Based on this significant evidence, it is difficult to reject both hypotheses H6-1 and H6-2. For the APE_df, 0 lies outside the 95% confidence interval only in 2004, 2009 and 2011 based on BC. Furthermore, the difference changes from positive in Old CAS period (2004) to negative in New CAS period (2009 and 2011). The evidence of APE_df shows both the difference between New CAS and IFRS, and the differences between Old CAS and New CAS have statistical significance. Therefore, both hypotheses H6-1 and H6-2 could be moderately rejected based on APE_df. That is the New CAS makes the value relevance of financial information higher than that of IFRS-based financial information.

Table 6-8 Deciles of estimated residuals standard deviation (Equation (6-3))

Decile	$\overline{|\hat{yA}|}$	RPE_A	SPE_A	APE_A	$\overline{|\hat{yB}|}$	RPE_B	SPE_B	APE_B
1	2.64	2.04	0.38	0.80	1.13	1.45	0.40	0.85
2	4.46	1.83	0.37	0.82	2.12	0.78	0.37	0.75
3	5.52	1.98	0.36	0.88	2.76	0.91	0.39	0.85
4	6.57	1.60	0.32	0.85	3.35	0.84	0.35	0.76
5	7.53	2.39	0.33	0.85	3.93	0.97	0.34	0.76
6	8.71	2.19	0.31	0.89	4.51	1.28	0.32	0.66
7	9.99	2.75	0.29	0.86	5.25	1.13	0.31	0.72
8	11.70	2.90	0.33	0.89	6.48	1.37	0.34	0.80
9	14.57	3.48	0.35	0.98	8.57	1.93	0.38	0.93
10	26.01	7.48	0.34	0.88	16.12	4.82	0.36	0.90

RPE_A/RPE_B are raw pricing errors of A- and B-share, respectively.
SPE_A/SPE_B are standardized pricing errors of A- and B-share, respectively.
APE_A/APE_B are abnormal pricing errors of A- and B-share, respectively.
$\overline{|\hat{yA}|}/\overline{|\hat{yB}|}$ are the mean absolute fitted values of A- and B-share price, respectively.

Table 6-8 shows the PEs according to the deciles of the absolute estimated price $\overline{|\hat{y}|}$ of A-and B-share, respectively. For the Decile 1 and Decile 10, while the RPE_A becomes

more than triple (from 2.04 to 7.48), the SPE and APE are similar. Also, there is the similar situation for the B-share (Decile 1 and Decile 10). Therefore, Table 6-8 indicates the non-linearity of the RPE and implies the necessity of the scale control. For the A- and B-share's sample, the results of SPE or APE are more reliable than RPE.

6. 6 Robustness Check

6.6.1 The sample without the real estate industry

Prior studies excluded the real estate industry to examine the effect of New CAS (Liu et al., 2011) because, compared to other industries, the Chinese real estate industry is strongly regulated and intervened by the government. As was shown in Table 6-9, the sample include 10 real estate firms, that occupy 13.16% of the sample. This chapter therefore re-examined the data, excluding the 10 real estate firms.

Annual cross-sectional regressions were run for Equation (6-3) and Equation (6-4). Figures 6-9 through 6-12 depict the adjusted R^2 and PEs of A- and B-share accounting information changes during 2003–2013 for Equation (6-3). Figures 6-13 through 6-16 depict the adjusted R^2 and PEs of A- and B-share accounting information changes during 2003–2013 for Equation (6-4). The results obtained excluding the real estate firms are similar to the test of the sample undertaken with the inclusion of the real estate industry.

Table 6-9 Industry distribution

| Industry	Firms No.	Rate（%）
Air transportation	1	1.32
Chemistry	4	5.26
Communication and related communication equipment products	2	2.63
Computer and related equipment products	1	1.32
Construction	1	1.32
Electric machinery	4	5.26
Electric power and gas	3	3.95
Fabricated metal	3	3.95
Food	3	3.95
Land transportation	3	3.95
Machinery and equipment	5	6.58
Miscellaneous electrical machinery equipment and supplies	3	3.95
Motor vehicles parts and accessories	4	5.26
Non-fabricated metal	3	3.95
Other products	1	1.32
Pharmaceuticals	2	2.63
Precision machines	2	2.63
Pulp and paper	1	1.32
Real estate	10	13.16
Retails	3	3.95
Services	6	7.89
Shipping	2	2.63
Textile mill products	3	3.95
Transportation equipment	2	2.63
Wholesale and retail trade	4	5.26
Total	76	100.00
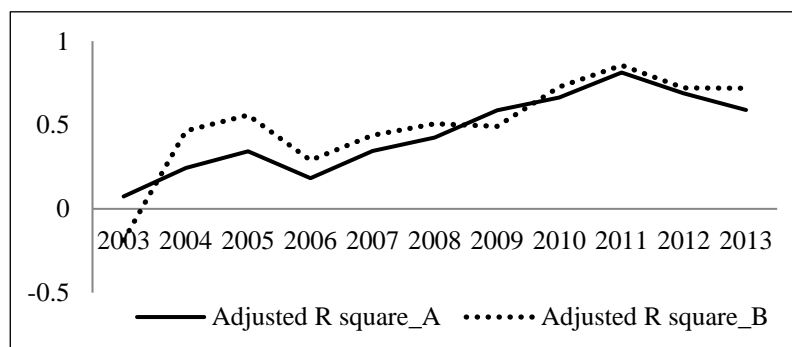
Figure 6-9 Inter-temporal changes of adjusted R^2 without real estate industry (Equation (6-3))
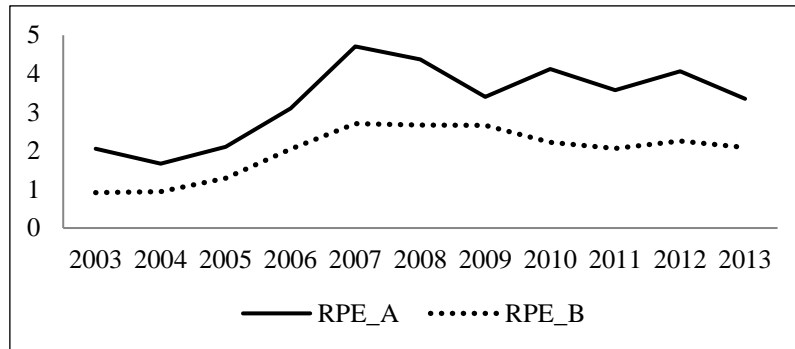
Figure 6-10 Inter-temporal changes of RPE without real estate industry (Equation (6-3))

Figure 6-11 Inter-temporal changes of SPE without real estate industry (Equation (6-3))

Figure 6-12 Inter-temporal changes of APE without real estate industry (Equation (6-3))

Figure 6-13 Inter-temporal changes of adjusted R^2 without real estate industry (Equation (6-4))

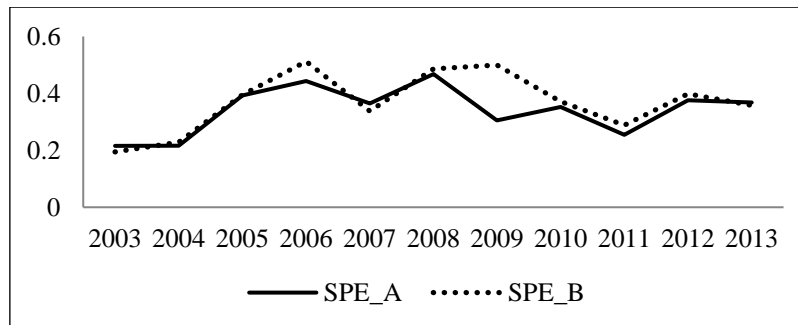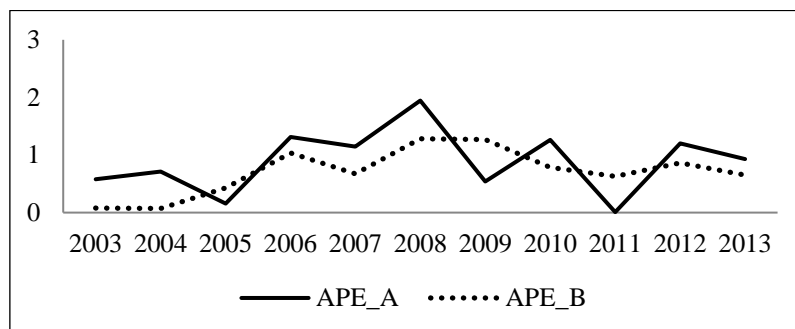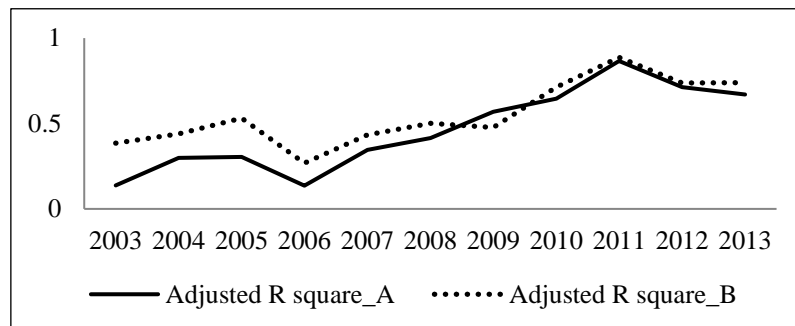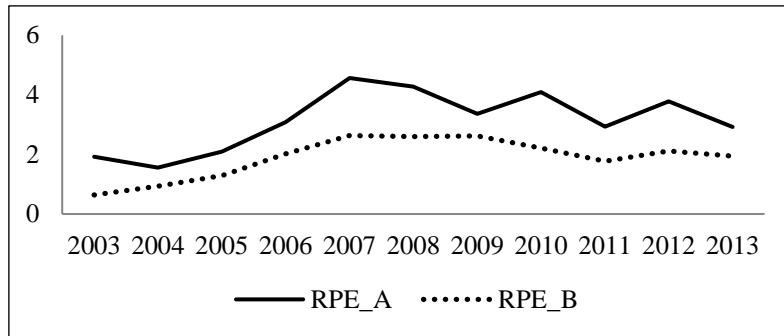Figure 6-14 Inter-temporal changes of RPE without real estate industry (Equation (6-4))
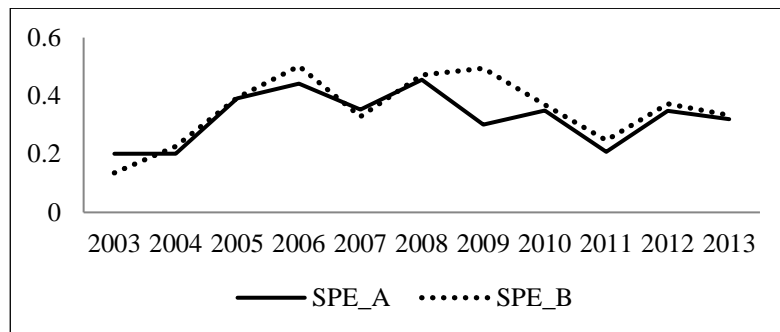
Figure 6-15 Inter-temporal changes of SPE without real estate industry (Equation (6-4))
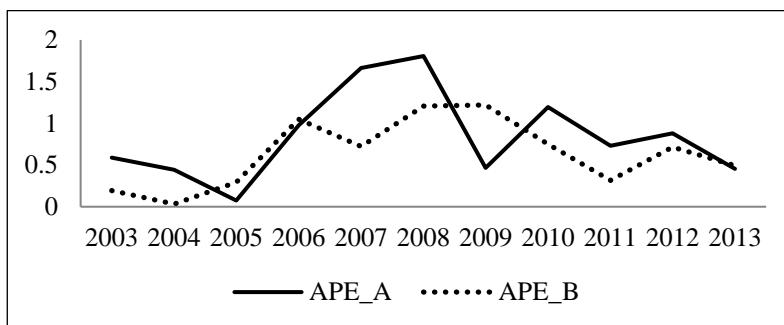
Figure 6-16 Inter-temporal changes of APE without real estate industry (Equation (6-4))

6.6.2 Market segmentation check

As was shown in Table 6-2, the price of A-share is about double of B-share regardless of pre- or post-New CAS. The differences between the A-share and B-share's price suggest that the two capital markets may be segmented. In order to examine the segmentation of the two markets, Equation (6-5), Equation (6-6), Equation (6-7) and Equation (6-8) are

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conducted.

$$P_B = \alpha_0 + \alpha_1 BVPS_A + \alpha_2 EPS_A + \varepsilon_{it} \qquad\qquad (6\text{-}5)$$

$$P_A = \alpha_0 + \alpha_1 BVPS_B + \alpha_2 EPS_B + \varepsilon_{it} \qquad\qquad (6\text{-}6)$$

$$P_B = \alpha_0 + \alpha_1 BVPS_A + \alpha_2 EPS_A + \alpha_3 BVPS_{it}^{IFRS-CAS} + \alpha_4 EPS_{it}^{IFRS-CAS} + \varepsilon_{it} \qquad (6\text{-}7)$$

$$P_A = \alpha_0 + \alpha_1 BVPS_B + \alpha_2 EPS_B + \alpha_3 BVPS_{it}^{IFRS-CAS} + \alpha_4 EPS_{it}^{IFRS-CAS} + \varepsilon_{it} \qquad (6\text{-}8)$$

Figure 6-17 and Figure 6-18 depict the results of the market segmentation check using RPE calculated using Equation (6-5) and Equation (6-6). The results show the comparison of the APEs calculated using Equation (6-5) or Equation (6-6) to that calculated using Equation (6-3).[30] Figure 6-17 and Figure 6-18 imply that the differences of the value relevance between the A- and B-share are due to the prices other than the accounting standards, which suggest that the A- and B-share markets are segmented. Accordingly, the results based on A and B-share samples could be questioned.
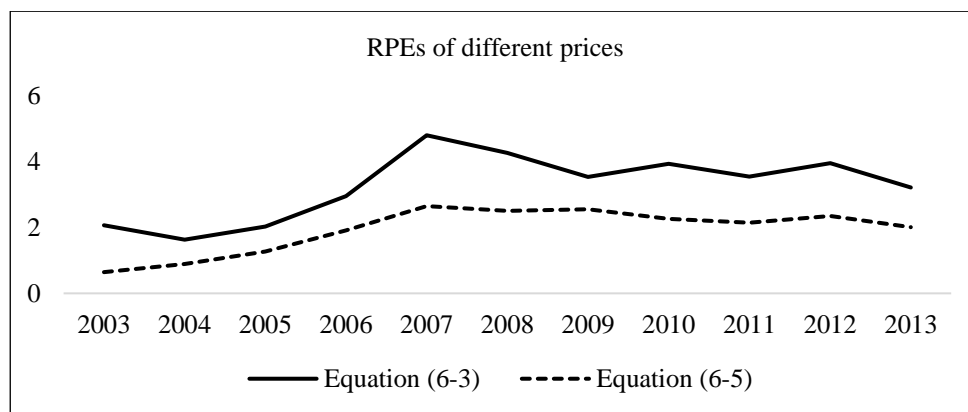

Figure 6-17 Market segmentation check (A-/B-price and CAS based accounting information). Equation (6-3): A-share's price and A-share's accounting number. Equation (6-5): B-share's price and A-share's accounting number.

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[30] The results of SPEs and APEs are similar to that of RPE calculated using Equation (6-3) and Equation (6-4), respectively, and are omitted here.
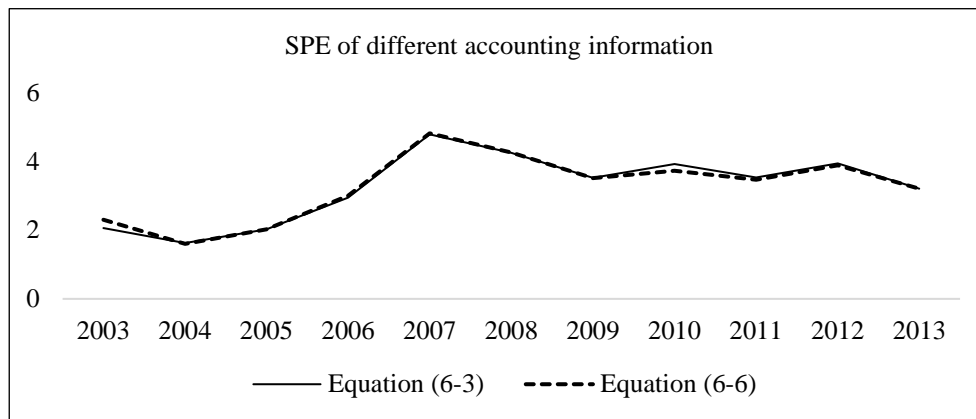
Figure 6-18 Market segmentation check (A-share's price and A-/B-share based accounting information). Equation (6-3): A-share's price and A-share's accounting information Equation (6-6): A-share's price and B-share's accounting information.

6.7 Chapter's conclusion and limitations

The examination above was conducted on Chinese listed firms that are mandated to public firms based on IFRS-convergent accounting standards. I used Equation (6-3) and Equation (6-4) to identify the changes in value relevance measured by adjusted R^2 and Gu's (2007) PEs. Empirical evidence reveals that value relevance measured by adjusted R^2 depicts a convergent, while value relevance measured by PEs provides a contrary result. These empirical results demonstrate the potential invalidity of the value relevance measured by R^2, which is predominantly used in extant studies.

Hypothesis H6-2 could be rejected based on the results of RPEs; however, the results are not reliable due to the problem of scale control. While hypotheses H6-1 and H6-2 could be moderately rejected based on the results of APEs— that is the New CAS makes the value relevance of financial information higher than that of IFRS-based financial information— the segmentation of A- and B-share markets makes the results weak. Using the sample of the firms that issued A- and H-share in Chapter 7 would mitigate the segmentation problem.

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7 The Effects of New CAS' Convergence with IFRS on Value Relevance: Evidence from A- and H-share Markets

7.1 Introduction

This chapter aims to investigate whether the convergence of CAS with IFRS has impact on value relevance by using the Chinese firms that issue both A-share and H-share as a sample. Firms issuing A-share are required to prepare financial reports under CAS, whereas firms issuing H-share are required to prepare financial reports under IFRS. Thus, the firms issuing both A- and H-share have to prepare the financial reports under CAS and IFRS at the same time.

The H-share information are used to control the impact of the factors other than accounting standards, which include cultural, economic, political, regulator, legal systems, etc. Using the pricing models, I investigate the value relevance measured by adjusted R^2 applied in the prior research and Gu's (2007) PEs. The results show that for the accounting information of A-share, the value relevance measured both by adjusted R^2 and Gu (2007)'s PEs is decreasing. Furthermore, the difference of the value relevance between the A- and H-share's accounting information is expanding after convergence. These findings suggest that the value relevance of CAS-based accounting information is decreasing after the convergence and separate from the one of IFRS-based accounting information.

This chapter offers robustness check for the test in Chapter 6 that used the samples of A- and B-share's firms. I tested the value relevance affected by New CAS using another

peculiar sample of Chinese firms that issue both A-share (CAS-based accounting information) and H-share (IFRS-based accounting information) to differentiate the impact of the accounting standard and other environmental factors mentioned in Chapter 5 and 6, which include cultural, economic, political, regulator, legal systems, and others.

This study is organized as follows. Section 2 introduces the outline of the Chinese capital market related to H-share and then develops testable hypotheses based on an overview of related research. Section 3 presents the study's research methods with model specifications. Section 4 discusses the sample and data. Section 5 presents empirical findings and explores plausible explanations for these findings. Section 6 interprets the results of the robustness check. Section 7 concludes the study and provides avenues for future research.

7.2 Background, literature review and hypotheses

7.2.1 The capital market environment of H-share

The environment of capital market related to A-share is referred to in Chapters 4, 5 and 6.

Hong Kong's capital market contributes to channel foreign funds to mainland Chinese firms (Sun and Tong, 2000). In 1993, Chinese firms started getting listed in Hong Kong Exchanges and Clearing Limited （HKEX) as H-share. There are currently 248 firms that issue H-share on the HKEX (HKEX, 2019). A special scheme, Stock Connects of HKEX and SHSE (called as SHSC), Stock Connects of HKEX and SZSE (called as SZHSC) were developed in 2014 and 2016, respectively (CSRC, 2014, 2016).[31] SHSC and SZHSC allow

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[31] Based on SHSC's experience, August 17, 2016, the CSRC and the Securities and Futures

international and mainland Chinese investors to trade securities in each other's markets through their home exchange. It made a significant contribution towards the opening-up of the capital market in mainland China (Wu et al., 2012).

The SHSC comprises a Northbound and a Southbound Trading Link. Under the Northbound Trading Link, investors in Hong Kong can place orders to trade eligible shares listed on SHSE through their Hong Kong brokers and a Hong Kong securities trading service company.[32] Under the Southbound Trading Link, mainland investors can place orders to trade eligible shares listed on HKEX through mainland securities firms and a mainland securities trading service company.

At the initial stage, shares eligible to be traded through the Northbound Trading Link will comprise all constituents of the SHSE 180 Index and the SHSE 380 Index, and A- and H-share, which are issued by SHSE-listed firms. Shares eligible to be traded through the Southbound Trading Link comprise all constituents of the Hang Seng Composite Large Cap Index, Hang Seng Composite Mid Cap Index, and A- and H-share, which are issued by SHSE-listed firms.

7.2.2 The development of the China and Hong Kong accounting standards

Chapter 4 has detailed CAS. Here the development of the Hong Kong Financial Reporting Standards is summarized.

Before 2005, the firms listed on HKEX should have prepared the financial reports under

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Commission (SFC) of Hong Kong has approved the establishment of mutual stock market access between Shenzhen and Hong Kong, known as SZHSC. Thus, the A- and H-share could be traded by investors in Mainland and Hong Kong simultaneously.

[32] The mechanism of SZHSC is the same as SHSC.

Hong Kong Financial Reporting Standards (HKFRS) or IFRS. The choice between the two accounting standards became meaningless after 2005 when the HKFRS became fully converged with IFRS. In 2010, HKEX issued "Consultation Conclusions on Acceptance of Mainland Accounting and Auditing Standards and Mainland Audit Firms for Mainland Incorporated Companies Listed in Hong Kong" ("Conclusions"), coming into effect on December 15, 2010 (HKEX, 2010). The "Conclusions" presents the decision approved by HKEX and SFC that mainland accounting and auditing standards and mainland audit firms for mainland incorporated firms listed in Hong Kong are accepted.

Table 7-1 summarizes the capital markets and accounting standards of A- and H-share. From 2002, the segmentation of A- and H-share markets is loosened owing to the QFII scheme. The segmentation is furthermore relaxed by the SHSC stated in 2014 and the SZHSC stated in 2016. This thesis makes use of samples of firms that issue both the A- and H-share after 2002 to test the impact of New CAS while excluding the effect of factors other than accounting standards.

Table 7-1 Comparisons between trading and disclosure regulations for A- and H-share

Share	Stock Exchange	Currency	Share Number	Market Value (Billion RMB)	Investors				Accounting standards			Disclosure
					Pre-2001	Post-2002	Post-2014	Post-2016	Pre-2006	Post-2007	Post-2010	
A	SHSE	RMB	1,405	33,300	Domestic Chinese	Domestic Chinese ＋QFII	SHSC (A-H share)		CAS	New CAS		Financial reports
	SZSE	RMB	2,094	7,713				SZHSC (A-H share)				
H	HKEX	HK dollar	256	5,547	Chinese institutional investors, foreigners and oversea Chinese		SHSC (A-H share)	SZHSC (A-H share)	HKFRS/ IFRS		HKFRS/ IFRS/ CAS	Financial reports

Source: SHSE, SZSE and HKSE's web data, accessed on March 4, 2018.

7.2.3 Literature review

Studies on the effects of IFRS on accounting quality that used Chinese firms mainly examined the value relevance of earnings and equity, and used samples from before 2001, the market segmentation period.

Chen et al. (2001) examined whether A-share investors perceive the CAS-based accounting information to be value-relevant based on a price model and a return model. As a result of examining the sample of all Chinese listed firms during the period 1991–1998, Chen et al. (2001) reported that accounting information is value-relevant to domestic A-share investors despite the immaturity of the A-share market and the perception of inadequate accounting and financial reporting.

The studies above, carried out during the A- and B-share market segmentation period (before 2001), make it difficult to examine the value relevance of the CAS-based accounting information to the prices of B-share and vice versa. Accordingly, comparisons between the CAS- and IFRS-based accounting information' value relevance of A-and B-share prices are meaningless in this context.

7.2.4 Hypothesis development

As was examined in Chapter 6, the difference between Old CAS and New CAS affects the value relevance of the A-share firms' accounting information. Furthermore, the difference between New CAS and IFRS, which may result in the separation for the value relevance of CAS based and IFRS based accounting information, could not satisfy the objective of the convergence with IFRS. As described in Chapter 4, there are differences not only between Old CAS and New CAS, but also between New CAS and IFRS. The differences between New CAS and IFRS may cause the convergence with IFRS to be

substantially unfulfilled. Furthermore, the enforcement environment involving accounting standards is not enhanced with the adoption of New CAS simultaneously, for example, the proper market for acquiring fair value has not been well prepared. Hence, similar to Chapter 6, the following hypotheses are developed,

H7-1: The value relevance of New CAS-based financial information is the same as that of the Old CAS-based financial information.

H7-2: The value relevance of New CAS-based financial information is the same as that of the IFRS-based financial information.

7.3 Study design

In order to check the robustness of the results of Chapter 6, I tested the value relevance effect of the IFRS-convergent New CAS by applying a Compound model in two steps. In step 1, I examined the inter-temporal changes of value relevance measured by annual regression decision coefficient (adjusted R^2s) using Equation (7-1) and Equation (7-2). In step 2, I examined the inter-temporal changes of value relevance measured by annual Gu's (2007) pricing errors using Equation (7-1) and Equation (7-2).

$$P_{it} = \beta_0 + \beta_1 BVPS_{it} + \beta_2 EPS_{it} + \varepsilon_{it} \tag{7-1}$$

$$P_{it} = \beta_0 + \beta_1 BVPS_{it} + \beta_2 EPS_{it} + \beta_3 BVPS_{it}^{IFRS-CAS} + \beta_4 EPS_{it}^{IFRS-CAS} + \varepsilon_{it} \tag{7-2}$$

Where P_{it} is the stock price of firm I at 6 months after the fiscal year end of period t;[33] $BVPS_{it}$ is the book value per share of owners' equity determined under CAS or IFRS/HKFRS for firm i at time t and deflated by A- and H-share numbers, respectively; EPS_{it} is the net income per share determined under CAS or IFRS/HKFRS for firm i at time t and deflated by the A- and H-share numbers, respectively; ε_{it} is the nonrandom "other information" distinct from book value and earnings per share determined under CAS or IFRS/HKFRS.

Since the segmentation of A- and H-share markets has been dissolved since 2002, Equation (7-2) added the variables expressing the reconciliation between CAS and IFRS to the Equation (7-1). Equation (7-2) could additionally test whether the IFRS reconciliation contains incremental value to the A- and H-share markets after controlling for the reported numbers based on CAS. If the reconciliation of accounting information from CAS to IFRS provides additional information, this "other information" should include the IFRS reconciliation amounts of earnings and book values.

7.4 Sample and descriptive statistics

Chinese firms both issuing A- and H-share with annual financial information and stock price for all periods 2004–2015 were selected for this chapter. The financial and stock price

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[33] The existing regulations require Chinese-listed firms to publish their annual financial reports within 4 months after the end of each calendar year. Therefore, with a margin, the stock prices were measured on the date 6 months after the fiscal yearend. All variables were measured in Chinese currency (RMB), so the foreign currency amounts for B-share are converted into RMB based on the exchange rates at the end of each reporting year.

data for A-share are available in the CSMAR, which was developed by the Chinese financial services company GTA, while the financial and stock price data of H-share are easily collected from the annual financial reports published by HKEX. Only the firms that issue both A- and H-share were used. After dropping the firms without earnings and shareholders' equity book value and the firms H-share financial reports under CAS, a total of 493 firm-year observations were obtained from different industries. There is not A-share's firm, which issues A- and H-share, belonging to banking, securities and insurance industries. Table 7-2 presents the descriptive statistics of the sample variables included in the regression models. All non-dummy variables are winsorized at a 0.5% level.

Table 7-2 Descriptive statistics

Variables	N	Mean	Std	Min	Max
EPS_A	493	0.400	0.471	-0.360	1.570
EPS_H	493	0.404	0.473	-0.360	1.586
BVPS_A	493	4.156	2.585	0.540	10.552
BVPS_H	493	4.574	2.878	0.540	11.670
P_A	493	9.994	7.913	2.690	32.120
P_H	493	6.419	6.101	1.046	24.091
BVPS$^{IFRS-CAS}$	493	0.380	0.464	-0.077	1.549
EPS$^{IFRS-CAS}$	493	0.003	0.014	-0.020	0.051

P_Ait and P_Hit : the A- and H-share stock price of firm i at 6 months after the fiscal year end of period t, respectively; *BVPS_Ait or BVPS_Hit*: the book value per share of owners' equity determined under CAS or IFRS for firm i at time t and deflated by total share numbers; *EPS_Ait or EPS_Hit*: the net income per share determined under CAS or IFRS for firm i at time t and deflated by total share numbers; BVPSIFRS-CAS: the CAS-IFRS reconciliation amounts of book values. EPSIFRS-CAS: the CAS-IFRS reconciliation amounts of earnings.

As indicated in Table 7-2, the A-share EPS and BVPS are smaller than the H-share. (The means of the A- and H-share EPS are 0.400 and .0404, respectively; the means of the A- and H-share BVPS are 4.156 and 4.574, respectively.) IFRS-based accounting information is bigger than CAS-based accounting information. The A-share price was 1.56 times the H-share price. (The means of A- and H-share prices are ¥9.99 and ¥ 6.42, respectively.)

Table 7-3 Correlation matrix

Panel A: Correlation matrix of A-share

	P_A	*BVPS_A*	*BVPS_H*	*EPS_A*	*EPS_H*	$BVPS^{IFRS-CAS}$	$EPS^{IFRS-CAS}$
P_A	1						
BVPS_A	0.6489*	1					
BVPS_H	0.6234*	0.9825*	1				
EPS_A	0.6525*	0.7292*	0.7113*	1			
EPS_H	0.6526*	0.7224*	0.7065*	0.9912*	1		
$BVPS^{IFRS-CAS}$	0.1889*	0.4002*	0.5388*	0.2544*	0.2626*	1	
$EPS^{IFRS-CAS}$	0.0808	0.048	0.0726	0.0706	0.133	0.1914*	1

Panel B: Correlation matrix of H-share

	P_H	*BVPS_A*	*BVPS_H*	*EPS_A*	*EPS_H*	$BVPS^{IFRS-CAS}$	$EPS^{IFRS-CAS}$
P_H	1						
BVPS_A	0.7627*	1					
BVPS_H	0.7297*	0.9825*	1				
EPS_A	0.7637*	0.7292*	0.7113*	1			
EPS_H	0.7589*	0.7224*	0.7065*	0.9912*	1		
$BVPS^{IFRS-CAS}$	0.2382*	0.4002*	0.5388*	0.2544*	0.2626*	1	
$EPS^{IFRS-CAS}$	0.0676	0.048	0.0726	0.0706	0.133	0.1914*	1

Significance at the 5% level. ** Significance at the 1% level. *** Significance at the 0.1% level. *P_Ait and P_Hit* : the A- and H-share stock price of firm i at 6 months after the fiscal year end of period t, respectively; *BVPS_Ait* or *BVPS_Hit*: the book value per share of owners' equity determined under CAS or IFRS for firm i at time t and deflated by total share numbers; *EPS_Ait* or *EPS_Hit*: the net income per share determined under CAS or IFRS for firm i at time t and deflated by total share numbers; BVPSIFRS-CAS: the CAS-IFRS reconciliation amounts of book values. EPSIFRS-CAS: the CAS-IFRS reconciliation amounts of earnings.

Table 7-3 indicates the Pearson correlation among the selected variables on the A- and H-share samples related to the Equation (7-1).[34] Notably, under both A- and H-share, the variables EPS and BVPS have a higher correlation (0.7292 for A-share and 0.7065 for H-share). Under the VIF test, the VIF value is less than 10, which indicates the multicollinearity problem is not critical.

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[34] The results of Equation (7-2) are similar to Equation (7-1); therefore, the results of Pearson correlation of Equation (7-2) are omitted in this paper.

7.5 Results

7.5.1 Explanatory powers

This section tests the adjusted R^2 of A- and H-share accounting information used in prior studies (Lin and Chen, 2005; Wu et al. 2012) for the comparison with Gu's (2007) approach. Annual cross-sectional regressions were run for Equations (7-1) and (7-2). Tables 7-5 and 7-6 summarize the annual cross-sectional regression results of Equations (7-1) and (7-2), respectively.

Figure 7-1 depicts the adjusted R^2 of A- and H-share accounting information changes during 2004–2015 for Equation (7-1) with a moderately decreasing trend in the adjusted R^2 for both A- and H-share. The gap between A- and H-share's adjusted R^2 separates between 2010 and 2013. The gap of the adjusted R^2 between the A- and H-share indicates the effect of the differences between New CAS and IFRS, which is free from the effect of other factors. Therefore, based on the adjusted R^2 changes, it could be concluded that the convergence with IFRS diminished the value relevance of the Chinese firms' accounting information.
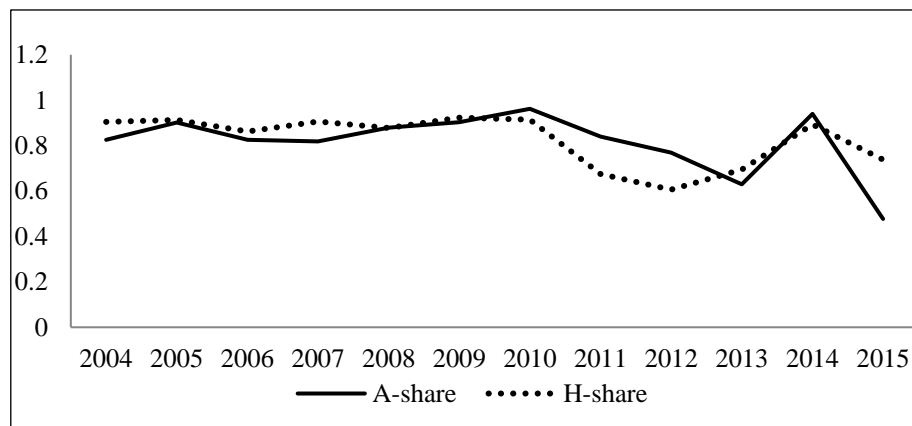

Figure 7-1 Inter-temporal changes of adjusted R^2 from 2004–2015 (Equation (7-1)). A-share and H-share are adjusted R^2 of A- and H-share' accounting information, respectively, for Equation (7-1).

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7.5.2 Pricing errors

Figures 7-2 through 7-4 depict the RPEs, SPEs and APEs during 2004–2015 calculated by Equation (7-1) using A- and H-share. Gu's (2007) approach provides the basis for across-sample comparisons, which could not be achieved by adjusted R^2.

In Figure 7-2, A-share's RPE is moderately higher than the H-share's one in the pre-New CAS period (until 2006) and swings up and down compared to H-share's RPE in the post-New CAS period. This may imply that the adoption of New CAS affected the value relevance of A-share's firms. If the differences between A-share and H-share's RPEs are statistically significant, I could conclude that the adoption of New CAS has a different effect on the value relevance of A-share's firms compared to Old CAS, which could reject hypotheses H7-1.

Figure 7-3 shows an adverse change compared to Figure 7-2. While A-share's SPE swings up and down compared to H-share's SPE in the pre-New CAS period, A-share's SPE becomes lower than H-share's in the post-New CAS period excluding 2015. If the differences between A-share and H-share's SPEs are statistically significant, I could conclude that the adoption of New CAS had a different effect on the value relevance of A-share's firms compared to the Old CAS, which could reject hypothesis H7-1. The relatively stationary relation (SPE_A is lower than SPE_H) in the post-New CAS period could reject hypothesis H7-2.

Figure 7-4 depicts that A-share's APE swings up and down compared to H-share's APE during the whole sample period, which makes it difficult to reach a conclusion on the effect of New CAS.

Figure 7-2 Inter-temporal changes of RPE (Equation (7-1)). RPE_A/RPE_H are raw pricing errors of A- and H-share, respectively.

Figure 7-3 Inter-temporal changes of SPE (Equation (7-1)). SPE_A/SPE_H are standardized pricing errors of A- and H-share, respectively.
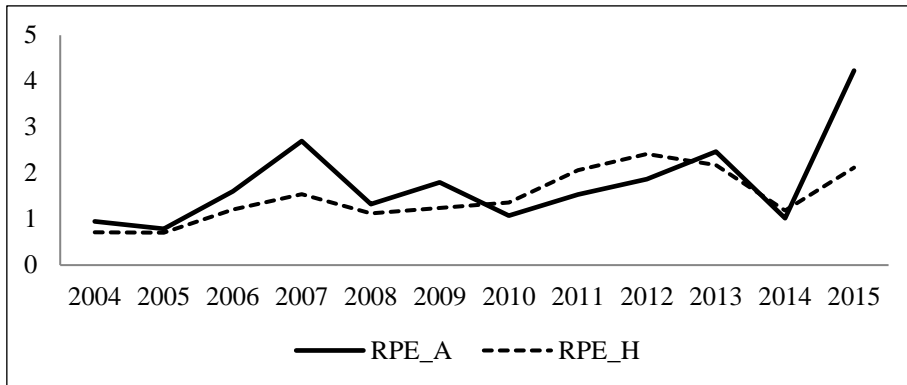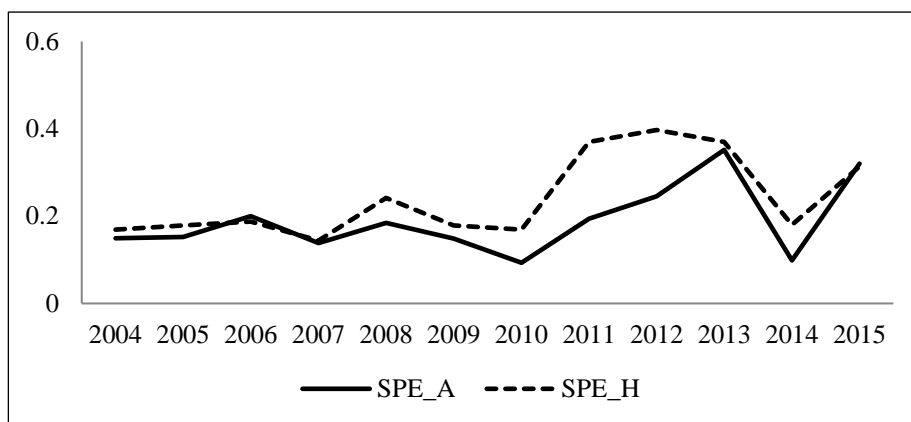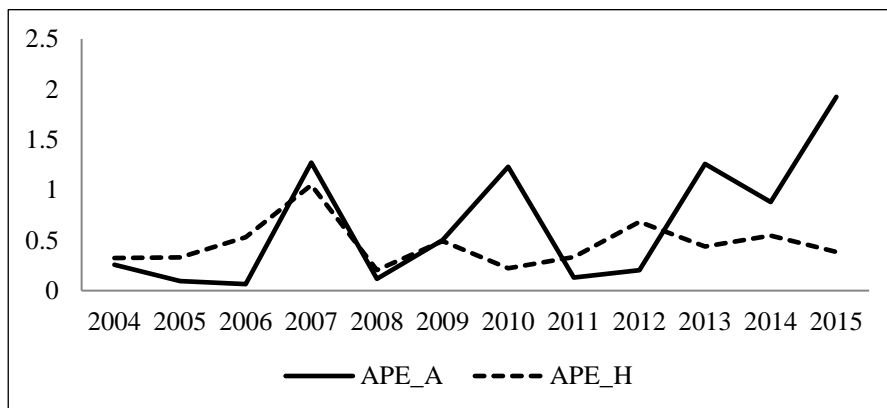

Figure 7-4 Inter-temporal changes of APE (Equation (7-1)). APE_A/APE_H are abnormal pricing errors of A- and H-share, respectively.

To examine the statistical significance of the differences between A- and H-share' PEs, I perform the similar bootstrap analysis adopted in Chapter 6 by resampling observations

randomly with replacement from the A- and H-share's sample 2,000 times for each year. Because A- and H-share's sample is unbalanced, the size of bootstrapped sample varies across sample year.

For each bootstrapped sample, using Equation (7-1) I calculated $\left\{ \widehat{PE_{df}}_{\iota} \right\}$, the differences between A- and H-share's $\left\{ \widehat{PE_{\iota}} \right\}$. Thereafter I use the standard errors of the $\left\{ \widehat{PE_{df}}_{\iota} \right\}$ as the standard errors of *PE_df*. *PE_df* is the differences between A- and H-share's RPE, SPE and APE, respectively, calculated using the original A- and H-share's sample. I use $\left\{ \widehat{PE_{df}}_{\iota} \right\}$ to obtain bootstrapped percentile confidence intervals for the difference between A- and H-share's PEs.

Table 7-4 summarizes the bootstrap analysis results of PE_df for A- and H-share's sample using Equation (7-1). Column P is the percentile confidence interval of the $\left\{ \widehat{PE_{df}}_{\iota} \right\}$'s bootstrap distribution, and Column BC is the bias-corrected percentile confidence interval.

Table 7-4 Bootstrap analysis results of PE_df (A- and H-share's sample) (Equation (7-1))

Year	N	RPE_df=0 (rep=2000)							SPE_df=0 (rep=2000)							APE_df=0 (rep=2000)						
		Observed Value	Bias	Bootstrap Std. Err	P		BC		Observed Value	Bias	Bootstrap Std. Err	P		BC		Observed Value	Bias	Bootstrap Std. Err	P		BC	
2004	28	0.244	-0.161	0.108	-0.108	0.313	0.161	0.545	-0.020	0.013	0.020	-0.049	0.025	-0.077	0.000	-0.068	0.074	0.323	-0.620	0.681	-0.775	0.483
2005	29	0.084	-0.031	0.109	-0.187	0.250	-0.109	0.298	-0.026	0.013	0.028	-0.073	0.036	-0.133	0.002	-0.234	0.122	0.290	-0.700	0.487	-0.952	0.147
2006	33	0.397	-0.164	0.168	-0.091	0.500	0.244	0.776	0.012	-0.002	0.020	-0.029	0.049	-0.023	0.053	-0.465	0.369	0.403	-0.854	0.696	-1.373	-0.060
2007	42	1.151	-0.313	0.378	0.011	1.442	0.735	1.812	-0.006	0.006	0.023	-0.049	0.045	-0.063	0.030	0.223	-0.021	0.680	-0.975	1.812	-0.827	2.110
2008	48	0.199	-0.097	0.197	-0.273	0.489	-0.098	0.689	-0.057	0.011	0.035	-0.116	0.020	-0.134	-0.002	-0.088	0.144	0.291	-0.523	0.683	-0.912	0.286
2009	48	0.558	-0.123	0.300	-0.161	1.013	0.107	1.187	-0.030	0.014	0.034	-0.085	0.047	-0.126	0.023	0.012	0.149	0.508	-0.744	1.313	-0.949	0.962
2010	43	-0.289	0.203	0.271	-0.689	0.379	-1.277	0.022	-0.076	0.037	0.033	-0.114	0.017	-0.181	-0.043	1.008	-0.562	0.554	-0.549	1.663	0.494	2.594
2011	41	-0.529	0.313	0.447	-1.185	0.546	-2.035	0.036	-0.176	0.088	0.079	-0.263	0.042	-0.413	-0.093	-0.204	0.151	0.409	-0.890	0.775	-1.276	0.362
2012	43	-0.546	0.265	0.508	-1.293	0.629	-1.710	0.251	-0.152	0.065	0.086	-0.252	0.063	-0.352	-0.030	-0.478	0.312	0.426	-1.058	0.630	-1.656	0.037
2013	42	0.295	-0.225	0.519	-0.844	1.162	-0.434	1.563	-0.018	-0.010	0.079	-0.181	0.129	-0.157	0.145	0.819	-0.696	0.510	-0.789	1.258	0.312	1.903
2014	43	-0.169	0.161	0.314	-0.601	0.621	-0.856	0.289	-0.081	0.040	0.041	-0.122	0.039	-0.159	-0.038	0.335	-0.042	0.537	-0.649	1.483	-0.536	1.640
2015	53	2.111	-0.802	0.881	-0.371	2.828	0.983	3.700	0.006	-0.022	0.077	-0.179	0.130	-0.142	0.161	1.541	-0.947	0.759	-0.697	2.154	0.862	3.639

RPE_df is the difference between RPE_A and RPE_H.
SPE_df is the difference between SPE_A and SPE_H.
APE_df is the difference between APE_A and APE_H.
N is the yearly sample size, based on which the RPE or SPE is calculated.
P is percentile confidence interval.
BC is bias-corrected confidence interval.

For the RPE_df, 0 lies outside the 95% confidence interval in 2007 based on P and in 2004, 2006, 2007, 2009 and 2015 based on BC. Therefore, the difference between A-share and H-share's RPE (Column of observed value) has positive statistical significance (RPE_A > RPE_H) in New CAS period (2007, 2009 and 2015). This statistical significance could reject hypothesis H7-2, implying that the value relevance of CAS-based financial information is lower than that of IFRS-based financial information. However, the difference between Old CAS and New CAS could not be identified.

For the SPE_df, 0 lies outside the 95% confidence interval in 2008, 2010, 2011, 2012 and 2014 based on BC. This result could reject hypotheses H7-1 and H7-2, implying that the value relevance of New CAS-based financial information is different to either that of Old CAS-based or that of IFRS-based financial information. Especially, the value relevance of New CAS-based financial information became higher than that of IFRS-based financial information. The figures (Figures 7-3 and 7-7) show increasing trends of SPE_A after the adoption of New CAS, that indicates New CAS makes the value relevance of New CAS-based accounting information lower than that of Old CAS-based accounting information. However, the statistical significance of the inter-temporal changes could not be tested.

For the APE_df, 0 lies outside the 95% confidence interval in 2006, 2010, 2013 and 2015 based on BC. Furthermore, the difference changes from negative in Old CAS period (2006) to positive in New CAS period (2010, 2013 and 2015). The evidence of APE_df shows both the difference between New CAS and IFRS, and the differences between Old CAS and New CAS have statistical significance. Therefore, both hypotheses H7-1 and H7-2 could be rejected based on APE_df. In conclusion, the convergence with IFRS by New CAS diminished the value relevance of CAS-based financial information. Furthermore, the value relevance of New CAS-based financial information is lower than that of IFRS-based

financial information.

Table 7-5 shows the RPEs according to the deciles of the absolute estimated price $\overline{|\hat{y}|}$ of A-and H-share, respectively. While the A-share's RPE belonging to Decile 10 become about three times bigger than that belonging to Decile 1 (from 1.13 to 3.01), the A-share's SPEs belonging to Decile 1 and Decile 10 are steady. It is also the same as the RPEs and SPEs of H-share. Therefore, Table7-4 indicates the non-linearity of the RPE and implies the necessity of scale control. However, the scale-controlled APE of A-share shows more than twice as big belonging to Decile 10 (1.06) as that belonging to Decile 1 (0.46). That implies the results of the APE could not be credible. In summary, the results pertaining to A- and H-share's SPEs could be considered.

Table 7-5 Deciles of estimated residuals standard deviation (Equation (7-1))

Decile	$\overline{|\hat{yA}|}$	RPE_A	SPE_A	APE_A	$\overline{|\hat{yH}|}$	RPE_H	SPE_H	APE_H
1	2.10	1.13	0.23	0.46	0.76	1.03	0.26	0.40
2	3.73	0.77	0.19	0.49	1.69	0.80	0.27	0.41
3	4.88	0.89	0.19	0.42	2.40	0.91	0.26	0.42
4	5.76	1.16	0.16	0.46	3.15	1.11	0.23	0.41
5	6.87	1.21	0.20	0.68	4.06	1.04	0.26	0.45
6	8.17	1.67	0.21	0.85	4.96	1.33	0.23	0.47
7	9.88	1.90	0.17	0.89	6.33	1.73	0.24	0.50
8	12.69	2.31	0.20	0.93	8.31	1.59	0.24	0.47
9	18.12	3.97	0.21	0.97	12.48	2.59	0.24	0.53
10	28.07	3.01	0.17	1.06	20.56	2.08	0.24	0.56

RPE_A/RPE_H are raw pricing errors of A- and H-share, respectively.
SPE_A/SPE_H are standard pricing errors of A- and H-share, respectively.
APE_A/APE_H are abnormal pricing errors of A- and H-share, respectively.

Figures 7-5 through 7-8 are the test results using Equation (7-2), which are similar to the results using Equation (7-1), and the descriptions are omitted.
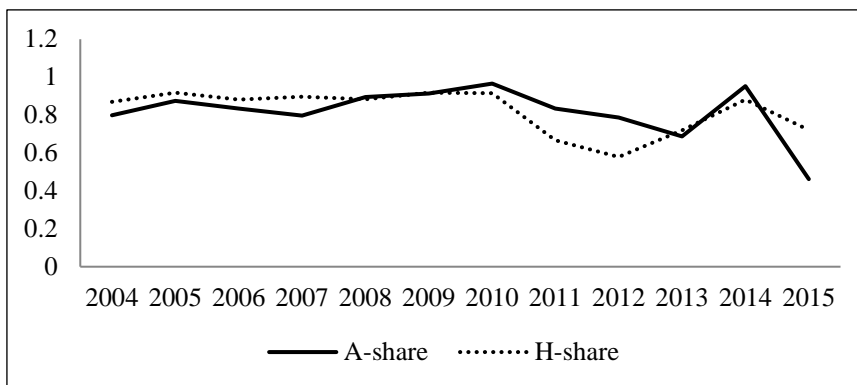
Figure 7-5 Inter-temporal changes of adjusted R^2 from 2004-2015 (Equation (7-2)). A- and H-share are adjusted R^2 of A- and H-share accounting information for Equation (7-2), respectively.
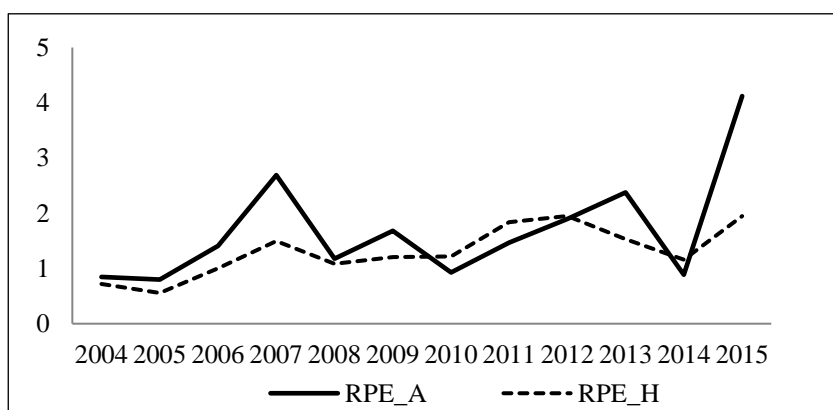

Figure 7-6 Inter-temporal changes of RPE (Equation (7-2)). RPE_A/RPE_H are raw pricing errors of A- and H-share, respectively.
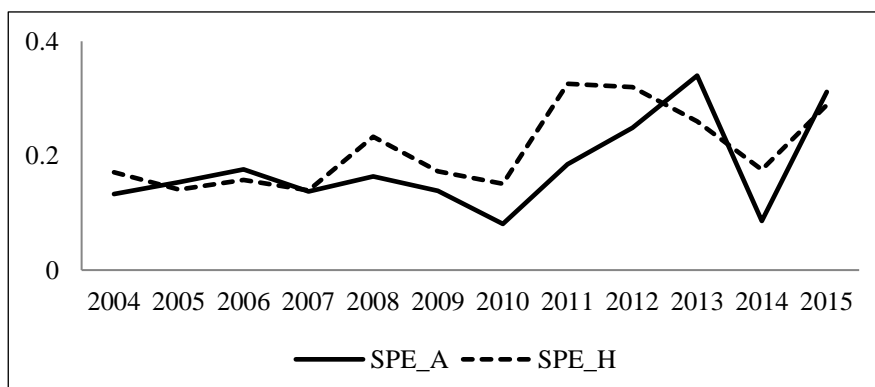

Figure 7-7 Inter-temporal changes of SPE (Equation (7-2)). SPE_A/SPE_H are standardized pricing errors of A- and H-share, respectively.
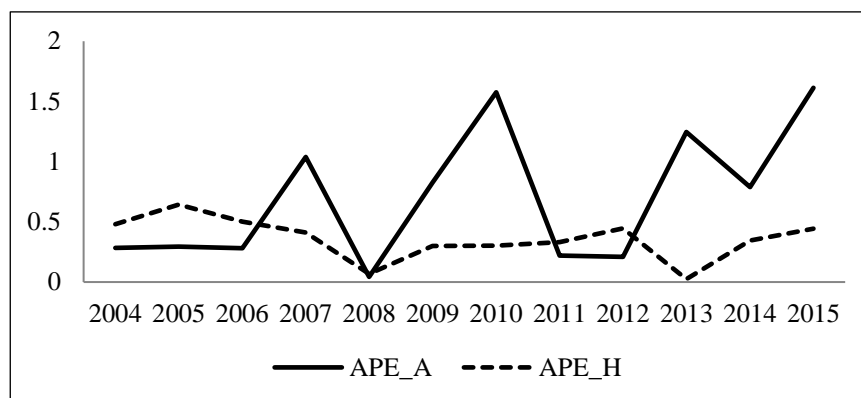
Figure 7-8 Inter-temporal changes of APE (Equation (7-2)). APE_A/APE_H are abnormal pricing errors of A- and H-share, respectively.

7.6 Market segmentation check

As was shown in Table 7-2, the price of A-share is about 1.5 times of H-share. In order to confirm the segmentation of the two markets, I conduct tests using Equation (7-4), Equation (7-5), Equation (7-6) and Equation (7-7).

$$P_H = \alpha_0 + \alpha_1\, BVPS_A + \alpha_2 EPS_A + \varepsilon_{it} \tag{7-4}$$

$$P_A = \alpha_0 + \alpha_1\, BVPS_H + \alpha_2 EPS_H + \varepsilon_{it} \tag{7-5}$$

$$P_H = \alpha_0 + \alpha_1\, BVPS_A + \alpha_2 EPS_A + \alpha_3\, BVPS_{it}^{IFRS-CAS} + \alpha_4\, EPS_{it}^{IFRS-CAS} + \varepsilon_{it} \tag{7-6}$$

$$P_A = \alpha_0 + \alpha_1\, BVPS_H + \alpha_2 EPS_H + \alpha_3\, BVPS_{it}^{IFRS-CAS} + \alpha_4\, EPS_{it}^{IFRS-CAS} + \varepsilon_{it} \tag{7-7}$$

Figure 7-9 and Figure 7-10 describe the results of the market segmentation check using APEs calculated using Equation (7-4) and Equation (7-5). The results show the comparison of the SPEs calculated using Equation (7-4) or Equation (7-5) to the SPEs calculated using Equation (7-1). [35] Figure 7-9 and Figure 7-10 imply that the differences of the value relevance between the A- and H-share are due to the accounting standards other than the prices. The differences of the value relevance suggest that the segmentation of A- and H-

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[35] The results of RPEs and APEs are similar to that of SPE calculated using Equation (7-1) and Equation (7-2), respectively, and are omitted here.

share markets does not impact the results.
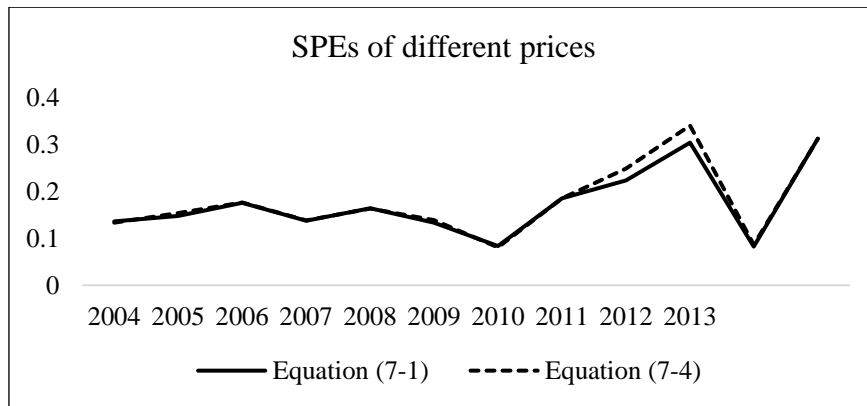
Figure 7-9 Market segmentation check (A-/H-price and CAS based accounting information). Equation (7-1) is A-shar''s price and A-shar''s accounting number. Equation (7-4) is H-shar''s price and A-shar''s accounting number.
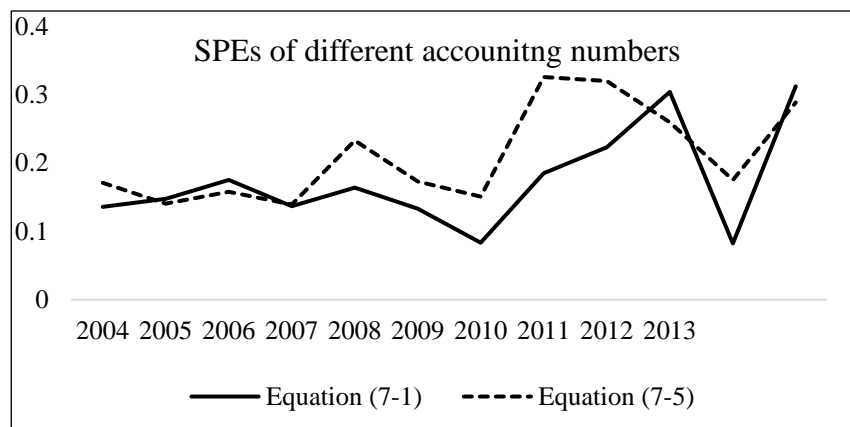
Figure 7-10 Market segmentation check (A-share's price and A-/H-share based accounting information). Equation (7-1) is A-shar''s price and A-shar''s accounting number. Equation (7-5) is A-shar''s price and H-shar''s accounting number.

7.7 Chapter's conclusion and limitations

The examination above was conducted on Chinese listed firms mandated to report through IFRS-convergent accounting standards using A- and H-share. I used Equation (7-1) and Equation (7-2) to identify changes in value relevance measured by adjusted R^2 and Gu's (2007) PEs. After testing the sample of Chinese firms issuing A- and H-share, hypotheses

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H7-1 is rejected based on the results of SPEs, which implies the adoption of IFRS-convergent New CAS diminished the value relevance of accounting information. However, the inter-temporal changes on the relationship between the stock price and accounting information are not considered.

H7-2 is also rejected based on the results of SPEs, which implies the value relevance of New CAS-based accounting information becomes higher than that of IFRS-based accounting information. While the results of the value relevance measured by the adjusted R^2 depict the similar trend to that measured by the SPEs, the limitation of the value relevance measures (R^2) predominantly used in extant studies should be considered.

Table 7-6 A- and H-share, annual cross-sectional regression of Equation (7-1)

Panel A A-share	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
BVEPS_A	1.95	2.05	2.803	0.921	2.145	1.74	0.76	1.049	1.572	1.799	0.756	0.603
	[3.16]*	[4.93]**	[4.21]**	[0.96]	[6.53]***	[2.99]**	[2.35]*	[1.72]	[4.34]***	[3.39]**	[2.86]**	[1.17]
NIPS_A	3.618	3.525	4.05	13.075	0.594	6.445	11.718	4.194	1.972	-0.506	5.727	0.074
	[0.83]	[1.22]	[1.18]	[3.10]**	[0.39]	[2.16]*	[7.30]***	[1.28]	[1.03]	[-0.17]	[3.89]***	[0.02]
Constant	2.747	1.157	-0.421	10.602	-2.738	0.151	0.727	-0.84	-2.044	-2.857	0.546	11.088
	[1.22]	[0.67]	[-0.13]	[2.29]*	[-1.31]	[0.05]	[0.40]	[-0.30]	[-0.70]	[-0.73]	[0.44]	[2.31]*
Adjusted R-square	0.825	0.901	0.826	0.819	0.879	0.903	0.962	0.84	0.769	0.63	0.939	0.477
Panel B H-share	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
BVEPS_H	1.839	2.325	1.924	1.259	2.042	1.814	0.686	1.014	1.213	1.189	0.194	0.502
	[3.97]**	[5.60]***	[4.20]**	[2.48]*	[8.50]***	[5.14]***	[2.07]	[1.92]	[3.24]**	[2.93]**	[0.72]	[1.89]
NIPS_H	6.747	1.29	5.625	9.139	-1.687	2.058	10.784	5.651	4.017	4.152	7.74	7.2
	[2.07]	[0.43]	[2.24]*	[3.82]**	[-1.37]	[1.05]	[6.30]***	[1.83]	[1.83]	[1.68]	[4.73]***	[3.13]**
Constant	-1.714	-2.717	-2.102	-0.133	-4.71	-5.008	-4.324	-5.158	-4.815	-5.062	-0.07	-0.696
	[-1.02]	[-1.75]	[-0.88]	[-0.05]	[-2.69]*	[-2.68]*	[-1.92]	[-1.44]	[-1.26]	[-1.41]	[-0.04]	[-0.27]
Adjusted R-square	0.904	0.913	0.862	0.906	0.878	0.923	0.914	0.674	0.606	0.695	0.893	0.738
N	28	29	33	42	48	48	43	41	43	42	43	53

t statistics in brackets   * p<0.5 ** p<0.01 ***p<0.001.

P_{it}: the stock price of firm i at 6 months after the fiscal year end of period t; $BVPS_{it}$: the book value per share of owners' equity determined under CAS or IFRS for firm i at time t and deflated by total share numbers; EPS_{it}: the net income per share determined under CAS or IFRS for firm i at time t and deflated by total share numbers; ε_{it}: the nonrandom "other information" distinct from book value and earnings per share determined under CAS or IFRS. BVPSIFRS-CAS: the CAS-IFRS reconciliation amounts of book values. EPSIFRS-CAS: the CAS-IFRS reconciliation amounts of earnings.

Table 7-7 A- and H-share, annual cross-sectional regression of Equation (7-2)

Panel A: A-share	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
BVEPS_A	2.374	2.357	2.856	1.034	1.831	1.493	0.8	0.645	1.414	2.086	0.873	0.52
	[3.01]*	[3.28]*	[4.38]**	[0.97]	[5.40]***	[2.64]*	[2.41]*	[0.88]	[3.82]**	[3.92]**	[3.65]**	[0.98]
NIPS_A	0.613	1.151	3.907	12.799	1.153	8.463	11.361	6.82	2.492	-2.78	4.695	1.626
	[0.11]	[0.21]	[1.16]	[2.64]*	[0.79]	[2.88]**	[6.92]***	[1.68]	[1.20]	[-0.93]	[3.41]**	[0.42]
BVPS$^{IFRS-CAS}$	4.643	1.284	9.264	-0.718	3.22	1.472	0.7	1.142	1.555	3.269	1.707	0.106
	[0.80]	[0.34]	[1.35]	[-0.20]	[2.18]*	[0.82]	[0.66]	[0.81]	[1.04]	[1.94]	[2.48]*	[0.04]
EPS$^{IFRS-CAS}$	156.781	-222.411	-181.733	22.014	-48.979	160.907	-81.361	42.963	48.151	-120.401	25.336	74.441
	[0.90]	[-0.57]	[-1.57]	[0.41]	[-1.52]	[1.98]	[-1.90]	[0.84]	[0.97]	[-1.43]	[1.17]	[1.11]
Constant	1.895	0.773	-2.879	9.789	-1.444	-9.063	4.005	-3.775	-6.344	-3.569	-2.578	8.369
	[0.74]	[0.38]	[-0.81]	[1.71]	[-0.56]	[-1.85]	[1.68]	[-0.98]	[-1.74]	[-0.71]	[-1.62]	[1.33]
Adjusted R-square	0.799	0.875	0.834	0.797	0.895	0.914	0.966	0.834	0.787	0.688	0.952	0.462
Panel B: H-share	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
BVEPS_H	1.97	2.585	1.982	1.341	1.914	1.737	1.128	0.188	1.138	1.588	0.173	0.481
	[3.02]*	[4.53]**	[4.61]**	[2.28]*	[6.69]***	[4.19]***	[2.61]*	[0.22]	[2.32]*	[3.39]**	[0.55]	[1.74]
NIPS_H	5.844	-0.088	5.81	9.264	-1.398	2.658	8.776	10.444	3.93	1.754	7.985	6.994
	[1.28]	[-0.02]	[2.49]*	[3.46]**	[-1.10]	[1.20]	[4.15]***	[2.16]*	[1.34]	[0.64]	[4.13]***	[2.88]**
BVPS$^{IFRS-CAS}$	0.34	-1.943	5.141	-1.6	0.29	0.44	-2.174	3.12	0.294	-0.472	-0.175	0.44
	[0.07]	[-0.75]	[1.04]	[-0.75]	[0.20]	[0.29]	[-1.33]	[1.22]	[0.12]	[-0.28]	[-0.17]	[0.33]
EPS$^{IFRS-CAS}$	52.062	-152.546	-145.747	-1.405	-45.601	42.996	1.759	25.609	51.321	-148.063	-12.92	-15.585
	[0.36]	[-0.57]	[-1.76]	[-0.04]	[-1.54]	[0.71]	[0.03]	[0.38]	[0.73]	[-1.87]	[-0.41]	[-0.49]
Constant	-1.964	-3.237	-3.576	0.263	-2.25	-7.592	-3.008	-8.837	-7.501	-0.089	0.49	-0.656
	[-0.94]	[-2.02]	[-1.43]	[0.08]	[-1.00]	[-2.01]	[-0.97]	[-1.67]	[-1.49]	[-0.02]	[0.23]	[-0.20]
Adjusted R-square	0.869	0.918	0.881	0.897	0.883	0.918	0.916	0.667	0.579	0.719	0.882	0.721
N	28	29	33	42	48	48	43	41	43	42	43	53

t statistics in brackets   * p<0.5 ** p<0.01 ***p<0.001.

P_{it}: the stock price of firm i at 6 months after the fiscal year end of period t; $BVPS_{it}$: the book value per share of owners' equity determined under CAS or IFRS for firm i at time t and deflated by total share numbers; EPS_{it}: the net income per share determined under CAS or IFRS for firm i at time t and deflated by total share numbers; ε_{it}: the nonrandom "other information" distinct from book value and earnings per share determined under CAS or IFRS. BVPSIFRS-CAS: the CAS-IFRS reconciliation amounts of book values. EPSIFRS-CAS: the CAS-IFRS reconciliation amounts of earnings.

8 Conclusions and Limitations

This chapter summarizes the preceding chapters and elaborates on the overall conclusions based on them. While summarizing the contents of each chapter, it discusses how overall consistency is achieved among the chapters. Furthermore, after stating overall conclusions, this chapter indicates the limitation.

8.1 Chapter summaries and consistency

Chapter 1 introduced the research background and brought out the research objective. The structure of the thesis was outlined in Figure 1-2. This chapter also explained contributions of this thesis.

The IFRS Foundation states that IFRS are a set of high-quality accounting standards and calls on the worldwide accounting standards unification. By analyzing the inter-temporal numbers of jurisdictions that adopted IFRS, I investigated most of the adopters, which are developing countries and interested in some other attributes of IFRS (such as network effects) other than its quality. To examine whether IFRS are high-quality accounting standards was presented as the research objective.

Chapter 2 reviewed the empirical studies pertaining to the IFRS adoption and ascertained the research orientation. Empirical studies related to the IFRS adoption were categorized mainly into the factors study and the effects study. The studies on the effects of IFRS adoption are mainly concerned with the quality of accounting information and economic consequences. The economic consequences are indirectly affected by IFRS

adoption through the accounting quality. Therefore, the effects of IFRS adoption on accounting quality should be examine at first and are set to the research objective of this thesis.

The studies related to the factors and effects of IFRS adoption were based on the hypothesis that IFRS produce positive economic consequences because of the high-quality and the comparability through accounting standards uniformity. The various incentives of firm-level or country-level accounting standards choice might have an impact on the accounting quality. Therefore, the effects of IFRS might vary according to the various incentives.

Also, Figure 2-2 showed that accounting quality is affected not only by accounting standards but also by legal and political systems, and incentives of financial reporting. The accounting standards are a component of the country's overall institutional system and are determined by country's institutional setting and firms' incentives for financial reporting (Ball, 2016; Soderstrom and Sun, 2007). The interdependence between accounting standards and the country's institutional setting and firms' incentives might mitigate the effects of accounting standards shift. Therefore, for the study on the effect of IFRS adoption, controlling for the mentioned institutional- and firm-level factors became an important task in the empirical research design. The A-, B- and H-share in Chinese stock market provided an excellent opportunity to investigate the effects of accounting standards.

Chapter 3 summarized the construct and empirical models adopted in value relevance research because value relevance as an attribute of accounting quality was well worth considering. For the research related to examining the effect of accounting standards shift,

two issues were brought out.

First, as only the association between the market value and accounting information was examined, it should be well considered how to mitigate or eliminate the effect of factors other than accounting standards in order to investigate the effect of accounting standards shift. A- and B-share or A- and H-share of Chinese listed firms provided an excellent opportunity to overcome this concern, which will be discussed in Chapters 6 and 7.

Second, much prior research has examined the value relevance measured by R^2s. The improper comparison of R^2 for different samples required an alternative measurement of value relevance. Gu's (2007) PE provided a substitute that was suitable not only for investigating value relevance over a given period of time, but also for the different samples at the same period, like the samples of A- and B-share or A- and H-share in Chinese stock market.

Chapter 4 provided a review of the process of CAS' move towards IFRS and the factors driving the accounting reforms. Chinese economic reforms, capital market foundation, and the needs for foreign investment had caused great changes in CAS reform. Through the 1992 and 2006 accounting reforms, CAS had shifted from Soviet Union style to Anglo-American style and completed the convergence with IFRS. However, differences remained between CAS and IFRS.

Chapter 5 conducted the empirical test on the effect on value relevance of New CAS using the samples of Chinese firms issuing A-share. I used (1) Price/Return-earnings model, (2) Balance sheet model and (3) Compound model to examine the changes in value relevance measured by adjusted R^2 and Gu's (2007). The results indicated a decreasing quality of accounting earnings during the process of CAS' convergence with

IFRS. However, the effects could not be limited to CAS per se due to the various factors' effects on accounting quality explained in Chapter 2. Therefore, further study is needed.

Chapter 6 conducted the empirical test on the effect on value relevance of New CAS using the sample of Chinese firms issuing A- and B-share simultaneously. I used the models described in Chapter 3 to identify changes in value relevance measured by adjusted R^2 and Gu's (2007) PEs. B-share is used to control for the effect of the factors other than accounting standards. The empirical results demonstrate the invalidity of the value relevance measured by R^2, predominantly used in prior studies. Hypotheses H6-1 and H6-2 are moderately rejected based on the results of APEs, that is the New CAS makes the value relevance of financial information higher than that of IFRS-based financial information. However, the market segmentation between A- and B-share's markets is confirmed. Therefore, I conduct the examination using the sample of A- and H-share's firms in Chapter 7 to control for the segmentation that remained between the A- and B-share' stock markets.

Chapter 7 conducted the empirical test on the effect on value relevance of New CAS using the sample of Chinese firms issuing A- and H-share simultaneously for checking the robustness of the results obtained in Chapter 6. H-share is used to control for the effect of the factors other than accounting standards. Using the models described in Chapter 3, the findings reject the hypotheses H7-1 and H7-2 based on the results of SPEs, indicating the adoption of IFRS-convergent New CAS affected value relevance of accounting information. Especially, the value relevance of New CAS-based financial information is higher than that of IFRS-based financial information. While the results of the value relevance measured by the adjusted R^2 indicated the same as that measured by the PEs,

the limitation of the value relevance measures (R^2) should be considered. Even though this chapter set out to control for the effects of the factors other than accounting standards by using the particular Chinese firms that issue both A- and H-share, the inter-temporal changes of the relationship between the stock price and accounting information could not be controlled. Therefore, the results are limited to the cross-section comparison for the effects of IFRS adoption.

8.2 Overall conclusions and limitations

By controlling for the impact of the factors other than accounting standards in each year, the results of the thesis indicate that the convergence with IFRS in China separates the value relevance of CAS based accounting information from that of IFRS based accounting information. The differences left between New CAS and IFRS may cause the difference of the value relevance. Furthermore, the value relevance of New CAS-based financial information became higher than that of IFRS-based financial information. The results imply that the New CAS could provide more useful accounting information than IFRS.

The limitations of the thesis could be summarized as follows. Firstly, even though this thesis set out to control for the effects of the factors other than accounting standards by using the particular Chinese firms that issue both A- and B-share or both A- and H-share, the inter-temporal changes of the relationship between the stock price and accounting information could not be controlled for.

Secondly, both the size of A- and B-share and A- and H-share's sample are relatively

small; thus, the external validity is limited. The evidence and conclusions summarized in this thesis are limited to the firms and the periods of the selected sample. According to Ball (2016), the effects of IFRS adoption have been well investigated for no more than 15 years, which are considered as the *short-run* effects. Ball (2016) stresses that to use the relatively *short-run* effects of IFRS adoption to represent *long-run* effects deserves attention, because the effects of innovations would spread over time or differentiate from the initial enthusiasm with a falling performance over time. Therefore, it is also too early to conclude the effect of IFRS adoption.

Thirdly, the results varied depending on different Gu's (2007) PEs. The small size of the samples of A- and B-share or A- and H-share may be the reason. This thesis chose the most appropriate PE in each chapter and drew the conclusions. Larger sample size was desirable but not available for the period examined in this thesis.

Lastly, this dissertation focused only on changes in value relevance, one aspect of accounting quality. Future research may examine other aspects of accounting quality such as timeliness, smoothing, and predictability affected by the IFRS-convergent New CAS in order to provide more complete evidence for evaluating the effect of IFRS.

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