CAPITAL MARKET EFFECTS OF ADOPTION OF IFRS

by

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DEDICATION

This thesis is dedicated to my

wife and family

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STATEMENT OF ORIGINAL AUTHORSHIP

I hereby confirm that the work presented in this thesis is my own original work that has been carried out through the School of Accounting and Commercial Law, Victoria University of Wellington, during my candidature as a PhD student. I declare that the material of this thesis has not been submitted either in whole or in part for the award of any other degree or diploma at this or any other university. To the best of my knowledge and belief, it contains no material previously published or written by other persons or institutions except where due reference has been made.

Solomon Opare

ABSTRACT

This thesis examines the impact of adoption of IFRS (International Financial Reporting Standards) on two aspects of the operation of capital markets. Firstly, the impact of adoption of IFRS on financial reporting comparability, market liquidity, and cost of capital. Secondly, the impact of adoption of IFRS on seasoned equity offering (SEO) underperformance.

To examine the impact of adoption of IFRS on financial reporting comparability, market liquidity, and cost of capital, the study used meta-analysis of empirical studies published since 2000. Meta-analysis provides an objective view of the empirical results, in contrast to narrative reviews, which offer subjective conclusions. From meta-analysis of 55 empirical studies with 1,259 effect sizes, the study finds that IFRS adoption has increased financial reporting comparability, market liquidity, and reduced cost of equity. For cost of debt, a decrease is observed only for voluntary adoption. The meta-regression analysis shows how the results differ across mandatory and voluntary adoption of IFRS and that the measurement choices, type of control variables, study design, and strength of empirical results explain the variation in the observed effect of adoption of IFRS.

To examine the impact of adoption of IFRS on SEO underperformance the study analyses a large sample of SEOs from 51 countries over the period 1992-2017. Given that the empirical literature on SEOs has established that information asymmetry contributes to SEO underperformance, it is important to assess whether adoption of IFRS has reduced the uncertainties surrounding SEOs and, thus, subsequent underperformance. The study employs a control sample of non-IFRS adoption countries and applies a difference-in-difference (DiD) design to test for the incremental change for IFRS adoption countries over non-IFRS adoption countries. The study finds that SEO underperformance reduces for IFRS adopters relative to non-IFRS adopters in the post-adoption period. The reduction in SEO underperformance is influenced by increased disclosure, increased comparability, and number of accounting changes. The study also finds that the impact of adoption of IFRS on SEO underperformance exists only for firms in countries with strong enforcement, and is

conditional on the implementation credibility of countries. The findings are robust to the application of a different measure of SEO underperformance.

Overall, the study suggests that IFRS has had a positive impact on capital markets. However, increased disclosure, comparability, and credible implementation play important roles in realising the benefits of adoption of IFRS. Thus, policymakers of weak enforcement countries are encouraged to strengthen their institutional environment in order to reap the benefits that adoption of IFRS can provide to their capital market.

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LIST OF ABBREVIATION

Abbreviation	Meaning
2SLS	Two-Stage Least Squares
ABDC	Australian Business Deans Council
ABS	Association of Business Schools
AEG	Abnormal Earnings Growth
BASB	Belgian Accounting Standards Board
CDS	Credit Default Swaps
DiD	Difference-in-Difference
EC	European Commission
ES	Effect Size
EU	European Union
EURIBOR	Euro Interbank Offered Rate
GAAP	Generally Accepted Accounting Standards
GDP	Gross Domestic Product
GFC	Global Financial Crisis
IAS	International Accounting Standards
IASB	International Accounting Standards Board
ICAEW	Institute of Chartered Accountants in England and Wales
IFRS	International Financial Reporting Standards
IPO	Initial Public Offering
LIBOR	London Inter-Bank Offered Rate
NI	Net Income
OLS	Ordinary Least Squares
PEG	Price-Earnings-Growth
PSM	Propensity Score Matching
PwC	PricewaterhouseCoopers
SDC	Securities Data Company
SE	Standard Error
SEDOL	Stock Exchange Daily Official List
SEO	Seasoned Equity Offering
SEOUP	Seasoned Equity Offering Underperformance
SIBOR	Singapore Interbank Offered Rate
TIBOR	Tokyo Interbank Offered Rate
UK	United Kingdom
US	United States of America
WACC	Weighted Average Cost of Capital

CHAPTER ONE

INTRODUCTION

1.1 Thesis introduction

This thesis examines the capital market effects of adoption of International Financial Reporting Standards (IFRS). Existing studies have examined different aspects of the capital market effects of adoption of IFRS. However, this thesis focuses on examining the impact of adoption of IFRS on financial reporting comparability, market liquidity, and cost of capital, and whether adoption of IFRS contributes to a reduction in seasoned equity offering (SEO) underperformance.

The thesis uses a meta-analysis to examine the impact of adoption of IFRS on financial reporting comparability, market liquidity, and cost of capital. A large number of empirical studies have addressed these effects of adoption of IFRS, but the results have been mixed. In addition to the vast empirical literature, narrative reviews have only offered subjective conclusions to the effect of adoption of IFRS. Given the large number of studies and the global acceptance of IFRS, it is important to assess the impact that IFRS has on capital markets. The meta-analysis helps to solve the above problem by objectively answering the following research question:

> What is the impact of adoption of IFRS on financial reporting comparability, market liquidity, and cost of capital?

The study also examines whether adoption of IFRS reduces information asymmetry and thus reduces seasoned equity offering (SEO) underperformance. The study uses a

large sample of SEOs from 51 countries and applies a difference-in-difference approach.

1.2 Motivation of the study

This section provides the rationale for the application of meta-analysis for this thesis and explains the basis for investor perception and firm practices leading to SEO underperformance, and how IFRS adoption impacts on SEO underperformance.

Researchers have examined the effect of IFRS adoption on a wide range of aspects of the capital market such as transparency, cost of capital, cross-border investment, and comparability of financial reports. Despite the extensive coverage of the impact of adoption of IFRS in the empirical literature, there remain significant inconsistencies in the findings. The inconsistent findings in the empirical literature reflect factors such as differences in sample size and sample period, the type of statistical tests, and measures of proxies used in empirical studies. Moreover, these empirical studies have used samples from different institutional settings and regulatory environment and produce differences in the reported results. These significant differences make it difficult to draw conclusions and make objective decisions from the results reported in the empirical literature.

Ahmed and Courtis (1999) argue that although narrative studies can review broad areas of research, the conclusions drawn are at best a subjective summary of the reported results. Thus, a quantitative overall assessment that is objective, such as meta-analysis, is preferred. Also, meta-analysis pools the results reported in individual studies to

enable a generalisation to be made and improve the statistical power and validity which may be absent from individual studies.

There has not been a meta-analysis of the effects of IFRS adoption on financial reporting comparability, market liquidity, and cost of capital.[1] This gap is important as studies on the economic consequences of IFRS adoption are highly relevant given the increasing global acceptance of IFRS. Comparability of financial information has been a key focus for standard setters. The International Accounting Standards Board (IASB) aims to produce accounting standards that are of high quality that can enhance investment decision making and improve the efficiency of the market. From the perspective of investors, efficiency of the capital market is expected to improve liquidity of the market. Firms, on the other hand, expect the efficiency of the market to provide for lower cost of capital. The objective of the first part of this thesis is thus to provide analyses of the impact of adoption of IFRS on comparability, liquidity, and cost of capital and to investigate the factors that cause differences in results reported in empirical studies.

SEO underperformance is well documented in the empirical capital market literature. There are a number of explanations for SEO underperformance. The first is based on the earnings management hypothesis. Rangan (1998) and Teoh, Welch, and Wong (1998) explain that SEOs are characterised by extreme earnings manipulation aimed at misleading investors prior to the offering, and the subsequent earnings decline leads to the poor post-SEO performance. The second explanation relies on the rational

[1] See Khlif and Chalmers (2015) for a review of 27 meta-analysis research papers in accounting from 1985 to 2014. The most recent meta-analysis research paper in accounting is Wang and Shailer (2018) which examines whether ownership-performance relations systematically differ between government ownership and private ownership.

expectations model, under which Shivakumar (2000) argues that earnings management prior to an SEO is not intended to mislead investors but is a response to investors discounting the value of the stock post-SEO because they assume that all firms manage earnings prior to an SEO.

The presence of earnings management or overvaluation reflects information asymmetry underlying the SEO. Given the impact of SEO underperformance, this study seeks to examine whether application of IFRS reduces the level of SEO underperformance.

1.3 Summary of key findings

The findings on the impact of IFRS adoption on comparability, liquidity, and cost of capital are that adoption of IFRS has increased financial reporting comparability, market liquidity, and reduced the cost of equity. For cost of debt, a decrease is observed only for voluntary adoption. The meta-regression analysis shows how the results differ across mandatory and voluntary adoption of IFRS and that the measurement choices, type of control variables, study design, and strength of the empirical results explain the variation in the observed effects of adoption of IFRS.

The findings on the impact of adoption of IFRS on SEO underperformance are that SEO underperformance reduces for IFRS adopters relative to non-IFRS adopters in the post-adoption period. Increased disclosure and comparability play a significant role in the effect of adoption of IFRS on SEO underperformance. The results also show that the reduction in SEO underperformance from adoption of IFRS exists only for firms in countries where the accounting standards are credibly implemented and there

is strong enforcement. This result is consistent with the argument that high quality accounting standards are not useful without proper implementation and an environment that encourages compliance with the standards. Furthermore, the results indicate that the reduction in SEO underperformance is economically significant.

1.4 Structure of the remaining chapters of the study

Chapter two reports on the meta-analysis of the impact of adoption of IFRS on financial reporting comparability, market liquidity, and cost of capital. Section 2.1 provides the introduction to the chapter. Section 2.2 reviews the research evidence on the effects of adoption of IFRS on comparability, liquidity, and cost of capital and sets up the hypotheses. Sections 2.3 and 2.4 describes the meta-analysis procedure and the meta-regression model respectively. Section 2.5 provides the results and analysis of the study and Section 2.6 concludes the chapter.

Chapter three reports on the impact of adoption of IFRS on SEO underperformance. The chapter begins with an introduction. Section 3.2 provides research evidence and hypotheses. Sections 3.3 and 3.4 provides details of the test methodology and sample respectively. Section 3.5 discusses empirical analysis. Section 3.6 presents additional analysis and Section 3.7 reports on the robustness tests. Section 3.8 concludes the chapter.

Chapter four provides a summary of the research findings in Section 4.2, the contributions of the thesis in Section 4.3, and discusses the limitations of the study in Section 4.4. The chapter also provides avenues for future research in Section 4.5.

CHAPTER TWO

THE IMPACT OF ADOPTION OF IFRS ON FINANCIAL REPORTING COMPARABILITY, MARKET LIQUIDITY, AND COST OF CAPITAL

2.1 Introduction

This study uses meta-analysis of existing empirical studies on the impact of adoption of IFRS to obtain an objective view on the impact on financial reporting comparability, market liquidity, and cost of capital - equity and debt. Adoption of IFRS is one of the few research areas in accounting with direct policy implications (Daske, Hail, Leuz, and Verdi, 2008). For example, in the European Union (EU), adoption of IFRS triggered policy changes in governance structures and other institutional settings of member countries. Jindrichovska and Kubickova (2016) find that in the Czech Republic, IFRS adoption improved financial reporting quality which accelerated the transition from a centrally-planned economy to a market-based economy. Concerns about the cost of reporting under IFRS, especially for smaller companies (Bradbury and van Zijl, 2006), influenced the form of adoption of IFRS in countries such as Australia and New Zealand.

The level of attention researchers and practitioners have given to adoption of IFRS over the past decade is therefore not surprising. However, to date, empirical studies on the effects of adoption of IFRS have produced mixed results. For example, Jones and Finley (2011) and Yip and Young (2012) find an increase in comparability but Bischof (2009) and Callao, Jarne, and Lainez (2007) find a reduction in comparability. Also, Hail and Leuz (2007) find an increase in market liquidity for firms in the EU but Daske,

et al. (2008) find an increase in liquidity only for firms in EU countries with strong enforcement. These studies report mixed results because they differ in the measurement and modelling of the financial reporting effects being examined and use different data sets. This raises concerns regarding the contribution of academic research to standard setting (Fülbier, Hitz, and Sellhorn, 2009) and policy making.

In addition to individual empirical studies, there have also been narrative reviews of the set of existing studies, such as Institute of Chartered Accountants in England and Wales (ICAEW) (2014), De George, Li, and Shivakumar (2016), and Soderstrom and Sun (2007), which examined the evidence on the financial reporting and capital market effects of adoption of IFRS. Narrative reviews cover large pools of studies to draw conclusions and suggest opportunities for future research. They analyse the literature on several themes and include studies with different sample sizes, methodologies, time periods, and settings. Typical of narrative reviews, these studies have drawn subjective conclusions which, at least in part, further complicate the debate on the effects of IFRS adoption. Ahmed and Courtis (1999) and Habib (2012) thus argue that narrative reviews do not allow researchers to draw systematic conclusions.

In contrast, this study uses meta-analysis which reconciles mixed evidence into a single statistic to provide the basis for a quantitative generalisation and has the advantage of correcting for sampling and statistical errors inherent in some individual studies to enhance the precision of findings (Hay, Knechel, and Wong, 2006). It also provides an overall view of the results found in the individual empirical studies but without the subjectivity on conclusions inherent in narrative reviews of adoption of IFRS. Thus, results from meta-analysis should reduce the difficulty of making policy

decisions based on the mixed evidence from the individual empirical studies and the subjective conclusions drawn in narrative reviews.

Research on the adoption of IFRS has aimed to determine whether the objectives of adoption of IFRS to enhance the quality of financial reporting and improve the efficiency of capital markets have been achieved. For instance, research by Lang, Maffett, and Owens (2010) and Jones and Finley (2011) suggests that the application of common international standards, such as IFRS, should result in improved comparability of financial information and disclosure with expected capital markets benefits such as enhanced market liquidity and reduction in the cost of capital.

Comparability of financial information occurs when firms apply the same accounting standards to similar economic events and operations and produce similar accounting information (Barth, Landsman, Lang, and Williams, 2012). In a liquid market, investors are able to buy and sell securities at fair prices. Liquidity is indicated by change in ownership, ease of access to the debt market, and liquidity factors such as decreases in the number of trading days with zero returns, the price impact of trade, and the bid-ask spread. From the perspective of improved resource allocation in the economy, it is important that cost of capital reflects the economic characteristics of companies and their environment, free of distortions that might result from inadequate financial reporting.

Empirical research does not provide consistent results for the effect of IFRS adoption because of differences in institutional settings and possible concurrent regulatory changes around the time of IFRS adoption. For example, Lang *et al.* (2010) and

Jayaraman and Verdi (2014) reach different conclusions even though both papers use the same measure of comparability, similarity between earnings and stock returns. Jayaraman and Verdi (2014) use a sample of 15 EU countries with different institutional setting but have similar EU regulations, while Lang *et al.* (2010) uses a sample of firms from 47 IFRS adoption countries. The motivation of the study, thus, is to reconcile these differences in empirical results and provide objective conclusions on the financial reporting and capital markets effects.

The present meta-analysis study complements and extends the study by Ahmed, Chalmers, and Khlif (2013). Their study focused on the impact of adoption of IFRS on the value relevance of reported book value of equity and earnings, discretionary accruals, and analysts' earnings forecast accuracy. In contrast, this study examines the impact of adoption of IFRS on comparability, market liquidity, cost of equity, and cost of debt and the methodology this study employs differs from Ahmed *et al.* (2013) in two respects. Firstly, the meta-analytic model the study includes the application of Fisher's Z-transformation to correct for undesirable statistical properties and problematic standard errors in the estimated effect sizes (Lipsey and Wilson, 2001, p.63).[2] Secondly, this study uses meta-regression analysis to explain the significant variation in the empirical results across studies by examining the potential effect of differences in study characteristics such as mode of adoption, measurement choices for the IFRS adoption effects, control variables, estimation methods, and various other factors affecting strength of the empirical results. Controlling for such characteristics that differ across studies has the potential of reducing the apparent heterogeneity in the effects of adoption of IFRS. Also, the use of meta-regression helps to account for all

[2] See Lipsey and Wilson (2001, p. 63) and Ringquist (2013, p. 109) for a discussion of this issue.

the moderating variables simultaneously in a multiple regression format to determine the relative explanatory power of each of the variable (Heugens, Van Essen, and van Oosterhout, 2009; Miller and Cardinal, 1994).

It is important to examine the impacts of adoption of IFRS on comparability of financial reporting as the key objective of the IFRS Foundation is to develop financial reporting standards that ensure that financial statements are comparable, enable participants in the capital markets to make better economic decisions, and improve capital market efficiency. However, after more than a decade of research into the effects of adoption of IFRS, one cannot draw definitive conclusions on the size and direction of the effect of adoption of IFRS, even though empirical studies have tried to put forward theoretical underpinnings for the potential effect of adoption of IFRS. The findings of the present study have the potential to give an indication of how far this objective has been achieved and also help in framing conclusions on the overall relationship between IFRS adoption and comparability, market liquidity and cost of capital.

2.2 Research evidence and hypotheses

In 2006, the ICAEW conducted a survey to ascertain the perceptions of users and preparers on adoption of IFRS. The survey found that a significant minority believed that IFRS had made financial reporting worse and about 24% of users and 14% of preparers opposed the adoption of IFRS (ICAEW, 2007). Ball (2006) argues that while IFRS adoption aims to create uniformity it does not necessarily enhance financial information comparability. Differences in country and institutional settings may lead to different outcomes from adoption of IFRS. However, the narrative reviews by

ICAEW (2014) and De George *et al.* (2016) conclude that IFRS adoption has improved transparency, financial information quality, and comparability of financial reporting. This section reviews the evidence from prior research on the impact of IFRS on financial reporting comparability, market liquidity, cost of equity and cost of debt.

2.2.1 Adoption of IFRS and financial reporting comparability

There is no prescribed measurement for comparability and therefore the lack of consensus on this issue in the IFRS adoption literature is not surprising. For instance, ICAEW (2014) finds that while some studies define comparability in terms of application of accounting choices, compliance with standards, and influence of fair value, others focus on measures such as the synchronicity of accounting-based information and market-based information, stock returns comparability, association between earnings and cash flows, the level of information transfer, and similarity of accounting ratios.

Cole, Branson, and Breesch (2011), Haller and Wehrfritz (2013), and Kvaal and Nobes (2010, 2012) examines the application of accounting choices by firms over time and across different countries. This approach of measuring comparability is described by Gross and Perotti (2017) as the input-based measure of comparability. While Cole *et al*. (2011) use a survey of firms across industrial goods and services and the technology industry in Belgium, Germany, the Netherlands, the UK, Kvaal and Nobes (2010) examine the 2005/2006 annual reports of firms from 9 industries across Australia, France, Germany, Spain, and the UK. Kvaal and Nobes (2012) compare the annual reports for 2005/2006 and 2008/2009 for the same countries as in Kvaal and Nobes (2010) and Haller and Wehrfritz (2013) compare the 2005 annual reports with 2009

for Germany and the UK to determine whether national patterns persist after adoption of IFRS. Though these studies found clear evidence of national patterns in financial reporting after the adoption of IFRS Kvaal and Nobes (2010) find that the evidence is more pronounced in France and Spain even though these countries made substantial policy changes to accommodate IFRS requirements. The possible explanation was that the national standards of these countries were significantly different from IFRS, thus making the transition process more difficult and slower. Cole *et al*. (2011) identified country features such as the economic, political, legal, and tax systems as being the main determinants influencing accounting choices.

Glaum, Schmidt, Street, and Vogel (2013) analyse the determinants of compliance and argue that compliance is a major driver for comparability. They find substantial noncompliance with IFRS standards, particularly for the disclosure requirements of IFRS 3 (Business Combinations) and IAS 36 (Impairment of Assets), and thus a low level of comparability. They find that firm-specific factors such as the type of auditor and the existence of audit committees as well as country-specific factors such as the strength of legal systems and the size of stock markets explain noncompliance. Other studies such as Christensen and Nikolaev (2009) and Cairns, Massoudi, Taplin, and Tarca (2011) consider comparability in terms of the application of fair value measurements. The authors find that comparability is low when firms have the option to apply accounting policies such as fair value.

Some other studies focus on the similarities in economic events facing firms in developing comparability measures. These measures are developed on the premise that firms that face similar economic events are required to report similar accounting and

market measures. These measures are particularly relevant to users of financial reports who would be interested in the outputs of the financial reporting process. Thus, users can easily compare the financial information of firms that are faced with similar economic events and apply the same accounting standards. This study reviews the following empirical papers.

De Franco, Kothari, and Verdi (2011) is arguably one of the influential empirical papers to pioneer the output-based measure of comparability which has the advantage of avoiding the accounting choice to focus on and the weight to be placed on each accounting choice. They measure comparability as a functional form that links earnings and stock returns. Barth *et al*. (2012) provide a modification of De Franco *et al*. (2011). The measure by Barth *et al*. (2012) differs from that of De Franco *et al*. (2011) in two respects. First, while De Franco *et al*. (2011) regress earnings on stock returns, Barth *et al*. (2012) regresses stock price (stock return, subsequent year's cash flow) on earnings and equity book value (earnings and change in earnings, earnings). Second, De Franco *et al*. (2011) provide time-series estimates of comparability while Barth *et al*. (2012) assess comparability on the cross-sectional relationship.

Yip and Young (2012) use three measures of comparability. The first is a modification of the measure developed by De Franco *et al*. (2011). The second measures the degree of information transfer and the authors explain, based on evidence documented in prior literature (Kim and Li, 2011; Alves, Pope, and Young, 2010), that there is information transfer between announcing firms and the stock returns of peer non-announcing firms where the stock market reacts by readjusting the share price of peer non-announcing firms. The third measures the similarity of the information content of equity and the

information content of book value by applying the Ohlson (1995) model which regresses firm's market value on net income and equity book value. From analysing data on 17 European countries over the period 2002-2007, Yip and Young (2012) find that mandatory adoption of IFRS improves cross-country information comparability.

Brochet, Jagolinzer, and Riedl (2013) use three different measure of comparability developed by DeFond *et al*. (2011), De Franco *et al*. (2011), and Yip and Young (2012) and find evidence of reduction in abnormal returns to insiders' share purchases which are inferred to be attributable to enhanced comparability. Brochet *et al*. (2013) explain that where local standards and IFRS are similar, such as in the UK market, any reduction in private information (abnormal returns to insider trading) can be attributed to increased public information which drives financial statements to be comparable and helps investors to make better estimates of the value of firms. Neel (2017) also uses three alternative proxies for the measure of comparability to examine the impact of accounting comparability of economic outcomes following adoption of IFRS. Two of the comparability measures used by Neel (2017) are those developed by De Franco *et al*. (2011) and Barth *et al*. (2012) and also a third measure which investigates the association between cash flows and accruals. Neel (2017) examined 41 countries over the period 2001-2008 and find that firms associated with increases in comparability across countries following adoption of IFRS experience greater capital markets benefits.

Liao, Sellhorn, and Skaife (2012) examine the cross-country comparability between firms in France and Germany over the period 2006-2008. They measure comparability by regressing stock price on earnings and book value and compare the coefficient for

firms in France and Germany. They find that comparability increases only in the first year of adoption of IFRS but reduces in the following two years. The authors argue that in the first year of adoption both French and German firms restate the accounting amounts in a similar fashion but differences in institutional settings across the two countries provide incentives for managers to apply IFRS differently.

Other studies such as DeFond *et al*. (2011) and Jones and Finley (2011) take a different approach to measuring comparability. DeFond *et al*. (2011) define uniformity as the number of industry peers using the same accounting measure and implicitly measure comparability as the number of firms mandatorily applying IFRS divided by the number of firms that use local accounting standards prior to mandatory adoption of IFRS. Jones and Finley (2011) examine comparability by the extent of the variability in accounting ratios. Jones and Finley (2011) hypothesise that firms with similar characteristics and financial reporting standards are more likely to produce comparable ratios. Based on this hypothesis, they find a significant reduction in the variability of accounting ratios after the adoption of IFRS, suggesting an increase in comparability within industry and country, as well as across firms of similar sizes.

In contrast to the above studies that find positive effect on comparability due to adoption of IFRS, Bischof (2009), Callao *et al*. (2007), and Lang *et al*. (2010) find negative or no impact of adoption of IFRS on comparability. Bischof (2009) analyses the impact of adoption of IFRS on debt markets, specifically of European bank's application of IFRS 7 (Financial Instruments: Disclosures). Bischof (2009) finds that disclosure varies significantly across the firms in the 28 European countries in the study sample, an indication of less comparability across countries following adoption

of IFRS and notes that comparability is related to both IFRS adoption and enforcement of the standards. Callao *et al*. (2007) measure comparability by the similarities between accounting numbers and financial ratios under Spanish accounting standards and IFRS. They find that certain aspects of local standards continued to be applied even after the adoption of IFRS and this adversely affected comparability.

Lang *et al*. (2010) examine 23 IFRS adoption countries and 23 non-IFRS adoption countries over the period 1998-2008 and use the proxy develop by De Franco *et al*. (2011). Lang *et al*. (2010) argue that differences in enforcement and implementation of IFRS across countries, the principles-based standards offered by IFRS, and managerial discretion erode the benefits of adopting a single set of accounting standards. The difference-in-difference test indicates that although adoption of IFRS led to an increase in earnings comovement the quality of the information environment declined. Beuselinck, Joos, and Van der Meulen (2007) also argue that earnings and cash flow association will converge over time but find that adoption of IFRS did not immediately facilitate the convergence of earnings and cash flow.

The results reported for the above studies reflect substantial differences in the operationalization of the construct of comparability. As Taplin (2011) noted, the methods and measures of comparability should be consistent because they are essential in making policies to improve comparability. If there is no clear understanding of comparability and how it is measured, then the concept of comparability becomes irrelevant. Though some studies converge on the comparability benefit of adoption of IFRS, there still exist a significant number of studies that report different results even for studies that employ the same measure of comparability (For example, Brochet *et*

al., 2013 and Lang *et al*., 2010). The thesis thus examines the mixed results in empirical studies and identifies factors such as the setting, the sample size, sample period, and the study design that could impact empirical results. This study tests the following hypotheses:

H_{1a}: Adoption of IFRS has an impact on financial reporting comparability.

H_{1b}: The impact on firms' financial reporting comparability is moderated by differences in study characteristics.

2.2.2 Adoption of IFRS and market liquidity

ICAEW (2014) notes that most empirical research in accounting measures liquidity by "the number of trading days with zero returns, the price impact of trades, and the bid-ask spread". These measures of liquidity have been used in a significant number of empirical studies in accounting and finance literature. This study reviews the relevant papers related to adoption of IFRS and market liquidity.

Hail and Leuz (2007) examine liquidity in the capital market after the adoption of IFRS in the EU using all three of the proxies discussed in ICAEW (2014). Hail and Leuz (2007) find that the number of trading days with zero returns and the price impact of trades both decline after adoption of IFRS thus suggesting an increase in liquidity. However, the increase was only marginally significant. Hail and Leuz (2007) thus argue that the impact on liquidity could be attributed to factors such as regulatory changes rather than adoption of IFRS. Daske *et al.* (2008) extended the work of Hail and Leuz (2007) to include non-EU countries and found a drop in the bid-ask spread, ranging from 3% to 6%, thus indicating an increase in liquidity. However, in Daske *et al.* (2008) the liquidity change applied only to countries with strong law enforcement

and this question the attribution of capital market effects for mandatory adopters solely to adoption of IFRS. Christensen, Hail, and Leuz (2013) find similar results where firms that made enforcement changes but did not switch to IFRS still experienced an increase in liquidity and find little evidence of impact for firms in countries with no substantial enforcement change. They also find that the liquidity effect is concentrated in five EU countries.

Drake, Myers, and Yao (2010) examine whether there is a positive effect on liquidity from the adoption of IFRS. They find an increase in liquidity after the adoption of IFRS and attribute this to increased comparability. The authors do not provide an empirical test for a comparability effect but claim that the increase in market liquidity for firms with higher pre-adoption information environment is attributable to increase in comparability and find no impact of accounting quality on liquidity. This finding by Drake *et al.* (2010) is reinforced by Neel (2017). However, there are substantial differences in the research designs of Drake *et al.* (2010) and Neel (2017). Drake *et al.* (2010) use difference-in-difference design and measure liquidity as turnover ratio, two market depth measures, bid-ask-spread, and a composite of the four measures. Neel (2017) uses price impact, trading cost, and bid-ask-spread as measures of market liquidity and find that accounting quality has a second-order effect on liquidity. Further, Neel (2017) finds that the increase in liquidity occurs even in countries with weaker institutions and in countries that did not make positive regulatory changes prior to the adoption of IFRS. The results indicate that strong institutions and regulatory improvements are not the sole drivers of increased liquidity.

Shibly and Dumontier (2014) investigate the impact of the information environment on liquidity following adoption of IFRS. They use firm size as a proxy for firms' information environment with small firms having weak information environment and large firms a strong information environment. They find that market liquidity increases only for small firms indicating that IFRS adoption has a significant effect on a weak information environment. However, their study did not address the effect of other institutional changes such as in regulation around the time of the adoption of IFRS.

Platikanova and Perramon (2012) use an industry-adjusted measure of bid-ask-spread, price impact, and zero returns as liquidity. The authors examine a sample of firms in France, Germany, Sweden, and the UK from 2005-2011 and find that market liquidity is lower in industries with fewer comparable firms. This is because investors use the financial information of similar firms to assess the value of a given firm. Therefore, fewer comparable firms mean less information for valuation. They also find that market liquidity decreases for firms where there are large adjustments in net income in the introductory year of IFRS adoption. They explain that larger adjustments in financial statements increase uncertainty in the capital market and this affects investment decisions.

Daske, Hail, Leuz, and Verdi (2013) argue that the reporting behaviour of firms affects liquidity. The authors define reporting behaviour as the level of transparency exhibited by firms in their financial reporting. They use accruals as a proxy for transparency with the lower (higher) the accruals, the higher (lower) the level of transparency. Based on this argument, they expect and observe that firms that are more transparent after the adoption of IFRS have higher liquidity. Daske *et al.* (2013) also assess liquidity change using price impact and bid-ask spread and by dividing their sample into firms that

adopt IFRS only in name ('label adopters') and firms that make policy changes to improve their reporting practice ('serious adopters'). They define serious adopters as firms that during or after IFRS adoption make concurrent efforts to improve their financial reporting. They observe that liquidity increases for serious adopters relative to label adopters. This effect can be attributed to serious adopters exhibiting a lower level of uncertainty and thus being more attractive to investors. The authors conclude that liquidity change is more likely to reflect firms reporting behaviour than the adoption of IFRS.

A number of studies have used liquidity measures other than those identified in ICAEW (2014). Hong, Hung, and Lobo (2014) measure liquidity as the proceeds from investment and find an increase in liquidity. Covrig, DeFond, and Hung (2007), DeFond, Hu, Hung, and Li (2012) (voluntary adoption), Florou and Pope (2012), and Hamberg, Mavruk, and Sjögren (2013) measure liquidity as the change in ownership and find an increase in liquidity, Beneish, Miller, and Yohn (2015) measure liquidity as change in equity and debt investment and find an increase in both equity and debt investment but the change in equity investment is influenced by quality of governance, level of economic development, and rights of creditors.

In contrast to the above described studies that focus on the equity market, Alexandre and Clavier (2017) measure liquidity in the debt market. The measure is based on the volume of loans provided by banks. For a sample of European firms, Alexandre and Clavier (2017) find that the liquidity effect is greater for smaller and constrained firms but is dependent on the enforcement regime.

The prior literature has shown diversity in the measurement of market liquidity and study characteristics. While the results of the studies are consistent with an increase in market liquidity surrounding adoption of IFRS the empirical literature is unclear whether the effect is a reflection of adoption of IFRS. A number of studies attribute the effect to factors such as improvements in financial securities trading (Brown, 2013), comparability (Drake *et al.*, 2010; Neel, 2017; Platikanova and Perramon, 2012), regulatory changes (Shibly and Dumontier, 2014), reporting behaviour (Daske *et al.*, 2013), and level of enforcement (Alexandre and Clavier, 2017; Daske *et al.*, 2008). This study thus examines whether adoption of IFRS impacts on liquidity and how the different study characteristics impact the results in the empirical studies. This study tests the following hypotheses:

H_{2a}: Adoption of IFRS has an impact on market liquidity.

H_{2b}: The impact on market liquidity is moderated by differences in study characteristics.

2.2.3 Adoption of IFRS and cost of capital

An efficient capital market should contribute to a reduction in the cost of capital. Thus, if IFRS adoption enhances capital markets then it should be expected to reduce companies' cost of capital (ICAEW, 2014). This section reviews the empirical evidence on the impact of IFRS adoption on both the cost of equity and cost of debt.

2.2.3.1 Evidence from the equity market

In addition to investigating the effect of IFRS adoption on market liquidity, Hail and Leuz (2007) also examine the effect on the cost of equity. The authors measure cost of equity capital as implied cost of equity which is an average of the estimates from the

models developed by Claus and Thomas (2001), Gebhardt, Lee, and Swaminathan (2001), Easton (2004), and Ohlson and Juettner-Nauroth (2005). For their full sample period of 2001-2005, they find a marginal decrease in the cost of equity for IFRS adopters relative to non-IFRS adopters. For a sub-sample period of 2004-2005, the authors report an increase in the cost of equity by 11 basis points but suggest that the result from the sub-sample is more likely to be attributed to firm-specific characteristics such as total assets, market value and leverage, rather than the adoption of IFRS. Daske *et al*. (2008) use the same cost of equity measure and sample period as in Hail and Leuz (2007) but adopt a different research design. While Hail and Leuz (2007) use OLS, Daske *et al.* (2008) use difference-in-difference (DiD) design. Daske *et al*. (2008) report a 26 basis points decrease in the cost of equity capital in the year prior to the IFRS transition period. They explain that their results are likely to be driven by institutional factors such as changes in enforcement.

Both Palea (2007) and Gkougkousi and Mertens (2010) examine a sample of financial firms in the EU but use different proxies in estimating the cost of equity. Palea (2007) estimates the cost of equity capital using quarterly data and employ the Gordon growth model proposed by Gordon and Shapiro (1956). Gkougkousi and Mertens (2010) estimate the cost of equity capital using the implied cost of equity as in Hail and Leuz (2007), for the sample period from 2002-2007. Both studies find that the cost of equity capital reduces after the adoption of IFRS. Gkougkousi and Mertens (2010) provide further evidence which suggests that financial institutions with higher exposure to fair value accounting show a lower cost of equity. The explanation offered is that adoption of IFRS reduces information asymmetry and that fair value accounting provides an early warning signal to investors of possible asset price crash, and hence is preferred

to historical cost accounting. The reduction in information asymmetry due to fair value accounting may lead to a lower cost of equity. This explanation is contrary to the belief held by some market observers that fair value accounting increases the risk level of firms because of higher reported fluctuations in asset prices and that this is likely to translate into an increase in the cost of equity.

Lee, Walker, and Christensen (2008) use both price-earnings-growth (PEG) and abnormal earnings growth (AEG) models to examine the impact of mandatory adoption of IFRS on the cost of equity for high-quality and low-quality financial reporting and enforcement environments. They find no significant impact of adoption of IFRS on the cost of equity for firms in the low-quality reporting and enforcement environment, whereas firms from the high-quality reporting and enforcement environment, such as the UK, show a significant decrease in the cost of equity.

Li (2010) uses implied cost of equity capital equal to the average of the proxies developed in Claus and Thomas (2001), Gebhardt *et al.* (2001), Gode and Mohanram (2003), and Easton (2004). The study examines mandatory adopters of IFRS and uses voluntary adopters as a control sample in a DiD design to determine whether the cost of equity reduces in the EU. For a sample period of 1995-2006, the author finds that the cost of equity decreases by 47 basis points for mandatory IFRS adopters relative to voluntary adopters. The reduction in the cost of equity is observed only in firms from countries with strong law enforcement, suggesting that the quality of law enforcement is an important determinant of the effect on the cost of equity. Li (2010) also shows that when the transition years, 2004 and 2005, are excluded from their sample the cost of equity decreases by 86 basis points for mandatory adopters. A

further test shows that the reduction in the cost of equity is driven by increased disclosure and comparability. Castillo-Merino, Menéndez-Plans, and Orgaz-Guerrero (2014) find similar results for the Spanish market using the PEG (Easton, 2004) model as a proxy for cost of equity for the period 1999-2009.

Hong *et al*. (2014) examine the effect of IFRS adoption on the cost of equity in the context of IPOs. The authors hypothesise that improved disclosure and comparability reduces the need to underprice IPOs because of the reduction in information asymmetry and uncertainties surrounding equity issues after the adoption of IFRS. The reduction in IPO underpricing suggests a decrease in the cost of raising equity capital. They also test whether their results persist based on the number of accounting changes and the level of implementation credibility. The number of additional disclosures required by IFRS compared to local GAAP and the number of differences between the requirements of IFRS and local GAAP are used as proxies for the number of accounting changes, and the rule of law is used as a proxy for implementation credibility. Using propensity score matching (PSM), the authors found that the effect of adoption of IFRS is greatest for firms with increased disclosure and for firms in countries with strong implementation credibility.

Houqe, Monem, and van Zijl (2016) focus on evidence from New Zealand and employ the modified-PEG (Easton, 2004) model and also a publicly available PricewaterhouseCoopers (PwC) estimate of cost of equity as alternative proxies for the cost of equity. Both proxies show a reduction in the cost of equity after adoption of IFRS by New Zealand firms.

Persakis and Iatridis (2017) estimate the cost of equity as the average of the implied cost of equity capital estimates from the application of Easton (2004) and Ohlson and Juettner-Nauroth (2005) models for the period 2000-2014. From examination of European zone and Asian countries, they find that after adoption of IFRS, the cost of capital reduces for firms in both sets of countries, but only for firms in countries with stronger investor protection and firms with higher earnings quality.

Kim, Shi, and Zhou (2014) estimate cost of equity from the PEG model (Easton, 2004) and two alternative proxies from the models developed by Ohlson and Juettner-Nauroth (2005) and Gebhardt *et al.* (2001). They focus on a sample of voluntary adopters from 34 countries for the period 1998-2004. They find that cost of equity is lower for IFRS adopters than non-adopters and is lower for firms in countries with strong institutions. However, the impact of adoption of IFRS in reducing the cost of equity capital is greater for firms in countries with weak institutions than for countries with strong institutions.

Daske (2006) studies a set of German firms that voluntarily adopt IFRS for the period 1993-2002. The author estimated the cost of equity using the Easton (2004) and Gebhardt *et al.* (2001) models. Daske (2006) finds that IFRS adoption does not have any impact on cost of equity and in fact cost of equity increases during the IFRS transition period. Daske *et al*. (2013) use a similar proxy for the cost of equity as in Hail and Leuz (2007) (see above) and a sample period from 1990-2005. They find similar results to Daske (2006) with respect to voluntary adoption.

Karamanou and Nishiotis (2009) measure the cost of equity by employing the models developed in Claus and Thomas (2001) and Ohlson and Juettner-Nauroth (2005). For a sample of voluntary adopters from 8 countries for the period 1988-2002, they find a significant reduction in the cost of equity capital.

Paugam and Ramond (2015) focus on a specific accounting standard, IAS 36, Impairment of Assets. The sample covers French companies for the period 2006-2009. The authors measure the cost of equity as the average of the PEG and modified-PEG models by Easton (2004) and the measure developed by Gode and Mohanram (2003). They report that impairment-testing disclosure reduces cost of equity capital because such disclosure reduces information risk. They also find that firms that do not disclose impairments, even when there are indications of impairment, do not experience a reduction in cost of equity. This is because investors perceive that the financial reporting disclosure of the firm is inaccurate due to the non-disclosure of impairments.

The models used most frequently for the estimation of the cost of equity capital are Claus and Thomas (2001), Gebhardt *et al*. (2001), the original PEG and modified-PEG by Easton (2004), and Ohlson and Juettner-Nauroth (2005). While some studies use a single proxy, most of the studies on cost of equity capital use an average of two to four of these proxies. Even though these proxies reflect similar underlying assumptions the results reported in the literature differ with different sample sizes and sample periods. This study tests the following hypotheses:

H_{3a}: Adoption of IFRS has an impact on firms' cost of equity.

H_{3b}: The impact on firms' cost of equity is moderated by differences in study characteristics.

2.2.3.2 Evidence from the debt market

The debt market remains the most important avenue for raising capital and accounting information plays a major role in defining the terms and conditions of debt contracts. Over the period 2000-2011, the size of the US and European debt markets was three times the size of the equity market and firms accessed the debt market more than the equity market (ICAEW, 2014; Florou and Kosi, 2015). Despite this dominance of the debt market over the equity market, the impact of IFRS adoption on the cost of debt has been less well researched. Moreover, as the information needs of lenders are different from those of equity investors, generalisation of the evidence from research on the equity market to the debt market is problematic (Florou and Kosi, 2015).

Florou and Kosi (2015) assess the effect of mandatory IFRS adoption on bond issuance and loans for firms in the EU over the sample period 2000-2007. From a comparison of IFRS adopters and non-IFRS adopters, the authors find that IFRS adopters are more likely to access the public bond market than the private loan market. This is because the adoption of IFRS led to a significant reduction in bond yield spreads while the cost of private loans remained relatively unchanged. They measure yield on public bonds as the spread over government bonds and for the private market the cost of a loan is measured as the basis points over LIBOR. They document that the observed effect is concentrated in firms from countries with a high divergence of local GAAP from IFRS and firms in countries that did not make concurrent changes to their enforcement regime at the time of adoption of IFRS.

Chen, Chin, Wang, and Yao (2015) examine bank loan contracting for mandatory IFRS adopters and non-adopters across 31 countries for the period 2000-2011. In

contrast to the findings of Florou and Kosi (2015) regarding private loans, Chen *et al*. (2015) find that the cost of debt, measured by the interest rate on loans, increased by 10 basis points for mandatory adopters relative to benchmark firms. There are at least two possible explanations for the results in Chen *et al*. (2015). First, the application of fair value accounting following adoption of IFRS is likely to make financial information unreliable for credit assessment. For instance, in the absence of a liquid market for assets, fair value information is relatively subjective which may cause a bias in estimation of leverage. Unreliable financial information on borrowers is likely to result in higher interest rates being demanded by lenders. Second, under IFRS, lenders are likely to incur additional costs in learning and monitoring the financial reporting of the operations of borrowers when assessing credit quality.

Kim, Tsui, and Yi (2011) focus on voluntary adopters of IFRS and use a sample of non-US firms across 40 countries over the period 1997-2005. The study measures cost of debt as the spread on loans which is calculated as the basis points above LIBOR or other standard rates such as HIBOR, TIBOR, SIBOR or EURIBOR. They find that banks charge lower rates to IFRS adopters than non-IFRS adopters and this result does not differ with respect to the strength of the institutions of a country. They explain that better disclosure resulting from adoption of IFRS reduces the information risk associated with lending, thus reducing the rates offered by lenders to borrowers.

Moscariello, Skerratt, and Pizzo (2014) examine the UK, a strong institutional setting with local GAAP similar to IFRS, and Italy, a weak institutional setting with local GAAP significantly different from IFRS. These two countries represent, on the one hand, a common law regime (UK) characterised by strong investor protection and

corporate governance, and on the other hand, a code law regime (Italy) characterised by low investor protection. The cost of debt is measured by the interest-debt ratio over the period 2002-2008. The study finds an improvement in the debt contracting process after mandatory adoption which leads to a lower cost of debt in Italy. The authors explain that the similarities between UK GAAP and IFRS made it unlikely that there would be a significant impact of IFRS adoption on UK firms.

Bhat, Callen, and Segal (2014) examine the impact of IFRS adoption on spreads on credit default swaps (CDS) for 16 countries over the period 2003-2008. Using the US as a benchmark, they find a decline in the spreads on CDS following mandatory IFRS adoption.

Improvements in transparency reduce uncertainties surrounding a firm and reduce information asymmetries between investors and firms. When information asymmetry is high, outside investors will, for example, seek a higher price for their investment (price protection) to defend themselves against the risks that insiders with superior information will take advantage of them. In contrast, with reduced uncertainties and information asymmetries, outside investors require less price protection and thus companies can raise capital at a lower cost.

Although several of the studies reviewed above suggest a reduction in the cost of debt following adoption of IFRS, it is not clear whether the change in the cost of debt can be directly attributed to adoption of IFRS or results from the operation of other factors. Therefore, this study tests the following hypotheses:

H_{4a}: Adoption of IFRS has an impact on firms' cost of debt.

H_{4b}: The impact on firms' cost of debt is moderated by differences in study characteristics.

2.3 Meta-analysis procedure

To examine the relationship between IFRS adoption and financial reporting comparability, market liquidity and cost of capital, and to identify the study characteristics that affect these three dimensions, the following steps were carried out in the study. First, relevant empirical studies were identified. Second, the selected studies were coded for the meta-analysis to represent the relationships being examined and the study characteristics that moderate the relationship. Third, the effect size for each primary study was calculated where effect size is a measure of the relationship being tested. This was followed by a calculation of the mean effect size and a test for heterogeneity in the effect size estimate. Finally, the study identified the possible sources of heterogeneity and used meta-regression to assess their impact.

2.3.1 Identification of relevant studies

For the literature search, the study followed the procedure established in Kepes, McDaniel, Brannick, and Banks (2013), Ringquist (2013) and Stanley, Doucouliagos, Giles, Heckemeyer, Johnston, Laroche, Nelson, Paldam, Poot, Pugh, Rosenberger, and Rost (2013). The procedure typically involves first identifying the empirical papers that address the research questions of interest and then making a judgement as to the inclusion of a particular paper in the meta-analysis. In identifying the relevant studies, it started with electronic searches using keywords or search terms such as "IFRS", "IFRS adoption", "mandatory IFRS adoption", "voluntary IFRS adoption", "International financial reporting standards", "International reporting standards",

"International financial reporting", and "International accounting standards". The study also required that the search contained the following terms: "comparability", "harmonisation", "diversity", "information transfer", "liquidity", "trading cost", "economic consequence", "cost of capital", "cost of equity", "cost of debt", "loan", and "debt". The electronic searches were done in the following databases: ProQuest, Business Source Complete, JSTOR, EBSCO, ScienceDirect, Wiley, Taylor & Francis, Edward Elgar, Emerald, Google Scholar and SSRN.

To ensure that the search for relevant papers was exhaustive, the search is extended by scanning the references in review papers such as ICAEW (2014) and De George *et al*. (2016). Next, is manually went through the reference lists of all the initially identified papers to search for studies that had not been captured by the electronic search. To make a judgement as to what papers to include, it first starts with going through the title and abstract and subsequently the full text to exclude papers that do not report empirical results. Studies that did not report the relevant statistics for calculation of the effect size were excluded.

Specific examples of some empirical papers that were excluded are, first, some studies such as Beuselinck *et al*. (2007), Barth *et al*. (2012), and Khan, Anderson, Warsame, and Wright (2017) which do not provide *t*-statistic, *z*-statistic or *p*-values and indicate significance only by asterisks. Second, Christensen, Lee, and Walker (2007), Lang, Lins, and Maffett (2012), and Fang, Maffett, and Zhang (2015) provide the relevant statistics but combine firms that adopt US GAAP or IFRS which makes it impossible to isolate the IFRS adoption effect. Also, Gebhardt and Novotny-Farkas (2018) which reported only *R*-squared as a measure of comparability.

There were no exclusion criteria based on the apparent quality of the primary studies; however, journal quality is included as a study characteristic in analysing the sources of heterogeneity in the primary studies. The final sample is 55 papers that satisfied the inclusion criteria. Table 2.1 gives a summary of the sample of studies and Table 2.2 presents the journal rankings of the studies that were included in the meta-analysis.

The 55 studies (49 published and 6 unpublished) reported in Table 2.1 are from the years 2000 to 2018 and cover sample periods from 1989 to 2014. Out of the 55 studies, 14 examine single countries including Australia, Canada, France, Germany, Italy, New Zealand, Spain, Sweden, and the UK, and 31 examine multiple countries. The table also shows whether a study examines mandatory or voluntary adoption or both mandatory and voluntary adoption. Table 2.2 provides information on the journals in which the studies were published, the number of studies obtained from that journal, and the ranking of the journals according to the ABDC and ABS rankings.[3]

Most of the studies included in the meta-analysis reported multiple regression results but with variation in the mode of adoption, measurement choices, type of control variables, estimation methods, and factors affecting the strength of the results. Where a study produces multiple effect sizes, the literature suggests that, a mean or median effect size should be calculated from the set of effect sizes or selection of one effect size that reflects the overarching research question of the study (Hunter and Schmidt, 1990; Bijmolt and Pieters, 2001; Lipsey and Wilson, 2001). However, this method does not acknowledge sources of heterogeneity (Cheung and Chan, 2004) and ignores

[3] ABDC rankings are issued by the Australian Business Deans Council of Australia. The ABDC ranks journals as A*, A, B, and C. ABS rankings are issued by the UK Association of Business Schools. The ABS ranks journals as 4*, 4, 3, 2, and 1.

potentially relevant information that contributes to variation in the effect size estimates between and within the primary studies. To mitigate this problem, Dalton, Daily, Certo, and Roengpitya (2003) and Carney, Gedajlovic, Heugens, Van Essen, and Van Oosterhout (2011) suggest that effect sizes should be reported separately for each regression. This process has the benefit of capturing the full set of relevant information needed for the meta-analysis, in particular, in the analysis of the sources of heterogeneity.

In the sample of 55 studies, 53 studies provided multiple effect sizes. The 55 studies produced a total of 1,259 effect size estimates.

2.3.2 Calculating effect sizes

The effect size is measured by the partial correlation coefficient *r*, which shows both the magnitude and direction (Lipsey and Wilson, 2001) of the relationship being tested and also assists in making comparison across studies (Rosenthal, 1991). The calculation of effect size depends on what statistic (*t*-statistic, *z*-statistic, standard error, or *p*-value) is reported in the multivariate analyses in the primary studies. Where *t*-statistic is reported, the *r* is computed as a function of the *t*-value and the degrees of freedom. For studies that do not report *t*-statistics, the regression coefficient and the standard errors are converted into *t* or impute the *t* from the *p*-value; then convert to *r*.

The *z*-statistic is transformed into *r* for studies that report *z*-statistics for the regression coefficients. However, correlation coefficient (*r*) effect sizes have some undesirable statistical properties (Lipsey and Wilson, 2001; Ringquist, 2013). For example, *r* suffers a positive bias because it increases with the number of parameters and the *t*-

statistics used in calculating the *r* also increases when the sample size increases. To counter these undesirable statistical properties, the Fisher *Z* transformation is applied to all the estimated effect sizes.[4]

The weighted mean effect size and standard error are then calculated based on the random effects model (Borenstein, Hedges, and Rothstein, 2007). This assumption is particularly appropriate where the studies analysed vary in terms of the period studied and countries studied; in that case, there will not be a common effect size, rather the different studies will vary in terms of underlying true effect size. The random effects model assumes that beyond sampling error there is excess heterogeneity from differences in the effect size estimates. The variance of the effect sizes in a random effects model is given by $v_i + \tau^2$, where v_i is the within-study variance associated with sampling error and τ^2 is the estimate of the between-study variance (unknown).

Estimation of the weighted mean effect size and standard error for the random effects model starts with estimation of τ^2 from the values estimated for the weights and *Q*-statistic assuming a fixed effect model. The formulas for estimation of the weights and *Q*-statistic in the fixed effect model are shown in Table 2.3. Having obtained an estimate of τ^2, the weights for the random effects model are set equal to the reciprocal of $(v_i + \tau^2)$. The weighted mean effect size for a given measurement is then computed as the sum of the products of each effect size and its weight, scaled by the sum of the

[4] The undesirable statistical properties are from three sources. First, the *r* understates the effects sizes. Second, the *r* is censored by $-1 \leq r \leq 1$. Lastly, the variance of *r* highly depends on the value itself. Thus, $V_r = \frac{(1-r^2)^2}{(n-1)}$, where V_r is the variance of *r* and *n* is the sample size. In this formula, any biased estimation of *r* may affect the variance estimation. Hence, the variance of the Z-transform is desirable which is given as $V_{zr} = \frac{1}{(n-3)}$, V_{zr} is the variance of the Z-transform and *n* is the sample size. See Lipsey and Wilson (2001, p. 63) and Ringquist (2013, p. 109).

weights. The mean standard error is computed as the square root of the inverse of the sum of the weights. A confidence interval for the weighted mean effect size can then be calculated, or to directly test the significance of the mean effect size, the *z*-statistic is computed by dividing the mean effect size by the mean standard error. The calculations are shown in Table 2.4.

2.3.3 Sources of heterogeneity

The relevant information on the study characteristics is coded. These are factors that are likely to be the sources of heterogeneity in the meta-analysis results. This information includes the mode of adoption (mandatory or voluntary), measurement choices, control variables, estimation method, and strength of the reported results.

Table 2.1: Summary of studies included in the meta-analysis (number of countries in parentheses)

Author	Year	Journal	Country	Adoption	Sample period	Sample size
Alexandre & Clavier	2017	QREF	Multiple (15)	Mandatory	2002-2008	3,748
Bailey, Karolyi & Salva	2006	JFE	Multiple (40)	Voluntary	1989-2001	1,814
Bartov, Goldberg & Kimm	2005	UP	Germany	Voluntary	1991-2000	915
Beneish, Miller & Yohn	2015	JAPP	Multiple (47)	Mandatory	2003-2007	188
Brochet, Jagolinzer & Riedl	2013	CAR	UK	Mandatory	2003-2006	2,616
Callao, Jarne & Lainez	2007	JIAAT	Spain	Mandatory	2004-2005	26
Cascino & Gassen	2015	RAS	Multiple (29)	Mandatory	2001-2008	16,418
Chen, Chin, Wang & Yao	2015	JIAR	Multiple (31)	Mandatory	2000-2011	25,290
Chen, Young & Zhuang	2013	AR	Multiple (17)	Mandatory	2000-2009	4,429
Christensen, Hail & Leuz	2013	JAE	Multiple (56)	Mandatory/voluntary	2001-2009	613,752
Covring, DeFond & Hung	2007	JAR	Multiple (29)	Voluntary	1998-2002	24,592
Dargenidou & McLeay	2010	EAR	Multiple (14)	Mandatory/voluntary	2000-2006	2,033
Daske	2006	JBFA	Germany	Voluntary	1993-2002	24,359
Daske, Hail, Leuz & Verdi	2008	JAR	Multiple (51)	Mandatory/voluntary	2001-2005	105,527
Daske, Hail, Leuz & Verdi	2013	JAR	Multiple (30)	Mandatory/voluntary	1990-2005	68,076
DeFond, Hu, Hung & Li	2011	JAE	Multiple (24)	Mandatory	2003-2007	35,980
DeFond, Hu, Hung & Li	2012	JIAR	Multiple (15)	Mandatory	2003-2007	18,956
Drake, Myers & Yao	2010	UP	Multiple (22)	Mandator	1993-2007	351,287
Florou & Kosi	2015	RAS	Multiple (20)	Mandatory/voluntary	2000-2007	13,546
Florou & Pope	2012	AR	Multiple (45)	Mandatory/voluntary	2003-2006	85,741
Franzen & Weißenberger	2018	JIAAT	Germany	Mandatory	2007-2010	654
Glaum, Schmidt, Street & Vogel	2013	ABR	Multiple (17)	Mandatory	2005	357
Gordon, Loeb & Zhu	2012	JAPP	Multiple (208)	Mandatory	1996-2008	1,343
Haller & Wehrfritz	2013	JIAAT	Multiple (2)	Mandatory	2005-2009	811
Hamberg, Mavruk & Sjögren	2013	JIMF	Sweden	Mandatory	2001-2007	1,737
Hong, Hung & Lobo	2014	AR	Multiple (31)	Mandatory	2003-2007	5,260
Horton, Serafeim & Serafeim	2013	CAR	Multiple (46)	Mandatory	2001-2007	20,564
Houqe, Monem & van Zijl	2016	JIAAT	New Zealand	Mandatory	1998-2013	290
Jones & Finley	2011	BAR	Multiple (22)	Mandatory	1994-2006	81,560

Table 2.1 ***continued***

Author(s)	Year	Journal	Country	Adoption	Sample period	Sample size
Karamanou & Nishiotis	2009	JBFA	Multiple (8)	Voluntary	1998-2002	59
Khan	2016	UP	Multiple (3)	Mandatory	2006-2013	41,171
Kim, Shi & Zhou	2014	RQFA	Multiple (34)	Voluntary	1998-2004	21,608
Kim, Tsui & Yi	2011	RAS	Multiple (40)	Voluntary	1997-2005	2,083
Kvaal & Nobes	2010	ABR	Multiple (4)	Mandatory	2005-2006	172
Lang & Stice-Lawrence	2015	JAE	Multiple (42)	Mandatory	1998-2011	80,003
Lang, Maffett & Owens	2010	UP	Multiple (47)	Mandatory	1998-2008	5,233
Lepone & Wong	2018	JBFA	Australia	Mandatory	2005-2006	18,476
Leuz & Verrecchia	2000	JAR	Germany	Mandatory	1998	102
Li	2010	AR	Multiple (18)	Mandatory	1995-2006	6,456
Liao, Sellhorn & Skaife	2012	JIAR	France	Mandatory	2004-2006	783
Lin, Riccardi & Wang	2017	UP	Germany	Mandatory	2002-2010	1,307
Moscariello, Skerratt & Pizzo	2014	ABR	Multiple (2)	Mandatory	2002-2008	1,006
Muller, Riedl & Sellhorn	2011	MS	Multiple (14)	Mandatory	2004-2008	431
Neel	2017	CAR	Multiple (23)	Mandatory	2001-2008	14,888
Panaretou, Shackleton & Taylor	2013	CAR	UK	Mandatory	2003-2008	972
Paugam & Ramond	2015	JBFA	France	Mandatory	2006-2009	445
Persakis & Iatridis	2017	JIFMIM	Multiple (19)	Mandatory	2000-2014	202,425
Petaibanlue, Walker & Lee	2015	IRFA	Multiple (14)	Mandatory	2004-2006	975
Platikanova & Perramon	2012	SJFA	Multiple (4)	Mandatory	2005-2011	3,007
Sundgren, Maki & Samoza-Lopez	2018	IJA	Multiple (11)	Mandatory	2009-2014	289
Tan, Wang & Welker	2011	JAR	Multiple (25)	Mandatory	1998-2007	1,938
Wang	2014	JAR	Multiple (47)	Mandatory	2001-2008	26,349
Wu & Zhang	2010	UP	Multiple (15)	Mandatory	1993-2008	12,049
Yip & Young	2012	AR	Multiple (17)	Mandatory/voluntary	2002-2007	1,654
Yu & Wahid	2014	AR	Multiple (46)	Mandatory	2003-2007	56,060

Notes: This table reports summary of the studies included in the meta-analysis. It shows the author(s) and year of publication, the journal of publication, the sample country or countries, whether the study examined mandatory and/or voluntary adoption, the sample period and the sample size. Studies that examined more than one country is indicated 'multiple' with the number of countries in parentheses.

Table 2.2: Journal articles and journal quality rankings included in the meta-analysis

Abbrev.	Journal	No. of hits	No. of studies	ABDC ranking	ABS ranking
AR	The Accounting Review	31	6	A*	4*
JAE	Journal of Accounting and Economics	21	3	A*	4*
JAR	Journal of Accounting Research	30	6	A*	4*
CAR	Contemporary Accounting Research	17	4	A*	4
RAS	Review of Accounting Studies	15	3	A*	4
JFE	Journal of Financial Economics	1	1	A*	4*
MS	Management Science	1	1	A*	4*
EAR	European Accounting Review	17	1	A*	3
JIFMIM	Journal of International Financial Markets, Institutions & Money	3	1	A	3
ABR	Accounting and Business Research	23	3	A	3
JBFA	Journal of Business Finance & Accounting	21	4	A	3
JAPP	Journal of Accounting and Public Policy	10	2	A	3
BAR	The British Accounting Review	9	1	A	3
IRFA	International Review of Financial Analysis	11	1	A	3
IJA	International Journal of Accounting	16	1	A	3
JIMF	Journal of International Money & Finance	1	1	A	3
JIAR	Journal of International Accounting Research	17	3	A	2
JIAAT	Journal of International Accounting, Auditing and Taxation	5	4	B	3
RQFA	Review of Quantitative Finance and Accounting	1	1	B	3
QREF	The Quarterly Review of Economics and Finance	1	1	B	2
SJFA	Spanish Journal of Finance and Accounting	3	1	B	1
UP	Unpublished papers		6	NA	NA

Notes: This table reports the journal rankings for the studies included in the meta-analysis. It shows the full name of the journal abbreviations indicated in Table 2.1. The number of hits indicates the number of papers identified per journal in the search process. The table also shows the number of studies included in the sample per journal and the ranking of the journal by the ABDC and ABS journal ranking. For ABDC ranking, journals with 'A*' and 'A' are considered high-quality journals, and for ABS, journal ranking '4*', '4', and '3' are considered high-quality journals. NA indicates that the journal is not ranked. Total number of studies is 55.

Table 2.3: Description of formulas for the meta-analysis assuming fixed effect model

Name of formula	Calculation	Description
Effect size using correlation	$ES_r = r$	ES represents effect size and r is the product-moment correlation coefficient.
Effect size using t-statistic	$ES_r = \sqrt{\frac{t^2}{(t^2 + df)}}$	*t* is t-statistic and *df* is the degrees of freedom given by *n-1* where n is the sample size.
Effect size using z-statistic	$ES_r = \sqrt{\frac{Z^2}{N}}$	*Z* is *z*-statistic and *N* is the total sample size.
Z-transform effect size	$Z_r = 0.5log_e\left[\frac{1 + ES_r}{1 - ES_r}\right]$	ES_{z_r} is z-transformed effect size.
Standard error	$SE_{z_r} = \frac{1}{\sqrt{n_i - 3}}$	SE_{z_r} is standard error for each calculated effect size and $n_i$is the sample size for each study.
Inverse variance	$w_i = \frac{1}{SE^2{}_{z_r}}$	w_i is the weight given to the sample size of each study.
Weighted mean effect size	$\overline{ES} = \frac{\sum(w_i ES_i)}{\sum w_i}$	$\overline{ES}$ is the mean effect size calculated for all effect sizes in the meta-analysis. This is the main statistic of interest to capture the aggregate effect of the test variable on the dependent variable.
Standard error of the mean	$SE_{\overline{ES}} = \frac{1}{\sqrt{\Sigma w_i}}$	$SE_{\overline{ES}}$ this is the standard error of the mean computed as the square root of the sum of the inverse variance weights

Table 2.4: Description of formulas for the meta-analysis assuming random effects model

Name of formula	Calculation	Description
Chi-square statistic	$Q = \Sigma w_i(ES_i - \overline{ES})^2$	This is for the homogeneity test based on the Q statistic, which is distributed as a chi-square with k-1 degrees of freedom where k is the number of effect sizes in the study.
Tau squared	$\tau^2 = \frac{Q - df}{\sum w_i - \frac{\sum w_i^2}{\sum w_i}}$	This is an estimate of the between-study variance. *Q* is the *Q*-statistic and *df* is the degrees of freedom.
Weight	$w_i^* = \frac{1}{v_1^*}$	This is the weight assigned to each study where v_i^* is total variance for each study.
Total variance	$v_i^* = v_i + \tau^2$	The total variance includes the within-study variance for study *i* plus the between-studies variance, tau-squared.
Weighted mean effect size	$\overline{ES}^* = \frac{\sum(w_i^* ES_i)}{\sum w_i^*}$	$\overline{ES}^*$ is the mean effect size calculated assuming a random effect model.
Variance of mean effect size	$v^* = \frac{1}{\sum w_i^*}$	This is the reciprocal of the sum of the weights.
Standard error of mean effect size	$SE_{\overline{ES}^*} = \sqrt{v^*}$	$SE_{\overline{ES}^*}$ is the standard error of mean effect size computed as the square root of the variance of mean effect size.
Lower limit	$\overline{ES}_l^* = \overline{ES}^* - 1.96(SE_{\overline{ES}^*})$	$\overline{ES}_l^*$ is the lower limit given by subtracting the product of the critical z-value and the desired confidence interval from the mean effect size.
Upper limit	$\overline{ES}_u^* = \overline{ES}^* + 1.96(SE_{\overline{ES}^*})$	$\overline{ES}_u^*$ is the upper limit given by adding the product of the critical z-value and the desired confidence interval to the mean effect size.
z-statistic	$Z^* = \frac{\lvert\overline{ES}^*\rvert}{SE_{\overline{ES}^*}}$	This tests the significance of the mean effect size. $\lvert\overline{ES}^*\rvert$ is the absolute value of the mean effect size and $SE_{\overline{ES}^*}$ is the standard error of the mean effect size.
Fail-safe number	$X = (k/2.706)[k(Z^*)^2 - 2.706]$	This calculates the number of studies that would make significant results become insignificant. *k* is the number of studies and Z^* is the z-statistic.

2.3.3.1 Mode of adoption

The mode of adoption is considered as mandatory or voluntary adoption. Studies on mandatory adoption are different from those on voluntary adoption in terms of sample size, sample period, reporting incentives, and countries with different institutional settings. Mandatory adoption is mostly characterised by larger sample sizes than voluntary adoption.

In terms of the sample period, voluntary adoption is not as clustered in time as mandatory adoption. Voluntary adoption is spread over a period from 1990 to 2005 while most mandatory adoption occurred in the year 2005, predominantly in EU countries. There is therefore substantial variation in the timing of voluntary adoption across countries compared with mandatory adoption. The clustering of mandatory adoption around 2005 makes it difficult to isolate institutional changes and other confounding events. Also, voluntary adoption is open to both private and public firms whereas mandatory adoption is predominantly for public firms. However, voluntary adoption samples suffer from self-selection. In the sample, 67% of the primary regressions relate to mandatory adoption.

2.3.3.2 Measurement choices

Variation in the measurement choices employed is likely to be a key determinant of the variation in the reported results of the adoption of IFRS (Stanley and Jarrell, 1989). The study identified 46 different measures of the effect of adoption of IFRS on comparability (16), liquidity (21), cost of equity (5), and cost of debt (4).

2.3.3.3 Control variables

A range of control variables were used in the regressions reported in the primary studies. Based on their similarities, the study identified four firm-specific control variables (size, leverage, market-to-book, performance). Because most of the primary studies examine an international setting, the study identified regressions that control for the institutional setting (level of enforcement) in their sample.

2.3.3.4 Estimation methods

The studies use a variety of estimation methods for the effect of adoption of IFRS, including firm fixed effects, year fixed effects, industry fixed effects, country fixed effects, OLS, DiD, 2SLS, and PSM.

2.3.3.5 Strength of results

There are several additional factors that may impact the IFRS adoption effect. These factors are indications of the strength of the regression results reported in the studies included in the meta-analysis. The study identified the factors listed below as other potential sources of heterogeneity.

2.3.3.5.1 Endogeneity

Endogeneity is a major concern, especially in studies on voluntary adoption. For example, in studies on voluntary adoption, there is increased likelihood of self-selection bias. The study thus includes an indicator variable for empirical papers that control for endogeneity.

2.3.3.5.2 Publication status

There are debates in the meta-analysis literature as to whether unpublished papers should be included or not. Habib (2012) excludes unpublished papers because such papers have not been subjected to final review processes and may subsequently be published with different results. However, other studies (Rosenthal, 1979; Duval and Tweedie, 2000; Scargle, 2000; Pomeroy and Thornton, 2008; Wang and Shailer, 2015, 2018) argue that publication of a research paper could be a function of editors and reviewers giving priority to novel, interesting, and significant results (even with some empirical flaws). Thus, studies introducing novel ideas are more likely to survive the review process than replication studies and studies using the same variables as in previous studies. Including only published papers ensures quality (Hay *et al*., 2006), but to mitigate the biases associated with journal publication, this study includes both published and unpublished results and test whether publication status has a significant impact on the effect size estimates.

2.3.3.5.3 Journal quality

This study includes a dummy variable to control for the relative quality of the primary studies as indicated by journal ranking. Top-ranked journals give an indication of the quality and rigour in published studies. Using the ABDC ranking, the meta-analysis includes 42 studies that have high-quality ratings and 13 studies (including unpublished papers) that have low-quality ratings.

2.3.3.5.4 Robust standard error

The study includes an indicator variable for studies that estimate regressions using robust standard errors. Robust standard errors ensure that test statistics used in

estimating the effect sizes are not overstated. About 83% of the reported regressions included robust standard errors.

2.3.3.5.5 Year of publication

The study examines whether the year in which studies are published has any relationship with the reported results. It is more likely for studies on IFRS to be published in later years as more data becomes available and more researchers develop interest in this research area.

2.3.3.5.6 Sample size

Larger sample sizes are likely to produce a higher test statistic and thus produce a higher effect size estimate. The sample size in the analysis ranges from 26 to 613,752 firm-year observations. This variation in sample size is largely the result of some studies examining only a single country while others cover multiple countries or is the result of the duration of the sample period used.

2.3.3.5.7 Sample period

Longer sample periods are more likely to capture the phenomenon being tested as opposed to shorter sample periods. The sample period in the analysis ranges from 1-16 years with most studies using a four-year sample period.

2.4 Meta-regression model

To test hypotheses H_{1b}, H_{2b}, H_{3b} and H_{4b}, the study uses the random effect meta-regression model applied in Ringquist (2013). This model accounts for excess heterogeneity in addition to sampling error. If the excess heterogeneity is not

accounted for, the standard errors of the regression coefficient would be underestimated resulting in an overstatement of the significance of the sources of heterogeneity (Thompson and Sharp, 1999).

The random effect meta-regression model used to examine the effect of the variability on the effect size estimates is given by:

$$Z_r = \beta_0 + \beta_1 \mathrm{AD} + \beta_2 \mathrm{MC} + \beta_3 CV + \beta_4 \mathrm{EM} + \beta_5 \mathrm{SR} + \mu, \mu \sim N(0, \nu_i + \tau^2) \quad (2.1)$$

where, Z_r is the Fisher transformed effect size estimates of adoption of IFRS for, in turn, financial reporting comparability, market liquidity, cost of equity, and cost of debt, calculated from the regression results reported in the sample studies; *AD* is a dummy variable representing mode of adoption, whether mandatory adoption or voluntary adoption; *MC* is a column vector of dummy variables for different measurements, in turn, for comparability (initially 16 measurements), market liquidity (initially 21 measurements), cost of equity (5 measurements), and cost of debt (4 measurements); *CV* is a column vector of dummy variables for the selected control variables (*size*, *leverage*, *market-to-book*, *performance*, and *level of enforcement*) used in the regressions reported in the sample studies; *EM* is a column vector of dummy variables representing the estimation methods (*firm fixed effects*, *year fixed effects*, *industry fixed effects*, *country fixed effects*, *OLS*, *DiD*, *2SLS*, and *PSM*) used in the regressions reported in the sample studies; *SR* is a column vector of dummy variables which influence strength of results (*endogeneity*, *publication status*, *journal quality*, *robust standard error*, *year of publication*, *sample size*, and *sample period*); and β_2 to β_5 are row vectors of coefficients on the study characteristics. The v_i is the within-study variance and τ^2 is the estimate of the between-study variance. The variables are defined in Table 2.5.

The study uses the approach proposed by Knapp and Hartung (2003) to adjust the standard errors of the parameters of the meta-regression to derive an unbiased estimator of the variance. The τ^2 is estimated using restricted maximum likelihood as suggested by Thompson and Sharp (1999).

2.5 Results and analysis

2.5.1 Distribution of effect size results by primary studies

Table 2.6 reports the distribution of effect size results for each of the primary studies and the summary of the effect size results for financial reporting comparability, market liquidity, cost of equity, and cost of debt. In Panel A of Table 2.6, the studies are listed in alphabetical order of the lead author for each dimension. Cascino and Gassen (2015) reported the most number of effect sizes for financial reporting comparability (41), Daske *et al*. (2008) reported the most number of effect sizes for market liquidity (87), Kim *et al*. (2014) reported the most number of effect sizes for cost of equity (91), and Florou and Kosi (2015) reported the most number of effect sizes for cost of debt (68). Bailey, Karolyi, and Salva (2006) and Leuz and Verrecchia (2000) provided only one effect size.

Table 2.5: Variable definitions

Variable	Definition
Dependent variable	
Z_r	Effect size reported in the primary studies measuring the relationship between IFRS adoption and financial reporting comparability, market liquidity and cost of capital. The effect size is based on Fisher's z-transformation of the partial correlation coefficient (*r*).
Test variables	
Mode of adoption:	
Mandatory/voluntary	Dummy is 1 if the study examined mandatory adoption and 0 for voluntary adoption
Measurement choices	
Comparability:	
Accruals-cash flow	Dummy is 1 if the effect size estimate is based on an accrual-cash flow model
Change in investment	Dummy is 1 if the effect size estimate is based on a measure of change in investment
Comparable earnings forecast	Dummy is 1 if the effect size estimate is based on a measure of comparable earnings forecast
Comparable industry-firm	Dummy is 1 if the effect size estimate is based on a measure of comparable industry
Compliance	Dummy is 1 if the effect size estimate is based on a measure compliance with reporting standards
Earnings-book values	Dummy is 1 if the effect size estimate is based on measure earnings-book values
Earnings-cash flow	Dummy is 1 if the effect size estimate is based on measure earnings-cash flow similarities
Forecast accuracy	Dummy is 1 if the effect size estimate is based on measure of forecast accuracy
Investment efficiency	Dummy is 1 if the effect size estimate is based on a measure of investment efficiency
Returns for insiders	Dummy is 1 if the effect size estimate is based on a measure of returns to insiders trading
Returns on peers	Dummy is 1 if the effect size estimate is based on a measure of returns of firm peers
Returns-earnings	Dummy is 1 if the effect size estimate is based on return-earnings synchronism
Returns-equity	Dummy is 1 if the effect size estimate is based on a measure of returns-equity
Similarities in ratios	Dummy is 1 if the effect size estimate is based on a measure of the similarities in ratios
Uniformity in financial reporting	Dummy is 1 if the effect size estimate is based on a measure of uniformity in financial reporting
Uniformity in accounting policies	Dummy is 1 if the effect size estimate is based on a measure of uniformity in accounting policies

Table 2.5 *continued*

Variable	Definition
Market liquidity:	
Access to debt market	Dummy is 1 if the effect size estimate is based on a measure of ease in accessing debt
Bid-ask spread	Dummy is 1 if the effect size estimate is based on the bid-ask spread
Change in domestic ownership	Dummy is 1 if the effect size estimate is based on changes in domestic ownership
Change in foreign ownership	Dummy is 1 if the effect size estimate is based on changes in foreign ownership
Debt investment	Dummy is 1 if the effect size estimate is based on debt investment in firms
Equity investment	Dummy is 1 if the effect size estimate is based on equity investment in firms
Equity ownership	Dummy is 1 if the effect size estimate is based on equity ownership in firms
Foreign investment	Dummy is 1 if the effect size estimate is based on the investment in firms by foreign investors
Fund ownership	Dummy is 1 if the effect size estimate is based on a fund in ownership
Institutional ownership	Dummy is 1 if the effect size estimate is based on institutional ownership in firms
Liquidity factor	Dummy is 1 if the effect size estimate is based on liquidity factor
Loan size	Dummy is 1 if the effect size estimate is based on the size of loans of firms
Net cash flow	Dummy is 1 if the effect size estimate is based on the net cash flow from investment
Number of lenders	Dummy is 1 if the effect size estimate is based on number of lenders
Price impact	Dummy is 1 if the effect size estimate is based on price impact of trading
Proceeds from investment	Dummy is 1 if the effect size estimate is based on the proceeds received from foreign investors
Total investment	Dummy is 1 if the effect size estimate is based on the total investment in firms
Trading cost	Dummy is 1 if the effect size estimate is based on trading cost
Trading volume	Dummy is 1 if the effect size estimate is based on trading volume
Turnover ratio	Dummy is 1 if the effect size estimate is based on turnover ratio
Zero returns	Dummy is 1 if the effect size estimate is based on the number of trades with zero returns

Table 2.5 *continued*

Variable	Definition
Cost of equity:	
Abnormal earnings	Dummy is 1 if the effect size estimate is based on abnormal earnings growth model
Implied cost of equity	Dummy is 1 if the effect size estimate is based on the implied cost of equity model
Price-earnings-growth	Dummy is 1 if the effect size estimate is based on the price-earnings-growth model
Residual income	Dummy is 1 if the effect size estimate is based on the residual income valuation model
WACC	Dummy is 1 if the effect size estimate is based on the weighted average cost of capital
Cost of debt:	
Implied cost of debt	Dummy is 1 if the effect size estimate is based on the implied cost of debt model
Interest-debt ratio	Dummy is 1 if the effect size estimate is based on interest to debt ratio
Loan spread	Dummy is 1 if the effect size estimate is based on loan spread
Yield on bonds	Dummy is 1 if the effect size estimate is based on yield on bonds
Control variables:	
Size	Dummy is 1 if the primary study included a control variable for size of a firm
Leverage	Dummy is 1 if the primary study included a control variable for leverage of a firm
Market-to-book	Dummy is 1 if the primary study included a control variable for market-to-book ratio of a firm
Performance	Dummy is 1 if the primary study included a control variable for firm performance
Level of enforcement	Dummy is 1 if the primary study included a control variable level of enforcement

Table 2.5 *continued*

Variable	Definition
Estimation methods:	
Firm fixed effects	Dummy is 1 if the primary study regression model uses firm fixed effect method
Year fixed effects	Dummy is 1 if the primary study controlled for year
Industry fixed effects	Dummy is 1 if the primary study controlled for industry
Country fixed effects	Dummy is 1 if the primary study controlled for country
OLS	Dummy is 1 if the primary study regression model uses OLS estimation
DiD	Dummy is 1 if the primary study regression model uses difference-in-difference
2SLS	Dummy is 1 if the primary study regression model uses 2SLS
PSM	Dummy is 1 if the primary study regression model uses propensity score matching
Strength of results:	
Endogeneity	Dummy is 1 if the primary study regression model controls for endogeneity
Publication status	Dummy is 1 if the study is published in a refereed journal
Journal quality	Dummy is 1 if the study is published in a high-quality journal
Robust standard errors	Dummy is 1 if the effect size estimate is based on a regression model with robust standard errors
Year of publication	Year an article is published or written (for unpublished papers)
Sample size	Log of sample size of the effect size estimate
Sample period	Number of years in the sample window

For financial reporting comparability, Callao *et al*. (2007) reported the largest mean effect size (mean ES = 0.236, $p < 0.001$) and Kvaal and Nobes (2010) reported the smallest mean effect size (mean ES = -0.276, $p < 0.001$); for market liquidity, Beneish, Miller, and Yohn (2015) reported the largest mean effect size (mean ES = 0.305, $p < 0.001$) and Bailey *et al*. (2006) reported the smallest mean effect size (mean ES = -0.041, $p < 0.1$); for the cost of equity, Houqe *et al*. (2016) reported the largest mean effect size (mean ES = 0.182, $p < 0.001$) and Karamanou amd Nishiotis (2009) reported the smallest mean effect size (mean ES = -0.166, $p < 0.01$); and for cost of debt, Kim *et al*. (2011) reported the largest mean effect size (mean ES = 0.051, $p < 0.001$) and Chen *et al*. (2015) reported the smallest mean effect size (mean ES = -0.020, $p < 0.001$).

Analysis of Panel A of Table 2.6 shows that for financial reporting comparability Lang and Stice-Lawrence (2015) reported the largest significant impact. For market liquidity, Drake *et al*. (2010) reported the largest significant impact and Kim *et al*. (2014) reported the largest significant impact for cost of equity. The nonsignificant results for cost of debt is a result of the significant negative mean effect from Chen *et al*. (2015) competing with the other positive results.

Panel B of Table 2.6 shows a mean effect size of 0.025 ($p < 0.001$) for financial reporting comparability, 0.008 ($p < 0.001$) for market liquidity, 0.014 ($p < 0.001$) for cost of equity, and 0.004 ($p > 0.10$) for cost of debt. The results indicate that, overall, adoption of IFRS increases financial reporting comparability, market liquidity and decreases cost of equity, but the impact on cost of debt is not significant.

This study investigates the 'file drawer' problem by calculating the fail-safe number. The fail-safe number is the number of studies that would be required to overturn a conclusion drawn from a significant relationship between dependent and independent variables. The studies in focus are those that have been conducted but not reported or could not be published due to selective publication bias against studies that fail to report significant results. This study follows Rosenthal (1979) in calculating the fail-safe number.

The results reported in Table 2.6 are robust to 'file drawer' publication bias. The fail-safe number is approximately 12,389 for comparability, 17,215 for market liquidity, and 644 for cost of equity. This suggests that publication bias can be ruled out as the fail-safe numbers significantly exceed the reasonable tolerance level.[5] The fail-safe value for cost of debt is not computed as the mean effect size is not significant.

[5] The reasonable tolerance level is the estimated number of studies (critical value) likely to cause the 'file drawer' problem and is compared to the fail-safe number to draw a conclusion on possible publication bias. If the fail-safe number is greater than the critical value, publication bias can be ruled out. The reasonable tolerance level is calculated as $Y = (5 \times k) + 10$, where *k* is the number of studies (Rosenthal, 1979). The reasonable tolerance level is 120 studies for comparability, 145 studies for market liquidity, and 55 studies for cost of equity.

Table 2.6: Panel A: Distribution of effect size results by primary studies

Author(s)	No. of ES	Min	Max	Mean	SE	*z*-stats
Comparability:						
Bartov, Goldberg & Kimm (2005)	8	0.026	0.190	0.113	0.015	7.76
Brochet, Jagolinzer & Riedl (2013)	24	0.041	0.244	0.098	0.006	16.52
Callao, Jarne & Lainez (2007)	17	-0.816	0.811	0.236	0.050	4.77
Cascino & Gassen (2015)	41	-0.070	0.062	0.005	0.001	3.70
Chen, Young & Zhuang (2013)	6	0.005	0.028	0.020	0.006	3.26
Dargenidou & McLeay (2010)	8	0.010	0.111	0.028	0.010	2.62
DeFond, Hu, Hung & Li (2011)	6	-0.008	0.033	0.012	0.006	2.19
Glaum, Schmidt, Street & Vogel (2013)	13	0.004	0.188	0.095	0.016	6.08
Haller & Wehrfritz (2013)	9	-0.074	0.207	0.027	0.014	1.96
Horton, Serafeim & Serafeim (2013)	20	-0.018	0.048	0.003	0.002	1.97
Jones & Finley (2011)	9	0.012	0.040	0.024	0.001	20.47
Kvaal & Nobes (2010)	16	-0.417	-0.162	-0.276	0.019	-14.63
Lang & Stice-Lawrence (2015)	10	0.058	0.159	0.080	0.001	57.06
Lang, Maffett & Owens (2010)	4	-0.137	-0.049	-0.098	0.008	-12.40
Liao, Sellhorn & Skaife (2012)	12	-0.186	0.054	-0.007	0.011	-0.65
Lin, Riccardi & Wang (2017)	9	-0.048	0.084	0.029	0.012	2.53
Neel (2017)	14	0.001	0.614	0.026	0.002	10.26
Petaibanlue, Walker & Lee (2015)	15	-0.019	0.106	0.055	0.010	5.37
Tan, Wang & Welker (2011)	26	-0.037	0.092	0.014	0.003	5.43
Wang (2014)	21	-0.012	0.025	0.012	0.002	6.92
Wu & Zhang (2010)	12	-0.033	0.036	0.002	0.003	0.57
Yip & Young (2012)	24	-0.027	0.375	0.085	0.011	8.01

Table 2.6 *continued*

Author(s)	No. of ES	Min	Max	Mean	SE	*z*-stats
Market liquidity:						
Alexandre & Clavier (2017)	36	-0.125	0.086	0.001	0.004	0.22
Bailey, Karolyi & Salva (2006)	1	-0.041	-0.041	-0.041	0.024	-1.73
Beneish, Miller & Yohn (2015)	15	-0.028	0.619	0.305	0.021	14.24
Christensen, Hail & Leuz (2013)	44	-0.002	0.008	0.001	0.000	2.56
Covring, DeFond & Hung (2007)	26	0.001	0.032	0.012	0.001	9.25
Daske, Hail, Leuz & Verdi (2008)	87	-0.046	0.190	0.008	0.001	15.58
Daske, Hail, Leuz & Verdi (2013)	39	-0.071	0.015	-0.005	0.001	-7.02
DeFond, Hu, Hung & Li (2011)	11	-0.045	0.025	0.018	0.002	8.17
DeFond, Hu, Hung & Li (2012)	21	0.001	0.033	0.023	0.002	12.68
Drake, Myers & Yao (2010)	25	0.001	0.040	0.013	0.000	36.44
Florou & Kosi (2015)	78	-0.040	0.068	0.005	0.001	4.21
Florou & Pope (2012)	58	-0.022	0.285	0.014	0.001	17.12
Franzen & Weißenberger (2018)	4	-0.061	0.030	-0.013	0.020	-0.66
Gordon, Loeb & Zhu (2012)	13	-0.004	0.187	0.077	0.011	7.33
Hamberg, Mavruk & Sjögren (2013)	28	-0.145	0.160	0.066	0.006	11.17
Hong, Hung & Lobo (2014)	14	-0.029	0.298	0.050	0.006	8.56
Khan (2016)	24	-0.074	0.047	0.001	0.001	0.78
Kim, Tsui & Yi (2011)	36	-0.037	0.111	0.035	0.003	11.47
Lang & Stice-Lawrence (2015)	15	-0.034	0.055	0.011	0.002	6.50
Lepone & Wong (2018)	6	0.015	0.050	0.030	0.004	7.53
Leuz & Verrecchia (2000)	1	0.212	0.212	0.212	0.103	2.07
Muller, Riedl & Sellhorn (2011)	3	0.086	0.172	0.130	0.031	4.14
Neel (2017)	36	-0.086	0.023	-0.025	0.001	-17.49
Panaretou, Shackleton & Taylor (2013)	2	-0.024	-0.024	-0.024	0.023	-1.05
Platikanova & Perramon (2012)	3	0.031	0.073	0.058	0.011	5.44
Sundgren, Maki & Samoza-Lopez (2018)	8	0.038	0.100	0.082	0.021	3.81
Yu & Wahid (2014)	13	0.002	0.064	0.017	0.002	6.98

Table 2.6 *continued*

Author(s)	No. of ES	Min	Max	Mean	SE	*z*-stats
Cost of equity:						
Daske (2006)	32	-0.835	0.163	-0.023	0.002	-10.98
Daske, Hail, Leuz & Verdi (2008)	9	-0.045	0.021	0.000	0.003	0.10
Daske, Hail, Leuz & Verdi (2013)	12	-0.051	-0.004	-0.019	0.002	-8.53
Houqe, Monem & van Zijl (2016)	4	0.157	0.230	0.182	0.027	6.78
Karamanou & Nishiotis (2009)	7	-0.353	-0.006	-0.166	0.057	-2.91
Kim, Shi & Zhou (2014)	91	-0.009	0.086	0.032	0.001	37.82
Li (2010)	8	-0.132	0.051	-0.077	0.005	-16.81
Paugam & Ramond (2015)	15	0.008	0.135	0.088	0.012	7.04
Persakis & Latridis (2017)	2	0.005	0.006	0.005	0.002	2.31
Cost of debt:						
Chen, Chin, Wang & Yao (2015)	20	-0.075	0.042	-0.020	0.002	-9.73
Florou & Kosi (2015)	68	-0.063	0.091	0.004	0.002	2.70
Kim, Tsui & Yi (2011)	15	0.028	0.134	0.051	0.006	8.75
Moscariello, Skerratt & Pizzo (2014)	4	-0.022	0.027	0.006	0.023	0.28
Persakis & Latridis (2017)	1	0.012	0.012	0.012	0.004	3.29

Table 2.6 Panel B: Summary of effect size results

	No. of ES	Min	Max	Mean	SE	*z*-stats
Comparability	324	-0.816	0.811	0.025	0.003	8.33
Market liquidity	647	-0.145	0.619	0.008	0.001	8.00
Cost of equity	180	-0.835	0.230	0.014	0.003	4.67
Cost of debt	108	-0.075	0.134	0.004	0.003	1.33

Notes: Panel A of this table shows the distribution of effect sizes for each study included in the meta-analysis. No. of ES represents the number of effects sizes estimated from each studies regression estimates. ES = effect size as calculated by the Fisher's *z* transform effect size. SE = standard error. Panel B reports the summary of the studies under financial reporting comparability, market liquidity, cost of equity, and cost of debt. The total number of studies for the meta-analysis is 55 and the total number of effect sizes estimated is 1,259.

2.5.2 Distribution of effect size by country and by sample period

The distribution of the effect size results by country and by sample period is shown in Tables 2.7 Panel A and Panel B respectively. Panel A of Table 2.7 shows the distribution of effect sizes across sample countries which include 9 single countries. There are 15 (27%) out of 55 studies that cover the 9 single countries. This gives an indication of high concentration on multiple countries and thus limited evidence on specific countries, particularly on non-European and developing countries. The highest number of effect sizes for a single country is 60 for Germany and the lowest number is for Italy with just two effect sizes. The smallest mean effect size was reported for Canada. The is likely a result of Canada adopting IFRS in a later year in 2011 relative to the other countries in the sample. Spain reported the largest mean effect size. This result is consistent with prior literature reporting a larger impact of adoption of IFRS for countries that experienced a larger accounting change in accounting standards following adoption of IFRS (Bae, Tan, and Welker, 2008; Hong *et al*., 2014).

Panel B reports the distribution of effect size results by the sample periods used in the primary studies. This represents the number of years in each primary study sample period. It is expected that studies that use longer sample periods are better able to capture the phenomenon being tested. Using the median sample period, the majority of the primary studies used sample periods from 1 to 8 years. Thus, 38 out of 55 studies which is approximately 70% of the total sample studies. The sample period 1 to 8 also produced 946 out of 1259 effect sizes which is approximately 75% of the total sample studies. The sample period 4 produced the highest number of studies (9) and the sample period 8 produced the highest number of effect sizes (276).

Table 2.7 Panel A: Distribution of effect size results by country

Country	No. of studies	No. of ES	Min	Max	Mean ES	SE	*z*-value
Australia	1	10	-0.005	0.050	0.018	0.006	3.03
Canada	1	16	-0.006	0.047	0.008	0.003	2.37
France	3	21	-0.186	0.135	0.058	0.017	3.43
Germany	5	60	-0.163	0.835	0.092	0.026	3.51
Italy	1	2	0.020	0.027	0.024	0.004	6.71
New Zealand	1	4	0.157	0.230	0.185	0.016	11.49
Spain	1	17	-0.816	0.811	0.268	0.115	2.32
Sweden	1	24	-0.065	0.160	0.065	0.013	5.01
UK	2	36	-0.145	0.244	0.064	0.012	5.35
Multiple	39	1069	-0.417	0.619	0.018	0.002	7.55

Table 2.7 Panel B: Distribution of effect size results by sample period

Sample period	No. of studies	No. of ES	Min	Max	Mean ES	SE	*z*-value
1	4	35	-0.816	0.811	0.175	0.058	3.027
2	4	54	-0.417	0.207	-0.059	0.022	-2.642
3	1	6	0.026	0.190	0.111	0.027	4.185
4	9	227	-0.074	0.619	0.050	0.007	7.508
5	4	119	-0.353	0.190	0.007	0.006	1.246
6	4	42	-0.027	0.375	0.094	0.012	7.636
7	7	187	-0.145	0.160	0.025	0.003	7.554
8	5	276	-0.086	0.614	0.007	0.003	1.956
9	2	95	-0.037	0.134	0.023	0.003	7.135
10	3	70	-0.163	0.835	0.088	0.022	3.948
11	1	4	-0.137	-0.049	-0.092	0.018	-5.156
12	3	36	-0.132	0.042	-0.025	0.008	-3.126
13	2	14	-0.041	0.187	0.068	0.014	4.736
14	1	25	-0.034	0.159	0.040	0.010	4.194
15	2	23	0.001	0.040	0.014	0.002	6.379
16	3	46	-0.033	0.170	0.001	0.004	0.197

Notes: This table shows a distribution of effect sizes by country and by sample periods. In Panel A, the No. of studies represents the number of individual papers that used a single country sample or multiple countries in their sample. In Panel B, the No. of studies represents the number of studies that used each of the reported sample periods. For example, 9 studies used a sample period of 4 years. No. of ES represents the number of effect sizes. ES = effect size as calculated by the Fisher's z transform effect size. SE = standard error. The total number of studies for the meta-analysis is 55 and the total number of effect sizes estimated is 1,259.

2.5.3 Distribution of effect size by journal quality and other sources of heterogeneity

Table 2.8 shows the distribution of effect sizes by sources of heterogeneity. To show the impact of journal quality, the table shows both total results and separate results for studies published in high-quality journals. A high-quality journal is defined as a journal with A* or A ranking according to the ABDC journal ranking. Overall, 1,030 out of 1,259 (=82%) of the results are from papers published in high-quality journals. However, note that for cost of equity less than half of the effect sizes were from studies published in high-quality journals whereas all the results for cost of debt were from high-quality journals. Of the total results, 583 (= 46%) show a significant positive effect and 475 (= 38%) report a non-significant effect. The significant positive effects occurred in 45 studies, and the non-significant effects in 42 studies.

With regards to the mode of adoption, 839 out of the total of 1,259 results (= 67%) were on mandatory adoption and 420 (= 33%) relate to voluntary adoption. The most common measure of financial reporting comparability is uniformity in financial reporting (93 out of 324 = 29%). The most common measure for market liquidity is equity ownership (133 out of 647 = 21%). For the cost of equity, the most common measure is price-earnings-growth (81 out of 180 = 45%), and the most common measure for cost of debt is loan spread (65 out of 108 = 60%). Among the control variables, most of the studies included size (973 out of 988 = 98%) and performance (783 out 988 = 79%) as firm-level controls.

For estimation methods, most of the effect sizes included firm fixed effects (981 out of 1,259 = 78%). For studies that were based on other fixed effects, 476 (= 49%) included year fixed effects, 853 (= 87%) included industry fixed effects, and 579 (=

59%) included country fixed effects. OLS regression was the most common estimation method (1,152 out of 1,259 = 92%) and PSM is the least frequently used method in estimation (14 out of 1,259 = 1%).

With regards to the strength of the results, the table shows that most of the studies controlled for endogeneity (1,133 out of 1,259 = 90%). The sample is made up of 1,185 (= 94%) effect sizes from published studies, 1,030 (= 82%) effect sizes from studies published in high-quality journals and 1,036 (= 82%) effect sizes from studies that included robust standard errors.

2.5.4 Distribution of effect size by mode of adoption and other sources of heterogeneity

Table 2.9 reports on effect sizes by mode of adoption of IFRS and other sources of heterogeneity. There are 46 studies that report on mandatory adoption and 13 studies report on voluntary adoption. Mandatory adoption produces an overall mean effect size of 0.031 ($z = 7.30$, $p < 0.001$) and voluntary adoption a mean effect size of 0.023 ($z = 5.13$, $p < 0.001$). These results indicate that, overall, both mandatory and voluntary adoption have an impact on financial reporting comparability, market liquidity, cost of equity, and cost of debt.

Comparability under mandatory adoption shows an overall significant positive mean effect size of 0.039 ($z = 4.27$, $p < 0.001$). This result indicates that mandatory adoption had a positive impact on financial reporting comparability.

Table 2.8: Distribution of effect size results by journal quality and by other sources of heterogeneity

	Number of ES		Number of significant results					
			Positive		Negative		Not significant	
Classification	All	HQJ	All	HQJ	All	HQJ	All	HQJ
Overall	1,259	1,030	583	453	201	181	475	396
Mode of adoption:								
Mandatory adoption	839	709	415	356	118	98	306	255
Voluntary adoption	420	321	168	97	83	83	169	141
Measurement choices								
Comparability:	324	282	161	142	45	35	118	105
Accruals-cash flow	3	0	3	0	0	0	0	0
Change in investment	4	4	4	4	0	0	0	0
Comparable earnings forecast	8	8	3	3	0	0	5	5
Comparable industry-firm	6	6	1	1	0	0	5	5
Compliance	13	13	8	8	0	0	5	5
Earnings-book values	12	12	0	0	3	3	9	9
Earnings-cash flow	42	42	18	18	5	5	19	19
Forecast accuracy	20	20	11	11	6	6	3	3
Investment efficiency	2	2	0	0	0	0	2	2
Returns for insiders	14	14	14	14	0	0	11	11
Returns on peers	21	21	10	10	0	0	19	13
Returns-earnings	55	37	30	22	6	2	4	4
Returns-equity	6	6	2	2	0	0	0	0
Similarities in ratios	9	9	9	9	0	0	0	0
Uniformity in financial reports	93	72	48	40	9	3	36	29
Uniformity in accounting policies	16	16	0	0	16	16	0	0

Table 2.8 *continued*

	Number of ES		Number of significant results					
			Positive		Negative		Not significant	
Classification	All	HQJ	All	HQJ	All	HQJ	All	HQJ
Market liquidity:	647	555	300	258	88	78	259	219
Access to the debt market	78	78	37	37	25	25	16	16
Bid-ask spread	89	67	22	16	19	17	48	34
Change in domestic ownership	1	1	0	0	0	0	1	1
Change in foreign ownership	10	10	7	7	0	0	3	3
Debt investment	6	6	5	5	0	0	1	1
Equity investment	6	6	3	3	0	0	3	3
Equity ownership	133	133	72	72	8	8	53	53
Foreign investment	13	13	8	8	0	0	5	5
Fund ownership	13	13	12	12	0	0	1	1
Inst. ownership	5	5	2	2	0	0	3	3
Liquidity factor	61	55	28	22	4	4	29	29
Loan size	13	13	7	7	0	0	6	6
Net cash flow	36	0	10	0	8	0	18	0
Number of lenders	23	23	12	12	0	0	11	11
Price impact	40	40	5	5	14	14	21	21
Proceeds from for investment	14	14	12	12	0	0	2	2
Total investment	3	3	3	3	0	0	0	0
Trading cost	41	41	14	14	8	8	19	19
Trading volume	1	1	0	0	1	1	0	0
Turnover ratio	15	0	13	0	0	0	2	0
Zero returns	46	33	28	21	1	1	17	11

Table 2.8 *continued*

	Number of ES		Number of significant results					
			Positive		Negative		Not significant	
Classification	All	HQJ	All	HQJ	All	HQJ	All	HQJ
Cost of equity:	180	85	88	19	45	45	47	21
Abnormal earnings	24	17	8	1	11	11	5	5
Implied cost of equity	50	50	16	16	21	21	13	13
Price-earnings-growth	81	2	58	2	0	0	23	0
Residual income	23	16	4	0	13	13	6	3
WACC	2	0	2	0	0	0	0	0
Cost of debt:	108	108	34	34	23	23	51	51
Implied cost of debt	1	1	1	1	0	0	0	0
Interest-debt ratio	4	4	0	0	0	0	4	4
Loan spread	65	65	18	18	21	21	26	26
Yield on bonds	38	38	15	15	2	2	21	21
Control variables:	988	860	450	388	162	145	376	327
Size	973	847	439	376	163	146	371	325
Leverage	529	501	238	222	100	97	191	182
Market-to-book	617	556	296	253	110	103	211	200
Performance	783	687	355	303	111	100	317	284
Level of enforcement	364	242	194	122	35	27	135	93
Estimation methods:								
Firm fixed effects	981	857	427	365	168	151	386	341
Year fixed effects	476	392	218	170	73	62	185	160
Industry fixed effects	853	776	372	327	148	143	333	306
Country fixed effects	579	527	222	207	110	95	247	225
OLS	1,152	1,007	508	437	199	179	445	391
DiD	751	629	351	296	102	85	298	248
2SLS	93	9	63	4	2	2	20	3
PSM	14	14	12	12	0	0	2	2

Table 2.8 *continued*

	Number of ES		Number of significant results					
			Positive		Negative		Not significant	
Classification	All	HQJ	All	HQJ	All	HQJ	All	HQJ
Strength of results:								
Endogeneity	1,133	920	522	401	169	152	442	367
Publication status	1,185	1,030	544	453	192	181	449	396
Journal quality	1,259	1,030	583	453	201	181	475	396
Robust standard errors	1,036	898	478	383	162	155	396	360
Year of publication	1,259	1,030	583	453	201	181	475	396
Sample size	1,259	1,030	583	453	201	181	475	396
Sample period	1,259	1,030	583	453	201	181	475	396

Notes: This table shows a classification of the attributes in the studies included in the meta-analysis. It shows the total number of effects sizes estimated per each attribute, the number of positive and negative significant effect size estimates and non-significant effect size estimates from the meta-analysis. Effect sizes estimated from publications in high-quality journals are reported under the column represented by HQJ (high-quality journals). The total number of studies for the meta-analysis is 55 and the total number of effect sizes estimated is 1,259.

The result is driven by the higher significant positive impact of accruals-cash flow (mean ES = 0.080, $z = 40.55$, $p < 0.001$) and change in investment (mean ES = 0.027, $z = 36.60$, $p < 0.001$) but offset by the significant negative impact of uniformity in accounting policies (mean ES = -0.286, $z = -18.38$, $p < 0.001$). Comparison of the mean effect size for the measurement choices for mandatory adoption shows that returns-equity reported the largest mean effect size (mean ES = 0.157, $z = 7.75$, $p < 0.001$). All the measurement choices for comparability under mandatory adoption are significant and positive other than earnings-book values and uniformity in accounting policies.

For voluntary adoption, there are only 13 effect sizes, but the mean effect size is positive and significant (mean ES = 0.090, $z = 5.30$, $p < 0.001$). This indicates that voluntary adoption had a positive impact on financial reporting comparability. Only three measurement choices were identified for studies on voluntary adoption. This is possibly due to relatively small number of studies on voluntary adoption for comparability and these studies measured comparability as comparable earnings forecast, returns on peers, and returns-earnings. The results for the measurement choices for voluntary adoption show that returns-earnings had the largest impact on comparability.

The measurement choices for market liquidity shows an overall positive and significant mean effect size for both mandatory (mean ES = 0.029, $z = 7.60$, $p < 0.001$) and voluntary adoption (mean ES = 0.009, $z = 3.60$, $p < 0.001$). This indicates that both mandatory and voluntary adoption had a positive impact on market liquidity. The result for mandatory adoption shows that the mean effect size for the measurement

choice for mandatory adoption is driven in part by the significant positive impact of access to the debt market (mean ES = 0.026, $z = 9.77$, $p < 0.001$). Access to the debt market is, however, negative and significant for voluntary adoption and thus reduces the positive impact reported for most of the measurement choices for voluntary adoption. All the measurement choices for market liquidity under mandatory adoption are positive and significant other than bid-ask spread, change in domestic ownership, change in foreign ownership, institutional ownership, net cash flow, price impact, and trading cost. The lower positive impact for voluntary adoption compared to mandatory adoption is a result of the significant negative impact reported for access to the debt market.

For cost of equity, mandatory adoption shows a positive and significant mean effect of 0.041 ($z = 2.61$, $p < 0.01$). The result for mandatory adoption is driven by price-earnings-growth and WACC. Voluntary adoption shows an overall positive and significant mean effect of 0.025 ($z = 2.04$, $p < 0.05$). All the measures of cost of equity for voluntary adoption report a positive and significant effect size except for implied cost of equity which is negative and significant (mean ES = -0.062, $z = -2.67$, $p < 0.001$). This indicates an adverse impact of voluntary adoption on cost of equity if cost of equity is measured by implied cost of equity. The adverse impact from the implied cost of equity is counteracted by the higher positive and significant mean effect from the other measurement choices for voluntary adoption.

As noted above, in relation to Panel B of Table 2.6, the overall effect for cost of debt is not significant. However, this reflects the nonsignificant results for mandatory adoption swamping the significant result for voluntary adoption. Furthermore, analysis

of the measurement choices shows that the nonsignificant overall effect for mandatory adoption for cost of debt is because of the competing results for loan spread which is negative and significant (mean ES = -0.022, z = -5.02, $p < 0.001$) whereas yield on bonds is positive and significant (mean ES = 0.031, z = 5.90, $p < 0.001$). Also, implied cost of debt and interest-debt ratio are both not significant. For voluntary adoption, the overall mean effect size for the measurement choices is positive and significant (mean ES = 0.022, z = 4.17, $p < 0.001$). The loan spread for voluntary adoption is positive and significant (mean ES = 0.035, z = 4.85, $p < 0.001$) in contrast to the loan spread for mandatory adoption. Yield on bonds is not significant for voluntary adoption. The loan spread drives the results for the measurement choices for cost of debt under voluntary adoption.

Overall, the control variables are highly significant for mandatory adopters (mean ES = 0.034, z = 11.62, $p < 0.001$) but for voluntary adopters only at 10% level (mean ES = 0.004, z = 1.79, $p < 0.1$). The control variables thus show a stronger positive effect for mandatory adoption than voluntary adoption. All the control variables for mandatory adoption are highly significant at $p < 0.001$. For voluntary adoption, only market-to-book is not significant.

The estimation methods show that most of the effect sizes were calculated from regressions using OLS and including fixed effects. All the estimation methods for mandatory adoption show a positive significant effect except for 2SLS. The results for voluntary adoption show that studies that used year fixed effects, OLS, DiD and 2SLS produce a positive effect for voluntary adoption of IFRS.

All the proxies for strength of results for both mandatory adoption and voluntary adoption produced significant and positive effect sizes except journal quality for voluntary adoption. However, the *z*-statistics for mandatory adoption are greater than voluntary adoption.

2.5.5 Meta-regression results

This section reports the meta-regression results for financial reporting comparability, market liquidity, cost of equity, and cost of debt in Tables 2.11-2.14 respectively. The study examines the various sources of heterogeneity using the random effect model, Equation (2.1).

The estimation of the random effect meta-regression indicated multicollinearity problems with the measurement choices, but only for comparability and market liquidity. To address multicollinearity, the study conducted factor analysis of the tetrachoric correlation matrices for measurement choices and retained the factors with eigenvalues greater than one. Factor analysis helps to identify the similarities and the interdependence between the variables. However, a factor analysis based on a standard correlation matrix for dummy variables can be misleading because it actually assumes that the dataset is measured as continuous variables. Hence, the study uses a tetrachoric correlation matrix which is more appropriate for dummy variables (Uebersax, 2000).

Table 2.9: Distribution of effect size results by mode of adoption and other sources of heterogeneity

	Mandatory				Voluntary			
Classification	No. of ES	Mean ES	SE	*z*-stats	No. of ES	Mean ES	SE	*z*-stats
Overall	839	0.031	0.004	7.30	420	0.023	0.004	5.13
Measurement choices								
Comparability	311	0.039	0.009	4.27	13	0.090	0.017	5.30
Accruals-cash flow	3	0.080	0.002	40.55				
Change in investment	4	0.027	0.001	36.60				
Comparable earnings forecast	4	0.022	0.006	3.47	4	0.075	0.022	3.37
Comparable industry-firm	6	0.012	0.006	2.17				
Compliance	13	0.096	0.019	4.92				
Earnings-book values	12	-0.009	0.020	-0.43				
Earnings-cash flow	42	0.008	0.005	1.59				
Forecast accuracy	20	0.007	0.004	1.52				
Investment efficiency	2	0.007	0.001	5.42				
Returns for insiders	14	0.097	0.008	11.59				
Returns on peers	20	0.012	0.002	6.85	1	-0.012	0.000	0.00
Returns-earnings	47	0.057	0.014	4.05	8	0.110	0.021	5.25
Returns-equity	6	0.157	0.020	7.75				
Similarities in ratios	9	0.024	0.003	7.10				
Uniformity in fin. reports	93	0.098	0.024	4.05				
Uniformity in acc. policies	16	-0.286	0.016	-18.38				

Table 2.9 *continued*

	Mandatory				Voluntary			
Classification	No. of ES	Mean ES	SE	*z*-stats	No. of ES	Mean ES	SE	*z*-stats
Market liquidity:	432	0.029	0.004	7.60	215	0.009	0.002	3.60
Access to the debt market	45	0.026	0.003	9.77	33	-0.022	0.002	-8.89
Bid-ask spread	76	0.007	0.006	1.07	13	-0.004	0.003	-1.09
Change in domestic own.	1	0.009	0.000	0.00				
Change in foreign own.	10	0.011	0.007	1.63				
Debt investment	6	0.383	0.102	3.75				
Equity investment	6	0.185	0.064	2.92				
Equity ownership	77	0.033	0.005	6.30	56	0.021	0.007	2.97
Foreign investment	13	0.077	0.013	6.05				
Fund ownership	13	0.029	0.005	6.05				
Institutional ownership	5	0.010	0.005	1.82				
Liquidity factor	39	0.008	0.003	3.02	22	0.005	0.002	2.25
Loan size					13	0.025	0.007	3.79
Net cash flow	36	-0.002	0.010	-0.15				
Number of lenders					23	0.036	0.007	5.60
Price impact	20	0.008	0.011	0.76	20	-0.004	0.002	-2.25
Proceeds from for investment	14	0.067	0.020	3.34				
Total investment	3	0.407	0.089	4.56				
Trading cost	24	-0.009	0.009	-0.99	17	0.008	0.002	4.05
Trading volume					1	-0.041	0.000	0.00
Turnover ratio	15	0.016	0.003	6.11				
Zero returns	29	0.029	0.007	4.13	17	0.010	0.002	4.64

Table 2.9 *continued*

	Mandatory				Voluntary			
Classification	No. of ES	Mean ES	SE	*z*-stats	No. of ES	Mean ES	SE	*z*-stats
Cost of equity:	35	0.041	0.016	2.61	145	0.025	0.012	2.04
Abnormal earnings	1	0.101	0.000	0.00	23	0.075	0.039	1.89
Implied cost of equity	28	0.014	0.015	0.92	22	-0.062	0.023	-2.67
Price-earnings-growth	4	0.153	0.032	4.80	77	0.029	0.002	11.70
Residual income					23	0.118	0.055	2.16
WACC	2	0.170	0.013	13.01				
Cost of debt:	61	-0.001	0.005	-0.30	47	0.022	0.005	4.17
Implied cost of debt	1	0.012	0.000	0.00				
Interest-debt ratio	4	0.008	0.011	0.71				
Loan spread	35	-0.022	0.004	-5.02	30	0.035	0.007	4.85
Yield on bonds	21	0.031	0.005	5.90	17	0.000	0.003	-0.05
Control variables:	723	0.034	0.003	11.62	265	0.004	0.002	1.79
Size	711	0.027	0.002	12.63	262	0.004	0.002	1.69
Leverage	371	0.018	0.002	7.80	158	0.005	0.002	2.31
Market-to-book	449	0.027	0.002	11.56	168	0.002	0.002	1.12
Performance	539	0.024	0.002	12.18	244	0.005	0.002	2.34
Level of enforcement	222	0.032	0.005	6.18	142	0.030	0.003	8.75

Table 2.9 *continued*

	Mandatory				Voluntary			
Classification	No. of ES	Mean ES	SE	*z*-stats	No. of ES	Mean ES	SE	*z*-stats
Estimation methods:								
Firm fixed effects	721	0.028	0.003	10.28	260	0.003	0.002	1.38
Year fixed effects	287	0.023	0.003	8.20	189	0.004	0.001	2.93
Industry fixed effects	598	0.023	0.002	10.62	255	0.002	0.002	1.01
Country fixed effects	410	0.022	0.004	5.35	169	0.002	0.003	0.73
OLS	816	0.031	0.004	7.47	336	-0.006	0.006	-1.08
DiD	529	0.026	0.003	7.84	222	0.010	0.004	2.46
2SLS	9	0.029	0.025	1.20	84	0.030	0.002	12.11
PSM	14	0.067	0.020	3.34				
Strength of results:								
Endogeneity	740	0.029	0.003	10.76	393	0.011	0.002	4.67
Publication status	765	0.033	0.004	7.69	420	0.001	0.005	0.24
Journal quality	709	0.034	0.005	7.43	321	-0.010	0.006	-1.72
Robust standard errors	665	0.025	0.002	10.51	371	0.012	0.002	6.91
Year of publication	839	0.031	0.004	7.30	420	0.023	0.004	5.13
Sample size	839	0.031	0.004	7.30	420	0.023	0.004	5.13
Sample period	839	0.031	0.004	7.30	420	0.023	0.004	5.13

Notes: The table shows results of independent variables, separate for mandatory adoption and voluntary adoption. It reports the number of effect size estimated, the mean effect size per each attribute, the standard error, and the *z*-statistic. The total number of studies for the meta-analysis is 55 and the total number of effect sizes estimated is 1,259.

After applying the eigenvalue greater-than-one-rule and varimax rotation, the 16 variables for measurement choices for comparability are condensed into three factors and the factors are described as uniformity in financial reporting, uniformity in ratios, and returns-to-book values. For market liquidity, the 21 measurement choices are condensed into three factors and the factors are described as fund ownership, debt investment and liquidity factor. Table 2.10 shows how the underlying measurement choices load on the factors.

As noted above, all the measurement choices are retained for analysis for both cost of equity and cost of debt for the meta-regression.

2.5.5.1 Comparability

The adjusted R^2 reported in Table 2.11 shows that the variables explain 79% of the heterogeneity. The result shows that the difference between the impact of mandatory adoption and voluntary adoption on comparability is not statistically significant. Comparison of the coefficients for the measurement choice factors shows that the measurement choices underlying the uniformity in financial reporting factor had the largest impact on comparability. The coefficients on the factors for measurement choices show that the uniformity in financial reporting factor has a positive and significant impact (coefficient = 0.095, $p < 0.001$), the impact of the uniformity in ratios factor was positive but not significant (coefficient = 0.002, $p = 0.712$), while the returns-to-book factor has a negative but marginally significant impact (coefficient = -0.011, $p = 0.082$). This indicates that among the measurement choices, only studies that used measurement choices underlying the uniformity in financial reporting factor had positive and significant effect sizes.

Table 2.10: Factors and measurement choices for comparability and market liquidity

Factor	Factor description	Eigen values	Variable	Factor loading
Panel A: Comparability				
Factor 1	Uniformity in financial reporting	10.23	Unif. in financial reporting	0.88
			Unif. in accounting policies	0.81
			Comparable industry-firm	0.77
			Compliance	0.61
			Change in investment	0.42
			Comparable earnings forecasts	0.41
			Forecast accuracy	0.38
Factor 2	Uniformity in ratios	7.67	Similarities in ratios	0.82
			Accruals-cash flow	0.65
			Earnings-book values	0.51
			Earnings-cashflow	0.37
Factor 3	Returns-to-book values	5.65	Returns-earnings	0.73
			Returns for insiders	0.58
			Returns on peers	0.47
			Returns-equity	0.45
			Investment efficiency	0.33
Panel B: Market liquidity				
Factor 1	Fund ownership	14.72	Fund ownership	0.97
			Institutional ownership	0.84
			Equity ownership	0.66
			Equity investment	0.65
			Changes in foreign ownership	0.63
			Proceeds from foreign markets	0.49
			Changes in dom. ownership	0.40
			Foreign investment	0.39
			Total investment	0.35
			Cash flow from equity invest.	0.31
Factor 2	Debt investment	10.16	Access to the debt market	0.85
			Debt investment	0.62
			Loan size	0.57
			Number of lenders	0.46
Factor 3	Liquidity factor	9.81	Bid-ask spread	0.78
			Liquidity factor	0.77
			Price impact	0.72
			Zero returns	0.68
			Trading cost	0.52
			Turnover ratio	0.44
			Trading volume	0.35

Notes: This table reports on factor analysis of the tetrachoric correlation matrix of the measurement choices for comparability and market liquidity. The table shows the factors, retained after applying the eigenvalue greater-than-one rule, their description, the variables that load on each factor, and the factor loadings.

For the control variables, only performance produces a positive and significant impact on effect size (coefficient = 0.050, $p < 0.001$). For estimation methods, the significant and positive coefficients for year fixed effects (coefficient = 0.063, $p < 0.001$) and industry fixed effect (coefficient = 0.043, $p < 0.001$) indicate that where included, these effects had a positive impact on effect size. The significant negative coefficients for firm fixed effects (coefficient = -0.126, $p < 0.001$), country fixed effects (coefficient = -0.077, $p < 0.001$), and DiD (coefficient = -0.014, $p = 0.069$) indicate that where included, these effects had a negative impact on effect size. However, the impact of using DiD was negative but marginally significant.

The results show that endogeneity (coefficient = 0.126, $p < 0.001$), robust standard errors (coefficient = 0.363, $p < 0.001$), recent publication (coefficient = 0.004, $p = 0.018$), and length of the sample period (coefficient = 0.004, $p = 0.006$) showed a positive and significant impact on effect size.

2.5.5.2 Market liquidity

In Table 2.12, the adjusted R^2 reported shows that the variables explain 46% of the heterogeneity. The results show that compared to voluntary adoption, mandatory adoption leads to a stronger impact on effect size (coefficient = 0.015, $p < 0.001$). The coefficients on the measurement choice factors show that the fund ownership factor has positive but weakly significant impact (coefficient = 0.004, $p = 0.072$), the liquidity factor has a positive but not significant impact, while the debt investment factor has a negative but weakly significant impact (coefficient = -0.002, $p = 0.060$).

This indicates that studies that used measurement choices underlying the fund ownership factor had a positive impact on effect size but where studies used measurement choices underlying the debt investment factor had a negative impact on effect size.

For the control variables, the leverage (coefficient = 0.025, $p = 0.012$) and performance (coefficient = 0.027, $p < 0.001$) coefficients are positive and significant while the market-to-book (coefficient = -0.026, $p = 0.002$) coefficient is negative and significant. The significant positive coefficients indicate that in the studies that included leverage and performance, these variables had a positive impact on effect size while the significant negative coefficient on market-to-book indicates that where included, this control variable had a negative impact on effect size.

Only 2SLS and use of DiD and PSM have significant coefficients. DiD shows a weaker positive impact on effect size (coefficient = 0.005, $p = 0.099$) while 2SLS (coefficient = 0.015, $p = 0.045$) and PSM (coefficient = 0.022, $p = 0.024$) show stronger positive impact on effect size.

The results show that publication in higher-ranked journals (coefficient = 0.039, $p < 0.001$), the inclusion of robust standard errors (coefficient = 0.196, $p < 0.001$), and length of the sample periods (coefficient = 0.001, $p = 0.038$) had a positive and significant impact on effect size while published papers (coefficient = -0.063, $p < 0.001$) and recent of publication (coefficient = -0.002, $p = 0.003$) had a negative impact on effect size.

Table 2.11: Meta-regression results for comparability

Variable	Coefficient	*p*-value
Heterogeneity sources		
Mandatory/voluntary	0.023	0.316
Measurement choices		
Uniformity in financial reporting	0.095	0.000
Uniformity in ratios	0.002	0.712
Returns to book values	-0.011	0.082
Control variables		
Size	-0.014	0.177
Leverage	0.008	0.483
Market-to-book	0.013	0.261
Performance	0.050	0.000
Level of enforcement	0.001	0.912
Estimation methods		
Firm fixed effects	-0.126	0.000
Year fixed effects	0.063	0.000
Industry fixed effects	0.043	0.000
Country fixed effects	-0.077	0.000
DiD	-0.014	0.069
Strength of results		
Endogeneity	0.126	0.000
Publication status	0.022	0.318
Journal quality	0.017	0.350
Robust standard errors	0.363	0.000
Year of publication	0.004	0.018
Sample size	0.001	0.810
Sample period	0.004	0.006
Constant	0.078	0.016
Number of effect sizes	324	
tau-squared (τ^2)	0.0007	
Chi-square	253.13	
Adjusted R^2	0.79	

Notes: The table reports regression analysis of sources of heterogeneity in the effect sizes for comparability. The measurement choices are factors that are generated from a factor analysis using a tetrachoric correlation matrix of 16 variables. The dependent variable is Z_r. The variables are defined in Table 2.5.

Table 2.12: Meta-regression results for market liquidity

Variable	Coefficient	*p*-value
Heterogeneity sources		
Mandatory/voluntary	0.015	0.000
Measurement choices		
Fund ownership	0.004	0.072
Debt investment	-0.002	0.060
Liquidity factor	0.001	0.164
Control variables		
Size	-0.015	0.116
Leverage	0.025	0.012
Market-to-book	-0.026	0.002
Performance	0.027	0.000
Level of enforcement	0.002	0.332
Estimation methods		
Firm fixed effects	-0.012	0.260
Year fixed effects	-0.005	0.298
Industry fixed effects	-0.003	0.545
Country fixed effects	0.001	0.729
DiD	0.005	0.099
2SLS	0.015	0.045
PSM	0.022	0.024
Strength of results		
Endogeneity	-0.018	0.864
Publication status	-0.063	0.000
Journal quality	0.039	0.000
Robust standard errors	0.196	0.000
Year of publication	-0.002	0.003
Sample size	0.001	0.626
Sample period	0.001	0.038
Constant	0.040	0.003
Number of effect sizes	647	
tau-squared (τ^2)	0.0004	
Chi-square	346.89	
Adjusted R^2	0.46	

Notes: The table reports regression analysis of sources of heterogeneity in the effect sizes for market liquidity. The measurement choices are factors that are generated from a factor analysis using a tetrachoric correlation matrix of 21 variables. The dependent variable is Z_r. The variables are defined in Table 2.5.

2.5.5.3 Cost of equity

The adjusted R^2 reported in Table 2.13 shows that the variables explain 67% of the heterogeneity. The results show that the difference between mandatory and voluntary adoption on cost of equity is very marginally significant ($p = 0.104$). The coefficients on the reported measurement choices are all not significant. This indicates that the differences in choice of measurement of cost of equity do not have a significant impact on effect size.

The coefficients on the control variables are all significant except for the level of enforcement. The negative and significant coefficient on size (coefficient = -0.350, $p < 0.001$) indicates that where included, size had a negative impact on effect size. The significant positive coefficients on leverage (coefficient = 0.048, $p = 0.031$), market-to-book (coefficient = 0.075, $p < 0.001$), and performance (coefficient = 0.289, $p < 0.001$) indicate a positive impact on effect size.

The coefficients on the estimation methods are all negative and significant except for firm fixed effects which is positive and significant (coefficient = 0.109, $p < 0.001$). The significant negative coefficients for estimation methods indicate that where included, year fixed effects (coefficient = -0.451, $p < 0.001$), industry fixed effects (coefficient = -0.620, $p < 0.001$), country fixed effects (coefficient = -0.137, $p < 0.001$), and DiD (coefficient = -0.260, $p < 0.001$) had a negative impact on effect size. The significant positive coefficient on journal quality (coefficient = 0.119, $p = 0.001$) shows that publication in higher-ranked journals had a positive impact on effect size. The significant negative coefficients for year of publication (coefficient = -0.021, $p =$

0.001) and sample period (coefficient = -0.005, p = 0.024) indicate that these factors had a negative impact on effect size.

2.5.5.4 Cost of debt

The adjusted R^2 reported in Table 2.14 shows that the variables explain 55% of the heterogeneity. The results show that the difference between the impact of mandatory adoption and voluntary adoption on cost of debt is marginally significant (coefficient = 0.010, p = 0.087). The significant but negative coefficient on loan spread (coefficient = -0.098, $p < 0.001$) indicates that where included, this measure of cost of debt had a negative impact on effect size. The coefficients on the other measurement choices were not significant.

For the control variables, both leverage (coefficient = -0.095, p = 0.022) and performance (coefficient = -0.085, p = 0.001) had negative and significant coefficients. This indicates that where included, leverage and performance had a negative impact on effect size. For estimation methods, firm fixed effects had a negative and significant coefficient (coefficient = -0.038, p = 0.035) which indicates that where included this had a negative impact on effect size.

For the strength of results, the coefficients for journal quality (coefficient = 0.455, p = 0.023) and sample period (coefficient = 0.115, p = 0.038) were positive and significant. This indicates that publication in higher-ranked journals and use of a longer sample period had a positive impact on effect size. The negative and significant coefficient on year of publication (coefficient = -0.028, p = 0.023) shows that publication in later years had a negative impact on effect size.

Table 2.13: Meta-regression results for cost of equity

Variable	Coefficient	*p*-value
Heterogeneity sources		
Mandatory/voluntary	0.030	0.104
Measurement choices		
Abnormal earnings	0.056	0.361
Implied cost of equity	-0.026	0.712
Price-earnings-growth	0.039	0.519
Residual income valuation	0.043	0.486
Control variables		
Size	-0.350	0.000
Leverage	0.048	0.031
Market-to-book	0.075	0.000
Performance	0.289	0.000
Level of enforcement	0.006	0.466
Estimation methods		
Firm fixed effects	0.109	0.000
Year fixed effects	-0.451	0.000
Industry fixed effects	-0.620	0.000
Country fixed effects	-0.137	0.000
DiD	-0.260	0.000
Strength of results		
Endogeneity	-0.006	0.555
Journal quality	0.119	0.001
Year of publication	-0.021	0.001
Sample size	0.004	0.208
Sample period	-0.005	0.024
Constant	0.043	0.001
Number of effect sizes	180	
tau-squared (τ^2)	0.0006	
Chi-square	105.72	
Adjusted R^2	0.67	

Notes: The table reports regression analysis of sources of heterogeneity in the effect sizes for cost of equity. The dependent variable is Z_r. The variables are defined in Table 2.5.

Table 2.14: Meta-regression results for cost of debt

Variable	Coefficient	*p*-value
Heterogeneity sources		
Mandatory/voluntary	0.010	0.087
Measurement choices		
Implied cost of debt	0.013	0.667
Interest-to-debt ratio	0.057	0.296
Loan spread	-0.098	0.000
Yield on bonds	0.074	0.221
Control variables		
Size	0.091	0.329
Leverage	-0.095	0.022
Market-to-book	0.062	0.513
Performance	-0.085	0.001
Level of enforcement	-0.006	0.437
Estimation methods		
Firm fixed effects	-0.038	0.035
Year fixed effects	-0.028	0.671
Industry fixed effects	-0.074	0.221
Country fixed effects	0.034	0.203
DiD	0.034	0.384
Strength of results		
Endogeneity	-0.097	0.207
Journal quality	0.455	0.023
Robust standard errors	0.198	0.173
Year of publication	-0.028	0.023
Sample size	0.022	0.103
Sample period	0.115	0.038
Constant	0.057	0.023
Number of effect sizes	108	
tau-squared (τ^2)	0.0004	
Chi-square	103.33	
Adjusted R^2	0.55	

Notes: The table reports regression analysis of sources of heterogeneity in the effect sizes for cost of debt. The dependent variable is Z_r. The variables are defined in Table 2.5.

2.6 Conclusion

This chapter examined the effects of adoption of IFRS on financial reporting comparability, market liquidity, and cost of capital. Overall, adoption of IFRS significantly improves comparability, increases market liquidity, and reduces the cost of equity, but has no significant effect on cost of debt. Mandatory adoption of IFRS had a greater impact than voluntary adoption. However, for cost of debt, voluntary adoption resulted in a reduction in the cost of debt but the impact of mandatory adoption on cost of debt was not significant. The significant impact of voluntary adoption on cost of debt is a result of the significant positive impact for loan spread.

The results reveal the positive impact for all the control variables for both mandatory and voluntary adoption other than the inclusion of market-to-book for voluntary adoption. The estimation methods showed positive impact for mandatory adoption other than 2SLS, while for voluntary adoption, only year fixed effect, DiD, and 2SLS had a significant positive effect across the dimensions of IFRS adoption.

The meta-regression results show that for comparability the impact of mandatory adoption does not differ from voluntary adoption, but differs significantly for market liquidity, and marginally for cost of equity and cost of debt. For comparability, the results show that the factors for the measurement choices explain the variation in the reported empirical studies except for the factor uniformity in ratios. Only performance as a control variable provides a significant impact. All the estimation methods contribute to the explanation of the variation in the reported empirical results. For the factors affecting the strength of the results, endogeneity, use of robust standard errors,

year of publication, and sample period explain the variation in the reported empirical results.

For market liquidity, the factor fund ownership and debt investment as measurement choices explain the variation in the results. All the control variables are important in explaining the variation in the effect size other than size and level of enforcement. The results reveal that 2SLS and use of DiD and PSM explain the variation in the reported empirical studies. Endogeneity and sample size do not affect the strength of results.

The results show that control variables, estimation methods, and factors affecting the strength of the results are important in examining the impact of adoption of IFRS on cost of equity. Level of enforcement, endogeneity, and sample size do not explain the variation in the results. The results for cost of debt indicate that only loan spread as a measurement choice explains the variation in the reported empirical results. For the control variables, leverage and performance explain the variation in the reported empirical results. For the estimation methods, only firm fixed effect explains the variation in the reported empirical results and for the factors affecting the strength of the results, journal quality, year of publication, and sample period explain the variation in the reported empirical results.

The findings from the meta-regression in this study indicate that the mixed results in empirical studies are principally due to the mode of adoption, differences in choice of measurements, control variables, the estimation methods, and various factors affecting the strength of the results.

CHAPTER THREE

IFRS ADOPTION AND SEASONED EQUITY OFFERING UNDERPERFORMANCE

3.1 Introduction

This study examines the impact of adoption of International Financial Reporting Standards (IFRS) on seasoned equity offering (SEO) underperformance. IFRS has gained global acceptance since its adoption by European countries and other countries in 2005. Proponents of IFRS argue that it leads to increased disclosure, better enables investors to compare financial information, and enhances efficient resource allocation (Barth *et al*., 2012; Hong *et al*., 2014). Improved information is likely to reduce the information asymmetry between firms and investors and, thus, should have a critical impact on pricing SEOs. Therefore, SEOs provide a watershed corporate event useful for examining the impact of IFRS adoption.

Intuitively, SEO firms might be expected to experience better stock price performance compared with both their past performance and their peers. However, contrary to this expectation, the empirical literature shows that SEO firms actually experience significantly negative abnormal returns after the offering. For example, Loughran and Ritter (1995) find that issuing firms experienced a stock return 8% lower than that of non-issuing firms with the same market capitalisation. Loughran and Ritter (1997) find that the low stock returns after an SEO follow particularly high returns prior to the offering. This dip in performance following a peak performance for SEO firms is popularly referred to in the literature as post-SEO underperformance.

In jurisdictions where IFRS is adopted, it is often difficult to distinguish the impact of accounting standards changes from other regulatory changes and institutional factors, such as the strength of law enforcement and investor protection. For example, both the EU Market Abuse Directive (Directive 2003/6/EC) in 2003 and the Transparency Directive (Directive 2004/109/EC) in 2004 had objectives similar to those for adoption of IFRS (Christensen *et al*., 2013). Countries such as Germany and Spain made concurrent policy changes to accommodate the adoption of IFRS, which led to decreased earnings management and increased liquidity. However, Ernstberger, Stich, and Vogler (2012) argue that it is difficult to trace these outcomes to any specific change made to the reporting environment.

In contrast to the expectations discussed above, some researchers argue that standardised accounting standards are likely to offer suboptimal benefits across countries with different institutional and economic settings (Sunder, 2007). Further, there are questions raised against the actual level of discretion and flexibility offered by IFRS. There are also concerns that even if IFRS is implemented credibly, the adoption does not offer any substantial gain, because the standards are similar to the local standards of some jurisdictions, particularly in Europe.

The main motivation for studying SEOs is that, although the offerings provide audited financial information subject to regulatory demands and scrutiny, and are followed by analysts, there is substantial pressure on managers to influence prices upwards as the SEO approaches. This is because the issue price reflects the share price of the firm at the date of the offer. Despite the extensive disclosure demands on corporate events such as SEOs, information asymmetry appears to have been the major factor

underpinning the anomalies surrounding SEOs. The information gap causes uncertainties prior to this corporate event.

Consistent with the information asymmetry explanation, it is expected that SEO underperformance increases with increasing information asymmetry and decreases with improved disclosure in the prospectus and financial reports. This is because, if investors are unaware of the true value of the firm prior to an SEO, they are likely to discount the price of the firm when they subsequently become better informed about their investment. On the other hand, if management provides adequate information and faithfully presents the performance of the firm that reflects future prospects, investors can price their investment in an SEO firm accurately. This is likely to reduce the level of underperformance after an SEO issue.

Compared to local standards, IFRS is expected to bridge the information gap faced by investors in an SEO transaction and, subsequently, to reduce the level of underperformance. Thus, IFRS is expected to reduce SEO underperformance through two main channels. First, IFRS is expected to improve disclosure in financial reporting. For example, most domestic standards have discretion on disclosure while IFRS offers more stringent accounting measurements and includes more information disclosure requirements. Bae *et al*. (2008) document the additional disclosure requirements of IFRS compared to local accounting standards and, in addition, Ashbaugh (2001) finds that firms increase their information flow significantly prior to an SEO issue. The stringent requirements of IFRS together with increased disclosure reduce opportunistic behaviour, enhance the information environment, facilitate the raising of firms' equity capital, and improves the ability of investors to value a firm.

Second, IFRS is expected to improve comparability of financial information. Firms are more inclined to communicate with both foreign and domestic financial information users, due to firms' increased participation in foreign markets, particularly during equity issues. IFRS as common international accounting standards will enable firms to provide more standardised financial information and compete for the attention of investors. The standardised accounting information enhances comparability stemming from positive information externalities. This, in turn, will reduce the cost associated with information processing and information asymmetry and, subsequently, reduce SEO underperformance.

This study uses difference-in-difference design to examine the relationship between adoption of IFRS and SEO underperformance. This approach compares the change in SEO underperformance for IFRS adopters for pre-adoption and post-adoption periods, relative to a corresponding change in SEO underperformance for non-IFRS adopters. This research design controls for concurrent confounding issues and better identifies the causal effect of adoption of IFRS on SEO underperformance.

The contributions of this study are in twofold. First, the study investigates the capital market effects of adoption of IFRS on SEO underperformance, which has not been examined previously. SEO underperformance is detrimental to investors and imposes significant losses of investor value, thus, by examining SEO underperformance, the study contributes to research on the effect of adoption of accounting standards on equity markets. Second, the study employs a cross-country sample. Prior research on SEOs has been on the US market predominantly, together with a few other developed markets. Given the marked global increase in SEOs in recent years, investors cross-

investing in various equity markets, and the global acceptance of IFRS as a single set of accounting standards for financial reporting, focus on just certain specific countries offers limited insights into SEOs around the world.

The use of a cross-country sample is important in the context of this study for the following reasons. First, globalisation and capital market integration, particularly across Europe, and the adoption of common internationally accepted accounting standards, facilitate cross-border investment (Francis, Huang, and Khurana, 2016). The existence of common financial information across different capital markets made possible, in part, by adoption of IFRS, enables investors and firms to participate in equity issuance around the world. Second, cross-country study is of interest considering the heterogeneity in capital markets across countries.

3.2 Research evidence and hypotheses

SEOs are important corporate events whereby firms raise funds in the capital market by issuing additional shares. In SEOs, managers have real incentives to inflate earnings. This is because higher earnings are likely to produce higher share prices (Bar-Gill and Bebchuk, 2002). The higher share prices lead to an increase in funds raised, because the offer price of SEOs depends on the share price of the firm at the date of the offering (Cohen and Zarowin, 2010; Kothari, Mizik, and Roychowdhury, 2016; Rangan, 1998; Teoh *et al*., 1998). Also, higher stock price performance enables firms to obtain more favourable terms in an SEO transaction (Kothari *et al*., 2016), and increases the compensation package of management where managers' performance is assessed on market-based measures.

The unique features of SEOs have attracted considerable research on the underlying economics. Loughran and Ritter (1997), Shivakumar (2000), and Kothari *et al*. (2016) provide evidence showing that SEOs are typified by stock price underperformance after the issue. The evidence shows that the operating performance and stock returns of issuing firms peak at the time of the issue and decline after the issue. Rangan (1998), Teoh *et al*. (1998), and Shivakumar (2000) attribute the observed underperformance to inflated earnings, although SEOs are subject to intense scrutiny from regulators, auditors, and financial analysts.

Rangan (1998) and Teoh *et al*. (1998) argue that managers inflate earnings opportunistically prior to SEOs, to take advantage of investors' naivety in extrapolating pre-issue earnings growth. After the issue, investors discount the value of the firm because of the observed dip in earnings growth. Shivakumar (2000) refutes the opportunism assumption by Rangan (1998) and Teoh *et al*. (1998) and draws on rational expectations to explain SEO underperformance. Shivakumar (2000) argues that the underperformance occurs because investors discount stock prices after an SEO because investors assume that all firms inflate their earnings prior to an SEO, i.e., investors have assumed that all firms inflate earnings prior to an SEO. If firms cannot communicate the absence of inflated earnings credibly, they anticipate investors' stock price discounting, and overstate their earnings.

Another explanation for SEO underperformance is provided by Hertzel and Li (2010) and Khan, Kogan, and Serafeim (2012). The authors attribute the underperformance to the existence of information asymmetry between managers and investors. The authors explain that managers use market timing to issue SEOs because they possess

private information on firms' stock mispricing and overvaluation. However, investors are not able to discern the mispricing before the issue, but react to recent trends in the performance of firms. Subsequently, investors correct their valuation when firms are not able to sustain the pre-issue performance.

Based on the evidence documented above, this study investigates whether adoption of IFRS has an impact on SEO underperformance. Hong *et al*. (2014), ICAEW (2014), and De George *et al*. (2016) suggest that high-quality financial reporting standards, increased disclosure and increased comparability all reduce information asymmetry as well as uncertainties surrounding equity issues. Ahmed *et al*. (2013) in a meta-analysis study found that, in general, IFRS offers a positive impact on financial information. Several studies including Brochet *et al*. (2013), Jayaraman and Verdi (2014), and Jones and Finley (2011) find that, compared with local GAAP, IFRS enhance the comparability of financial information of firms, generally, within and across countries.

There are two main channels whereby adoption of IFRS is expected to reduce SEO underperformance. First, Ashbaugh (2001) and Bae *et al*. (2008) document specific additional financial information or disclosure requirements that international accounting standards offer over local accounting standards in most IFRS-adopting jurisdictions. Also, Ashbaugh and Pincus (2001) and Byard, Li, and Yu (2011) find that adoption of IFRS reduces analysts' forecast error and forecast dispersion and these effects, in turn, improve firms' information environment. Furthermore, DeFond, Hung, Li, and Li (2015) find that increased transparency through increased disclosure has reduced the ability of managers to withhold information from users and, thus, to avoid adverse selection and reduce opacity in financial reporting. The reduced opacity and

subsequent reduction in information asymmetry and uncertainty surrounding SEOs are likely to result in a reduction in SEO underperformance.

The additional disclosures such as the statement of cash flows, effects of changes in accounting estimates, events occurring after reporting date, and related party transactions, are expected to improve the information environment and reduce the idiosyncratic risk of management expropriation that occurred pre-IFRS owing to financial reporting opacity. For example, the availability of the statement of cash flow helps investors and analysts to compare cash flow with earnings in order to identify the proportion of accruals: information that has been proven to be the main mechanism used by firms to manage earnings and disguise their underlying value. Ding, Hope, Jeanjean, and Stolowy (2007) find that the absence of these additional disclosures prior to adoption of IFRS is associated with higher earnings management.

The second channel through which adoption of IFRS could reduce SEO underperformance is through increased information comparability. The existence of comparable and standardised financial information across firms would enable investors to be better informed about the underlying value of an issuing firm prior to an SEO. Ashbaugh (2001) and Ashbaugh and Pincus (2001) reveal that reporting under IFRS provides the mechanism for more standardised financial information on earnings and equity and, thus, reduces the information processing costs of investors. Kim and Li (2011) find that adoption of IFRS reduces information barriers for firms, because investors use the financial information of peer firms to assess the value of a given firm. This is likely to reduce investor naivety in extrapolating pre-issue performance, if management succeeds in manipulating the firm's value.

Furthermore, the increased in comparability following adoption of IFRS is likely to offer positive information externalities (Li, 2010). This is because the value of a firm is correlated with that of other firms. Hence, a uniform set of accounting standards produces comparable information disclosed by firms that apply IFRS, or countries that adopt IFRS. The comparability of financial information is useful for firm valuation, and this positive effect increases when more countries adopt IFRS.

Contrary to the popular view of increased disclosure and comparability after adoption of IFRS, there are streams of arguments against there being benefits from adoption of IFRS. These streams of research provide evidence showing that IFRS adoption has led to a decrease in the quality of accounting information. For example, Ahmed, Neel, and Wang (2013) found a decrease in the quality of financial information as reflected in evidence of income increasing accruals earnings management and reduction in timeliness of loss recognition. Platikanova and Nobes (2006) find that information asymmetry did not decrease after adoption of IFRS in Europe, and that IFRS is not value relevant. Some studies argue a limited role for adoption of IFRS in improving the quality of financial information and disclosure (Christensen, Lee, Walker, and Zeng, 2015; Jeanjean and Stolowy, 2008). Thus, if adoption of IFRS does not lead to an increase in accounting quality and lower information asymmetry, SEO underperformance is likely to persist.

Furthermore, compared with local accounting standards, IFRS as a ‘one size fits all’ set of accounting standards may be less informative (Byard *et al*., 2011). This is because IFRS may not increase the quality of financial reporting and, thus, be ineffective in reporting the financial performance of firms. It is also likely that the

impact of adoption of IFRS may be less if it does not offer any substantial changes to local accounting standards, as it was the case in the UK, South Africa, Singapore, and the Netherlands.

Given the evidence on the existence of information asymmetry between outside investors and management, it is expected that the increase in disclosure, transparency, comparability, and improved information environment from adoption of IFRS will reduce the level of information asymmetry and thus reduces the level of SEO underperformance. However, considering the counterarguments to adoption of IFRS, the mixed evidence on adoption of IFRS, and the prevalence of SEO underperformance, the impact of adoption on reducing SEO underperformance remains unclear and is, therefore, still an important empirical question for investigation. The study tests the following hypothesis:

H_1: Adoption of IFRS has an impact on SEO underperformance.

Countries' institutional environment is a significant factor when explaining the effects of adoption of IFRS. The degree of impact of adoption of IFRS may be affected by differences across countries in respect of institutional settings (Brown, Preiato, and Tarca, 2014). Earlier studies by La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997, 1998) suggest the importance of enforcement in an institutional environment, and Leuz (2010) notes that the adoption of financial reporting standards should be done in conjunction with other institutional changes, because both standards and the institutional environment have an impact on the quality of financial reporting. A number of researchers in accounting examine the effect of the differences in the level of enforcement on financial reporting (Bhattacharya, Daouk, and Welker, 2003;

Burgstahler, Hail, and Leuz, 2006; Daske *et al*., 2008). The evidence from these studies suggests that financial reporting will be of higher quality if there is strong enforcement in place.

Bhattacharya *et al*. (2003) and Bushman, Piotroski, and Smith (2004) find that countries with strong investor protection exhibit greater transparency. Daske *et al*. (2008) and Houqe, van Zijl, Dunstan, and Karim (2012) examine the effect of mandatory IFRS adoption and investor protection on earnings quality. The authors find that IFRS adoption has a positive economic impact in countries with strong investor protection. This indicates that financial reporting is affected significantly by the institutional setting of a country.

La Porta *et al*. (1997, 1998) show that countries with strong investor protection have a large and open capital market, particularly common law countries. The strength of investor protection is a reflection of the level of enforcement in a country. Larger and open markets are mostly more efficient, an observation that indicates an increasing flow of financial information and disclosure for investment decisions. These are characteristics of strong enforcement regimes; weaker enforcement regimes are likely to be associated with corporate insiders acting on material private information, to the detriment of outside investors.

Lang, Raedy, and Wilson (2006) find that despite the application of one set of financial reporting standards across Europe, lack of financial statement comparability continued, and earnings management was common among the firms in their sample. This suggests that IFRS may be of higher quality than local GAAP, but that lack of

credible implementation and enforcement may render the accounting standards ineffective (Ahmed *et al*., 2013; Li, 2010).

Consistent with the above findings, the EU in 2004 passed a directive mandating management of firms to establish committees that would ensure enforcement and compliance of IFRS (Daske *et al*., 2008). The directive was widely accepted by many countries and led to an increase in capital market benefits. However, where there are concurrent changes in the level of enforcement it is difficult to identify the impact of adoption of IFRS. This is because the effect of adoption of IFRS then becomes a function of the quality of IFRS relative to local GAAP, and the level of enforcement in that country.

In a strong enforcement environment, financial information would be unlikely to be of high quality if financial standards are not of high quality. In a weak enforcement environment, accounting standards are not effective. This is because managers are likely to exploit the flexibility that IFRS offers and fail to implement the accounting standards credibly, thereby, increasing financial reporting opacity. It is, thus, expected that the benefit of adoption of IFRS will be dependent on the credible implementation and enforcement of accounting standards.

Further, if IFRS leads to a reduction in SEO underperformance through increased disclosure and increased comparability, it is expected that the effect will be more pronounced in countries that experience large increases in disclosure or large increases in comparability. However, this effect is expected only in countries with strong enforcement, where IFRS is implemented credibly. In an environment where

accounting standards are properly enforced and implemented, the effect of adoption of IFRS is expected to be minimal, if IFRS is similar to the local accounting standards. Consequently, this study tests the following hypothesis:

H_2: The level of enforcement in a country reinforces the impact of adoption of IFRS on SEO underperformance.

3.3 Test methodology

First, the study examines the relationship between adoption of IFRS and SEO underperformance using a difference-in-difference approach with a benchmark sample of non-IFRS adoption countries. Use of this benchmark sample controls for changes in the economic environment and contemporaneous effects that are unrelated to the introduction of IFRS. The difference-in-difference approach controls for unobservable differences between treatment and control firms and accounts for observable changes in the treatment sample (Daske *et al*., 2008). A benchmark of voluntary adoption is not suitable, as mandatory IFRS adoption is likely to be substantially the same as voluntary adoption because of similarities in the economic and regulatory environments. There is also potential for self-selection bias among the voluntary adopters.

The study tests Hypothesis 1 using the following regression model.

$$SEOUP = \beta_0 + \beta_1 Time + \beta_2 Mandatory + \beta_3 Time * Mandatory + \sum \beta_i Control_i + \varepsilon \quad (3.1)$$

where *SEOUP* is a measure of SEO underperformance. This measure captures the level of performance of firms after SEOs. The variable *Time* is a dummy variable that equals one for observations after adoption of IFRS and reflects the change in underperformance for the benchmark group. The variable *Mandatory* is a dummy

variable and takes the value of one for a firm in a given country when compliance with IFRS became mandatory and is zero otherwise. This captures the difference between the benchmark and treatment groups in the pre-period. The main variable of interest, *Time*Mandatory*, is an interaction of the variables *Time* and *Mandatory* and takes the value of one for mandatory adopters in the post-IFRS adoption period, or else zero. This is expected to capture any change in SEO underperformance for IFRS adopters relative to non-IFRS adopters following IFRS adoption.

$Control_i$ denotes the set of control variables that have an impact on SEO underperformance and the various fixed effects (industry fixed effects, country fixed effects, and year fixed effects). Consistent with the literature, the control variables that are included are size, leverage, age, asset growth, tangibility, capital expenditure, cash to total assets, asset turnover, abnormal accruals, market-to-book, market value of equity, offer size, global financial crisis, GDP growth, and level of enforcement.

It is expected that larger firms have more stable business operations, attract more analysts and have highly qualified auditors. Therefore, they would have lower information asymmetry, and thus exhibit lower underperformance (Barton, 2001; Cowin, 2003; Lobo and Zhou, 2006). On the other hand, larger firms may have complex business models which may result in higher information asymmetry and underperformance. More levered firms may have lower earnings through higher interest payments, so firms may be more strongly compelled to manage earnings to meet targets (Francis and Wang, 2008). Firms generally increase in size and market share over a period of time. The increase in size and market share enable firms to absorb the negative effect of engaging in earnings management on performance (Zang,

2012). Firms with high asset growth are more likely to engage in SEOs to sustain growth (Doukakis, 2014). Firms with high levels of tangible assets have low risk of bankruptcy (Rajan and Zingales) and low incentive to manage earnings. Loughran and Ritter (1997) find that issuing firms with capital expenditure growth often experience post-SEO earnings decline. Firms holding higher cash are viewed as taking advantage of high valuations prior to SEOs and may have high agency problems (Intintoli, Jategaonkar, and Kahle, 2014). Firms with higher asset turnover are likely to have engaged in real earnings management by increasing their sales through measures such as abnormal discounts. Abnormal accruals indicate the level of earnings management and information asymmetry (Francis and Wang, 2008). Market-to-book captures growth firms which are more likely to be overvalued at the time of SEOs (Summers and Sweeney, 1998). Market value indicates the level of information asymmetry (Intintoli *et al*., 2014). Larger offer size indicates pressure on prices and higher underperformance (Intintoli *et al*., 2014).

Firms generally experienced lower performance during the global financial crisis period, higher performance with higher GDP growth, and higher performance with stronger level of enforcement. The regression model also includes industry fixed effects, country fixed effects, and year fixed effects. Estimation of the models employs robust standard errors adjusted for heteroskedasticity and clustering effects.

Secondly, the study tests Hypothesis 2 by re-estimation of Equation (3.1) for strong and weak enforcement separately. The level of enforcement using the World Economic Forum estimates the strength of investor protection. This proxy ranges from 1 for weak investor protection to 10 for strong investor protection. The study then transforms this

value into a dummy variable based on the sample country median value. The dummy variable takes the value of one when the country-specific value is above the median value, denoting strong enforcement, and zero if the country-specific value is below the median value, denoting weak enforcement. All variables are defined in Table 3.1.

3.4. Sample

The initial sample of seasoned equity issues is obtained from the Securities Data Company (SDC) New Issues Database and comprised 123,721 offerings from 1992 to 2017. This database provides information such as the issue date, issuer, offer price, proceeds, first trading price after issue and the type of issue. For inclusion in the final sample, each equity issue must have corresponding firm-level financial information available in Compustat. SEOs that do not have a SEDOL code in SDC is excluded. This is because SEDOL code is the common identifier that is used to match both SDC and Compustat. Firms that issue rights offers, unit offers, warrants, and combinations of offerings of equity and other securities are also excluded.

Utilities and financial institutions were also excluded owing to regulatory differences and the differences in their business models from other firms. All continuous variables are winsorized at the top and bottom 1%. The final sample covers only offers open to outside shareholders and consists of 29,534 SEOs from 51 countries.

Table 3.1: Variable definitions

Variable	Definition
Dependent variables	
Unadjusted asset-scaled net income	The difference between the asset-scaled net income in the year of SEO and the year following an SEO.
Adjusted asset-scaled net income	Asset scaled net income minus the industry median asset-scaled net income.
First-day return	First day closing price after an SEO minus the last day price prior to an SEO, scaled by the last day price prior to the SEO.
PSM of IFRS and non-IFRS adoption countries	Propensity score matching (PSM) of firms in IFRS adoption countries matched on size, leverage, performance, industry, and year to firms in non-IFRS adoption countries.
PSM of the difference in IFRS and non-IFRS adoption countries	The asset-scaled-net income of firms in IFRS adoption countries minus the asset-scaled performance of matched firms in non-IFRS adoption countries. The PSM is applied by matching on size, leverage, performance, industry, and year.
Year-to-year change in asset-scaled net income	Year-to-year change in asset-scaled net income of an SEO issuer minus that of a matched non-SEO issuer. Issuers and non-issuers are matched based on size, leverage, performance, industry, and year.
Test variables	
Time	Dummy is 1 if an SEO occurs in the post-adoption period and is 0 otherwise.
Mandatory	Dummy is 1 if an SEO is in an IFRS adoption country and is 0 otherwise
Time*Mandatory	The interaction of the variables Time and Mandatory.
Firm-level control variables	
Size	Natural logarithm of total assets of a firm.
Leverage	The ratio of total debt to total assets.
Age	Natural logarithm of firm age from the date it was listed.
Asset growth	Growth rate of assets.
Tangibility	The ratio of gross property, plant, and equipment and total assets.
Capital expenditure	The ratio of capital expenditure to total assets.
Cash to total assets	Cash and short-term investment divided by total assets.
Asset turnover	The ratio of sales to total assets.

Table 3.1 *continued*

Variable	Definition
Abnormal accruals	Total accruals minus predicted accruals based on Francis and Wang (2008).
Market-to-book	Total assets minus equity plus common shares outstanding multiplied by price, divided by total assets.
Market value	Natural logarithm of market value of equity.
Offer size	Offered shares divided by total shares outstanding prior to the offer.
Country-level control variables	
GDP (%)	GDP growth, defined as GDP for the year minus GDP for the previous year, scaled by previous year's GDP.
Level of enforcement	The strength of investor protection based on estimates of the World Economic Forum in a range from 1 for weak investor protection and 10 for strong investor protection. This variable is transformed into a dummy variable where strong enforcement is coded 1 if the country-specific value is above the country median value and weak enforcement is coded 0 if the country-specific value is below the country median value.
Rule of law	Index indicating the strength of implementation credibility from Kaufmann, Kraay, and Mastruzzi (2007).
Other variables	
Global financial crisis (GFC)	Dummy is 1 if an SEO occurs in the global financial crisis year, 2008 and is 0 otherwise.
Disclosure	The number of additional disclosures required by IFRS when compared to national accounting standards, compiled from Nobes (2001) by Bae *et al*. (2008). This measure captures the increase in disclosure due to the adoption of IFRS where higher values indicate large increase in disclosure following adoption of IFRS.
Comparability	The number of inconsistencies between IFRS and national accounting standards constructed from Nobes (2001). This measure captures the increase in comparability due to adoption of IFRS where higher values indicate large increase in comparability following adoption of IFRS.
Accounting change	The aggregate of the disclosure and comparability scores. This measure captures the difference between national accounting standards and IFRS, where higher values indicate a higher number of accounting changes in national standards following adoption of IFRS.

3.5. Results and analysis

3.5.1 Sample distribution

Table 3.2, Panel A, reports the number of SEOs by country for IFRS adoption countries. The table reports the number of SEOs for the pre-adoption period, the post-adoption period, and the full sample. The table shows that the 42 IFRS adoption countries had 20,019 SEOs (68% of sampled SEOs). The sample included 4,970 SEOs for the pre-adoption period (25% of sampled SEOs for IFRS adoption countries) and 15,049 SEOs for the post-adoption period (75% of sampled SEOs for IFRS adoption countries).

Panel A shows that Australia[6] had the highest total number of SEOs (5,538), followed by Canada (2,347). The countries with the fewest SEOs in the sample of IFRS adoption countries are Venezuela (12) and Colombia (18). Out of the 42 IFRS adoption countries, 36 (86% of sample countries) experienced an increase in SEOs after adoption of IFRS whereas only 6 (14% of sampled countries) had fewer SEOs in the post-adoption period (mainly because IFRS was mandated in later years in those sampled countries and, therefore, there was a longer period of time to the adoption date and a shorter time to the end of the sample period for this study). Comparison of the totals for the IFRS adoption countries for pre-adoption and post-adoption shows that SEOs more than tripled after adoption of IFRS.

Panel B shows that the 9 non-IFRS adoption countries had 9,515 SEOs (32% of sampled SEOs). The table also shows that the countries with the highest number of

[6] This is expected as the Australian market is made up of mining firms predominantly. The mining industry is highly risky which makes it difficult and more expensive for firms to obtain debt financing.

SEOs are United States (3,189), followed by China (2,498). The country with the fewest number of SEOs is Bermuda (51).

Table 3.3 reports the distribution of the sample of SEOs by year. For IFRS adoption countries, the number of SEOs increased significantly from 3 in 1992 to 885 in 2017. The highest number of SEOs among IFRS adoption countries occurred in 2016 (1,785). For non-IFRS adoption countries, the number of SEOs varied from 4 in 1992 to 491 in 2017. The highest number of SEOs among non-IFRS adoption countries occurred in 2015 (1,132). The number of SEOs for the full sample varied significantly from 7 in 1992 to 1,376 in 2017. The highest number of SEOs occurred in 2016 (2,876).

3.5.2 Descriptive statistics

SEO underperformance (*SEOUP*) is measured using three proxies. The study follows Teoh *et al*. (1998)[7] to estimate the first two proxies. For the first proxy, asset-scaled net income is calculated as net income as a percentage of prior year total assets. For the second proxy, SEO underperformance is calculated as the asset-scaled net income of the SEO firm minus the industry median asset-scaled net income. This proxy adjusts for changing business conditions in the industry. The third proxy is the first-day return, which is calculated as the first-day closing price after the SEO minus the last day price prior to the issue, scaled by the last day price prior to the issue.

[7] Teoh *et al*. (1998) find that in the year of the SEO issue, the unadjusted net income of issuers is 6.63% on average, which declines to 3.33% in the year following the issue. Thus, a significant underperformance for issuers of 3.30% on average. The adjusted net income for the year of the SEO issue is 3.01% on average, which declines to -0.01% in the year following the issue. This is an underperformance of 3.02% on average.

Table 3.2 Panel A: Number of SEOs by country for IFRS adoption countries

Country	Year	Pre-adoption	Post-adoption	Full sample
Argentina	2012	16	7	23
Australia	2005	923	4,615	5,538
Austria	2005	15	45	60
Belgium	2005	17	72	89
Brazil	2010	68	133	201
Canada	2011	925	1,422	2,347
Chile	2009	13	69	82
Colombia	2014	16	2	18
Denmark	2005	28	92	120
Finland	2005	10	100	110
France	2005	72	486	558
Germany	2005	61	461	522
Greece	2005	8	71	79
Hong Kong	2005	233	1,226	1,459
Ireland-Republic	2005	13	74	87
Israel	2008	26	100	126
Italy	2005	31	168	199
Kuwait	2005	1	63	64
Malaysia	2012	340	367	707
Mexico	2012	18	30	48
Netherlands	2005	26	89	115
New Zealand	2007	47	147	194
Nigeria	2012	14	22	36
Norway	2005	25	268	293
Pakistan	2015	32	22	54
Peru	2012	17	23	40
Philippines	2005	10	153	163
Poland	2005	10	214	224
Portugal	2005	23	50	73
Qatar	2009	15	21	36
Russian Federation	2012	78	155	233
Singapore	2005	94	421	515
South Africa	2005	9	136	145
South Korea	2010	757	920	1,677
Spain	2005	20	174	194
Sri Lanka	2012	24	50	74
Sweden	2005	43	442	485
Taiwan	2013	554	465	1,019
Turkey	2005	2	133	135
United Kingdom	2005	310	1,528	1,838
United Arab Emirates	2015	18	9	27
Venezuela	2005	8	4	12
Total		4,970	15,049	20,019

Table 3.2 Panel B: Number of SEOs by country for non-IFRS adoption countries

Country	Pre-adoption	Post-adoption	Full sample
Bermuda	8	43	51
China	20	2,478	2,498
Egypt	3	130	133
India	23	1,235	1,258
Indonesia	34	204	238
Japan	535	1,217	1,752
Switzerland	17	136	153
Thailand	32	211	243
United States	615	2,574	3,189
Total	1,287	8,228	9,515

Notes: This table presents the sample distribution of the number of SEOs by country. The table reports the distribution for pre-IFRS adoption period, post-IFRS adoption period, and for the full sample. Table 3.2A shows the distribution of the number of SEOs by country for IFRS adoption countries and Table 3.2B reports for non-IFRS adoption countries. The IFRS adoption countries and the year of adoption are determined as the date IFRS reporting became mandatory by relying on information published on Deloitte's IAS Plus website (www.iasplus.com), IFRS website (www.ifrs.org), and the websites of the various stock exchanges. The total sample consists of 29,534 SEOs across 51 countries over the period 1992–2017.

Table 3.4 presents descriptive statistics for *SEOUP*, the dependent variable, and control variables for IFRS adoption countries, non-IFRS adoption countires, and for the full sample. The table shows that the mean (median) unadjusted asset-scaled net income is -1.58% (-2.80%) for IFRS adoption countries, -1.89% (-3.06%) for non-IFRS adoption countries, and -1.80% (-3.07%) for the full sample. A one standard deviation indicates a huge variation, -12.84% to 9.68% for IFRS adoption countries, -12.84% to 9.06% for non-IFRS adoption countries, and -12.96% to 9.36% for the full sample. The mean (median) first-day return is -1.10% (-1.79%) for IFRS adoption countries, -1.26% (-1.85%) for non-IFRS adoption countries, and -1.28% (-1.60%) for the full sample. A one standard deviation shows a variation, -2.60% to 0.40% for IFRS adoption countries, -3.11% to 0.59% for non-IFRS adoption countries, and -2.79% to 0.23% for the full sample.

Table 3.3: Number of SEOs by year

Year	IFRS adoption	Non-IFRS adoption	Full sample
1992	3	4	7
1993	7	4	11
1994	23	7	30
1995	27	28	55
1996	59	55	114
1997	84	69	153
1998	104	66	170
1999	181	95	276
2000	254	120	374
2001	276	107	383
2002	421	161	582
2003	528	217	745
2004	597	354	951
2005	623	338	961
2006	769	351	1,120
2007	1,116	364	1,480
2008	1,064	334	1,398
2009	1,589	620	2,209
2010	1,657	704	2,361
2011	1,583	583	2,166
2012	1,469	603	2,072
2013	1,615	789	2,404
2014	1,580	828	2,408
2015	1,720	1,132	2,852
2016	1,785	1,091	2,876
2017	885	491	1,376
Total	20,019	9,515	29,534

Notes: This table reports the distribution of the number of SEOs by year. The table reports distribution for IFRS adoption countries, non-IFRS adoption countries, and for the full sample. The sample consists of 29,534 SEOs across 51 countries over the period 1992–2017.

This study follows the literature on SEO underperformance in the selection and definition of the control variables. Firm size, measured as the natural logarithm of total assets, shows a mean (median) of 7.44 (7.38) for IFRS adoption countries, 7.50 (7.38) for non-IFRS adoption countries and 7.46 (7.38) for the full sample. Leverage, measured as the ratio of total debt to total assets, shows a mean (median) of 0.21 (0.18) for IFRS adoption countries, non-IFRS adoption countries, and for the full sample.[8]

[8] The mean and median values for IFRS adoption countries and non-IFRS adoption countries differ only before rounding.

Firm age, measured as the natural logarithm of age of the firm since the date it was founded shows a mean (median) of 2.94 (2.91) for the full sample. Asset growth shows a mean (median) of 10% (5%) for IFRS adoption countries, 9% (5%) for non-IFRS adoption countries, and 10% (5%) for the full sample. Tangibility, measured as the ratio of gross PPE to total assets, shows that gross PPE forms about 52% of total assets for the full sample. Asset turnover is estimated as sales divided by total assets of the firm and this shows very high mean values of 84% for the full sample. Cash balance, measured as cash and short-term investment scaled by total assets, shows a mean (median) value of 13% (9%) for the full sample. The table also shows that about 5% of SEOs for the full sample occurred during the global financial crisis period.

GDP growth, as a country-level variable, shows a mean (median) percentage growth of 2.56% (2.57%) for IFRS adoption countries, 4.18% (3.35%) for non-IFRS adoption countries, and 3.08% (2.61%) for the full sample. The mean (median) score for the level of enforcement is 7.74 (8.00) for IFRS adoption countries, 6.58 (7.00) for non-IFRS adoption countries, and 7.36 (8.00) for the full sample.

Table 3.5 reports the Pearson correlation matrix for the full sample of 29,534 SEOs. The table shows a relatively low level of correlation between the test variables. Only capital expenditure and size show a high and significant correlation (correlation = 0.849, significance < 0.01). Most of the correlations between the variables are significant at the 10% level or stronger. The correlation between IFRS and SEO underperformance is significant at the 5% level or stronger. IFRS is correlated significantly with all the variables at the 5% level or stronger, except abnormal accruals.

The unadjusted asset-scaled net income is correlated significantly with all the variables except first-day return, age, tangibility, GDP growth, and level of enforcement. The unadjusted asset-scaled net income has a positive and significant correlation with the control variables size, asset growth, capital expenditure, asset turnover, market-to-book ratio, market value, offer size, and level of enforcement at the 10% level or stronger, a negative and significant correlation with leverage, cash to total assets, abnormal accruals, and global financial crisis at the 5% level or stronger.

The adjusted asset-scaled net income is significantly correlated with all the variables except first-day return, offer size, and level of enforcement. The adjusted asset-scaled net income has a positive and significant correlation with the control variables size, asset growth, capital expenditure, cash to total assets, asset turnover, market value, offer size, and GDP at the 10% level or stronger, a negative and significant correlation with leverage, age, tangibility, abnormal accruals, market-to-book, and global financial crisis at the 5% level or stronger.

The first-day return has a positive and significant correlation with size, capital expenditure, market value, GDP, and level of enforcement at the 5% level or stronger, a negative and significant correlation with age, cash to total assets, and offer size at the 5% level or stronger.

Table 3.4: Descriptive statistics

		Mean	Median	Stan. dev.	Mean	Median	Stan. dev.	Mean	Median	Stan. dev.
Variables	N	IFRS adoption			Non-IFRS adoption			Full sample		
Unadj. asset-scal net inc (%)	29,534	-1.58	-2.80	11.26	-1.89	-3.06	10.95	-1.80	-3.07	11.16
Adj. asset-scal net inc (%)	29,534	-2.44	-3.16	14.91	-3.56	-3.65	15.40	-2.78	-2.85	11.16
First-day return (%)	21,737	-1.10	-1.79	1.50	-1.26	-1.85	1.48	-1.28	-1.60	1.51
Size	29534	7.43	7.38	3.22	7.50	7.38	3.12	7.46	7.38	3.19
Leverage	29534	0.21	0.18	0.18	0.21	0.18	0.18	0.21	0.18	0.18
Age	29534	2.94	2.91	0.39	2.93	2.91	0.39	2.94	2.91	0.39
Asset growth	29534	0.10	0.05	0.22	0.09	0.05	0.22	0.10	0.05	0.22
Tangibility	29534	0.52	0.48	0.35	0.52	0.48	0.35	0.52	0.48	0.35
Capital expenditure	29534	3.93	3.96	3.44	4.01	3.96	3.34	3.96	3.96	3.41
Cash to total assets	29534	0.13	0.09	0.13	0.13	0.09	0.13	0.13	0.09	0.13
Asset turnover	29534	0.84	0.75	0.58	0.84	0.76	0.57	0.84	0.75	0.58
Abnormal accruals	29534	0.00	0.00	0.12	0.00	0.00	0.12	0.00	0.00	0.12
Market-to-book	29534	5.31	5.20	2.46	5.43	5.20	2.47	5.35	5.20	2.46
Market value	29534	4.09	4.00	2.05	5.51	5.71	1.97	4.56	4.43	2.13
Offer size	29534	0.28	0.20	0.67	0.21	0.20	0.60	0.26	0.20	0.65
Global financial crisis	29534	0.05	0.00	0.22	0.04	0.00	0.18	0.05	0.00	0.21
GDP (%)	29534	2.56	2.57	2.47	4.18	3.35	3.38	3.08	2.61	2.90
Level of enforcement	29534	7.74	8.00	1.17	6.58	7.00	2.46	7.36	8.00	1.79

Notes: This table reports the descriptive statistics for IFRS adoption countries, non-IFRS adoption countries, and for the full sample. The variables are described in Table 3.1

Table 3.5: Pearson correlation matrix

	Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	IFRS									
2	Unadj. asset-scaled net incm.	0.022***								
3	Adj. asset-scaled net incm.	0.017**	0.609***							
4	First-day return	0.010**	0.004	0.004						
5	Size	0.019***	0.328***	0.160***	0.017**					
6	Leverage	-0.031***	-0.112***	-0.113***	0.010	0.220***				
7	Age	-0.104***	-0.001	-0.036***	-0.015**	0.289***	0.070***			
8	Asset growth	0.013**	0.252***	0.164***	0.008	0.029***	-0.025***	-0.130***		
9	Tangibility	-0.040***	-0.003	-0.051***	0.005	0.187***	0.251***	0.218***	-0.168***	
10	Capital expenditure	0.021***	0.303***	0.137***	0.014**	0.849***	0.213***	0.226***	0.073***	0.277***
11	Cash to total assets	0.047***	-0.047***	0.013**	-0.016**	-0.172***	-0.388***	-0.149***	0.112***	-0.321***
12	Asset turnover	0.038***	0.298***	0.105***	-0.006	0.156***	0.001	0.058***	-0.057***	-0.026***
13	Abnormal accruals	-0.001	-0.308***	-0.203***	-0.010	0.063***	-0.032***	-0.015***	0.236***	-0.065***
14	Market-to-book	0.045***	0.330***	-0.220***	0.004	-0.148***	0.531***	0.049***	-0.059***	0.049***
15	Market value	0.248***	0.028***	0.012**	0.108***	0.044***	0.006	0.021***	0.002	0.022***
16	Offer size	0.056***	0.023***	0.010*	-0.078***	-0.043***	-0.008	-0.043***	-0.019***	-0.021***
17	Global financial crisis	-0.022***	-0.013**	-0.011**	0.001	-0.002	0.017***	0.012**	-0.012**	0.003
18	GDP (%)	0.587***	0.001	0.060***	0.041***	-0.020***	-0.006	-0.041***	-0.003	-0.008
19	Level of enforcement	0.190***	0.011*	0.009	0.063***	-0.053***	-0.001	0.007	0.013**	-0.001

	Variables	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
11	Cash to total assets	-0.166***								
12	Asset turnover	0.113***	-0.055***							
13	Abnormal accruals	0.055***	-0.032***	0.027***						
14	Market-to-book	-0.089***	-0.170***	0.128***	-0.122***					
15	Market value	0.034***	-0.017***	0.022***	0.005	0.066***				
16	Offer size	-0.048***	0.012**	0.092***	0.009	0.020***	0.065***			
17	Global financial crisis	0.013**	-0.007	0.031***	-0.017***	0.002	-0.033***	-0.008		
18	GDP (%)	-0.016***	0.002	-0.007	-0.008	0.025***	0.309***	-0.092***	-0.036***	
19	Level of enforcement	-0.037***	-0.005	0.011*	-0.002	0.010	-0.237***	-0.047***	0.011*	-0.251***

Notes: This table reports the Pearson correlation matrix for all the variables. The total sample size is 29,534. *, **, and *** indicate significance at 0.10, 0.05, and 0.01 respectively. The variables are defined in Table 3.1.

3.5.3 Main results

3.5.3.1 Test of Hypothesis one

The results of the test of Hypothesis 1 (adoption of IFRS impacts SEO underperformance) are reported in Table 3.6. The table reports the coefficients and *p*-values from the regression models for Models 1-3 based on the difference-in-difference design. Model 1 is estimated using the unadjusted asset-scaled net income, Model 2 uses the industry adjusted asset-scaled net income, and Model 3 reports on the first-day return. All three models use non-IFRS adoption countries as the benchmark sample. The Adjusted R^2 in Models 1-3 suggests that the variables explain from 21% to 39% in the SEO underperformance. The intercept represents the change in the pre-period for non-IFRS adoption countries.

The results in Model 1 of Table 3.6 show that the coefficient on *Time*Mandatory* (coefficient = 0.006, p = 0.028) is positive and significant at the 5% level. This indicates a reduction in SEO underperformance after adoption of IFRS. The reduction in underperformance is economically significant being 21% of the median value.[9] In Model 2, the coefficient on *Time*Mandatory* (coefficient = 0.014, p = 0.001) is positive and significant at the 1% level, indicating a reduction in underperformance. The reduction in underperformance is economically significant, being 44% of the median value.[10] Model 3 also shows a positive and significant coefficient on

[9] 21% = 0.6/-2.80, where 0.6% is the coefficient on *Time*Mandatory* in Model 1 of Table 3.6 and -2.80 is the median value of unadjusted asset-scaled net income for IFRS adoption countries in Table 3.4.

[10] 44% = 1.4/-3.16, where 1.4% is the coefficient on *Time*Mandatory* in Model 2 of Table 3.6 and -3.16 is the median value of adjusted asset-scaled net income for IFRS adoption countries in Table 3.4.

*Time*Mandatory* (coefficient = 0.151, $p = 0.005$) at the 1% level and is economically significant, being 8% of the median value.[11]

The above results are consistent with arguments in favour of the benefits of adoption of IFRS. The results confirm that reporting of IFRS provides more disclosure, offers transparent reporting, and improves the information environment, all of which, in turn, reduce information asymmetry and the level of uncertainty regarding equity issues and subsequent reduction in underperformance.

The results for the control variables are largely consistent with prior studies on SEOs. The results on the control variables indicate that SEO underperformance is significantly lower for larger firms, firms with comparable high assets growth, high capital expenditure, high assets turnover, high market-to-book ratio, high market value of equity, and large offer size, as well as firms from strong enforcement countries. On the other hand, the results show that SEO underperformance increases for older firms, firms with higher tangibility, higher cash balances, higher abnormal accruals, and during the global financial crisis period. The control variables: age, cash balances, asset turnover, market value of equity, offer size, and level of enforcement are consistent across Models 1-3.

[11] 8% = 0.151/-1.79, where 0.151 is the coefficient on *Time*Mandatory* in Model 3 of Table 3.6 and -1.79 is the median value of the first-day return for IFRS adoption countries in Table 3.4.

Table 3.6: Results for IFRS adoption on SEO underperformance

	Model 1		Model 2		Model 3	
Variables	Coeff.	*p*-value	Coeff.	*p*-value	Coeff.	*p*-value
Time	-0.014	0.000	-0.008	0.096	0.066	0.134
Mandatory	-0.005	0.065	-0.003	0.414	0.217	0.000
Time*Mandatory	**0.006**	**0.028**	**0.014**	**0.001**	**0.151**	**0.005**
Size	0.004	0.000	0.006	0.000	0.009	0.110
Leverage	-0.007	0.111	-0.012	0.062	0.008	0.859
Age	-0.014	0.000	-0.015	0.000	-0.067	0.002
Asset growth	0.098	0.000	0.085	0.000	0.023	0.262
Tangibility	-0.004	0.018	-0.005	0.053	0.018	0.440
Capital expenditure	0.004	0.000	0.002	0.005	-0.002	0.686
Cash to total assets	-0.052	0.000	-0.054	0.000	-0.145	0.021
Asset turnover	0.060	0.000	0.052	0.000	0.030	0.048
Abnormal accruals	-0.186	0.000	-0.189	0.000	-0.019	0.785
Market-to-book	0.140	0.000	0.130	0.000	0.015	0.443
Market value	0.001	0.000	0.001	0.000	0.070	0.000
Offer size	0.002	0.021	0.003	0.017	0.002	0.000
Global financial crisis	-0.009	0.000	-0.016	0.526	-0.129	0.001
GDP (%)	0.002	0.158	0.008	0.000	0.030	0.000
Level of enforcement	0.001	0.082	0.003	0.000	0.044	0.000
Constant	0.037	0.000	-0.007	0.776	-0.466	0.000
Industry fixed effect	Yes		Yes		Yes	
Country fixed effect	Yes		Yes		Yes	
Year fixed effect	Yes		Yes		Yes	
Observations	29,534		29,534		21,737	
Adjusted R^2	0.39		0.23		0.21	

Note: This table reports the results of the impact of IFRS adoption on SEO underperformance. Model 1 reports on the unadjusted asset-scaled net income. Model 2 reports on the adjusted asset-scaled net income. Model 3 reports on the first-day return. The dependent variable for Models 1 and 2 is in decimals and in percentage for Model 3. The sample period is from 1992–2017 covering 51 countries, comprising 42 IFRS adoption countries and 9 non-IFRS adoption countries. The variables are defined in Table 3.1.

3.5.3.2 Test of Hypothesis two

The results for Hypothesis 2 in Tables 3.7 and 3.8 are obtained by estimation of Equation (3.1) separately for strong enforcement and weak enforcement countries. Hypothesis 2 addresses how adoption of IFRS reinforces the effect of the level of enforcement in reducing SEO underperformance. Table 3.7 reports the impact of adoption of IFRS on SEO underperformance for strong enforcement countries. Model 1 shows a positive and significant coefficient on *Time*Mandatory* (coefficient = 0.007, p = 0.038) at the 5% level. This indicates a reduction in underperformance. All the variables under Model 1 are significant except offer size. The coefficient on *Time*Mandatory* (coefficient = 0.015, p = 0.001) in Model 2 is positive and highly significant at the 1% level, and the coefficient on *Time*Mandatory* (coefficient = 0.102, p = 0.082) in Model 3 is marginally significant at the 10% level. In all cases, the reduction is economically significant.

Table 3.8 examines the impact of adoption of IFRS on SEO underperformance for weak enforcement countries. The coefficients on *Time*Mandatory* in Models 1-3 are not significant. This indicates that IFRS adoption has no significant impact on SEO underperformance for firms in countries with weak enforcement. This evidence is consistent with the notion that an environment that is weak in enforcement and lacks compliance with standards is likely to cause high quality accounting standards to have a lower impact on improving the quality of financial information.

Analysis of the difference between the coefficients for *Time*Mandatory* in Model 1 for strong enforcement and weak enforcement (Tables 3.7 and 3.8) is positive and significant (difference = 0.006, $p < 0.01$) (using a Chow test). This indicates that

adoption of IFRS is associated with a reduction in underperformance for firms in countries with strong enforcement, and this reduction in underperformance is economically significant, being 21% of the median value.[12] For Model 2, the difference in the coefficients on *Time*Mandatory* in Tables 3.7 and 3.8 is positive and significant (difference = 0.006, $p < 0.01$) which suggests that adoption of IFRS is associated with a reduction in underperformance for firms in strong enforcement countries. The reduction is economically significant, being 19% of the median value.[13] For Model 3, the difference in the coefficients on *Time*Mandatory* in Tables 3.7 and 3.8 is positive and significant (difference = 0.179, $p < 0.01$), which suggests that adoption of IFRS is associated with a reduction in underperformance for firms in strong enforcement countries. The reduction is economically significant, being 10% of the median value.[14]

[12] 21% = 0.6/-2.80, where 0.6 (0.7 - 0.1 = 0.6) is the difference between the coefficients in Model 1 on *Time*Mandatory* in Tables 3.7 and 3.8 and -2.80 is the median value of unadjusted asset-scaled net income for IFRS adoption countries in Table 3.4.

[13] 19% = 0.6/-3.16, where 0.6 (1.5 - 0.9 = 0.6) is the difference between the coefficients in Model 2 on *Time*Mandatory* in Tables 3.7 and 3.8 and -3.16 is the median value of adjusted asset-scaled net income for IFRS adoption countries in Table 3.4.

[14] 10% = 0.179/-1.79, where 0.179 (0.102 + 0.077 = 0.179) is the difference between the coefficients in Model 3 on *Time*Mandatory* in Tables 3.7 and 3.8 and -1.79 is the median value of the first-day return for IFRS adoption countries in Table 3.4.

Table 3.7: Results for IFRS adoption and SEO underperformance for strong enforcement

	Model 1		Model 2		Model 3	
Variables	Coeff.	*p*-value	Coeff.	*p*-value	Coeff.	*p*-value
Time	-0.011	0.000	0.011	0.044	0.072	0.128
Mandatory	-0.007	0.018	-0.003	0.471	0.096	0.127
Time*Mandatory	**0.007**	**0.038**	**0.015**	**0.001**	**0.102**	**0.082**
Size	0.002	0.000	0.006	0.000	0.008	0.267
Leverage	-0.056	0.000	-0.005	0.491	0.040	0.524
Age	-0.021	0.000	-0.014	0.000	-0.083	0.001
Asset growth	0.023	0.000	0.091	0.000	0.028	0.275
Tangibility	-0.009	0.000	-0.004	0.199	0.039	0.150
Capital expenditure	0.006	0.000	0.002	0.017	-0.003	0.671
Cash to total assets	-0.045	0.000	-0.065	0.000	-0.149	0.049
Asset turnover	0.052	0.000	0.055	0.000	-0.021	0.255
Abnormal accruals	-0.216	0.000	-0.192	0.000	-0.003	0.890
Market-to-book	0.053	0.000	0.139	0.000	0.008	0.761
Market value	0.001	0.000	0.001	0.227	0.080	0.000
Offer size	0.001	0.448	0.005	0.001	0.003	0.000
GFC	-0.012	0.000	-0.011	0.752	-0.149	0.002
GDP (%)	0.004	0.011	0.004	0.000	0.033	0.000
Level of enforcement	0.003	0.001	0.009	0.000	0.009	0.136
Constant	0.069	0.000	-0.071	0.049	-0.643	0.000
Industry fixed effect	Yes		Yes		Yes	
Country fixed effect	Yes		Yes		Yes	
Year fixed effect	Yes		Yes		Yes	
Observations	22,535		22,535		17,077	
Adjusted R^2	0.37		0.23		0.18	

Note: This table reports the results of the impact of IFRS adoption on SEO underperformance for strong enforcement countries. Model 1 reports on the unadjusted asset-scaled net income. Model 2 reports on the adjusted asset-scaled net income. Model 3 reports on the first-day return. The dependent variable for Models 1 and 2 is in decimals and in percentage for Model 3. The sample period is from 1992–2017 covering 51 countries, comprising 42 IFRS adoption countries and 9 non-IFRS adoption countries. There are 25 strong enforcement countries. The variables are defined in Table 3.1.

Table 3.8: Results for IFRS adoption and SEO underperformance for weak enforcement

	Model 1		Model 2		Model 3	
Variables	Coeff.	*p*-value	Coeff.	*p*-value	Coeff.	*p*-value
Time	-0.026	0.003	0.009	0.432	0.170	0.105
Mandatory	-0.002	0.821	-0.003	0.734	0.041	0.910
Time*Mandatory	**0.001**	**0.118**	**0.009**	**0.415**	**-0.077**	**0.512**
Size	0.002	0.051	0.005	0.000	0.011	0.253
Leverage	-0.054	0.000	-0.032	0.010	-0.033	0.667
Age	-0.018	0.000	-0.017	0.000	-0.038	0.175
Asset growth	0.021	0.000	0.063	0.000	-0.005	0.890
Tangibility	-0.015	0.000	-0.009	0.106	-0.039	0.292
Capital expenditure	0.006	0.000	0.002	0.091	0.003	0.700
Cash to total assets	-0.013	0.213	-0.022	0.154	-0.102	0.277
Asset turnover	0.048	0.000	0.042	0.000	-0.052	0.028
Abnormal accruals	-0.212	0.000	-0.180	0.000	-0.099	0.368
Market-to-book	-0.048	0.000	-0.103	0.000	0.036	0.200
Market value	0.001	0.226	0.003	0.001	0.036	0.000
Offer size	0.000	0.653	0.004	0.076	-0.001	0.071
GFC	-0.005	0.388	-0.024	0.485	0.134	0.076
GDP (%)	0.001	0.070	0.002	0.066	0.021	0.008
Level of enforcement	0.011	0.013	0.005	0.000	0.005	0.557
Constant	0.072	0.000	0.002	0.954	0.110	0.474
Industry fixed effect	Yes		Yes		Yes	
Country fixed effect	Yes		Yes		Yes	
Year fixed effect	Yes		Yes		Yes	
Observations	6,999		6,999		4,660	
Adjusted R^2	0.35		0.24		0.33	

Note: This table reports the regression results of the impact of IFRS adoption on SEO underperformance for weak enforcement countries. Model 1 reports on the unadjusted asset-scaled net income. Model 2 reports on the adjusted asset-scaled net income. Model 3 reports on the first-day return. The dependent variable for Models 1 and 2 is in decimals and in percentage for Model 3. The sample period is from 1992–2017 covering 51 countries, comprising 42 IFRS adoption countries and 9 non-IFRS adoption countries. There are 28 weak enforcement countries. The variables are defined in Table 3.1.

3.6 Additional analyses

3.6.1 Channels explaining the impact of IFRS adoption on SEO underperformance

The study examines whether increased disclosure, increased comparability, and number of accounting changes impact the association between adoption of IFRS and SEO underperformance. Following Byard *et al*. (2011), DeFond *et al*. (2015), and Li (2010), the study tests the effect of increased disclosure on adoption of IFRS and SEO underperformance. The increased disclosure is measured as the number of additional disclosures required by IFRS when compared to local accounting standards. The study uses the index compiled by Bae *et al*. (2008). This index is based on 21 key accounting standards required by IFRS in comparison to the local accounting standards in each country. For example, compared to Belgian Generally Accepted Accounting Principles (Belgian GAAP) as issued by the Belgian Accounting Standards Board (BASB), IFRS requires: (1) segment reporting (2) an impairment test for goodwill or other intangible assets with useful life over 20 years (3) disclosure of related-party transactions (4) disclosure of fair value of financial assets and financial liabilities.

Following Li (2010), this study uses the number of inconsistencies between local accounting standards and IFRS as proxy for increased comparability. This proxy is compiled from Nobes (2001) and suggests that IFRS reduces the number of inconsistencies among accounting standards applied in different jurisdictions prior to adoption of IFRS, thereby enhancing comparability across firms and countries. For example, Nobes (2001) discovered that in comparison to Australian GAAP, IFRS required that: (1) trading, available-for-sale, derivative financial assets and derivative liabilities be recognised at fair value, (2) investment properties be held at fair value

with depreciation, and (3) intangible assets could be revalued but only in an active market.

Accounting change is measured as the aggregate of the additional disclosure requirements in IFRS compared to local GAAPs, and the number of inconsistencies between local accounting standards and IFRS. This aggregate measure helps to capture the overall changes in accounting standards following adoption of IFRS.

3.6.1.1 Descriptive statistics for disclosure, comparability, and accounting change

The descriptive statistics for increases in disclosure, increases in comparability, and accounting change, as conditional variables for the impact of adoption of IFRS on SEO underperformance, are presented in Table 3.9. The table shows that the mean (median) score for increases in disclosure is 8.25 (9.00). Singapore and South Africa have the lowest score of 0. This suggests that the local accounting standards of Singapore and South Africa were substantially similar to IFRS. Greece had the highest score of 17 additional disclosures.

The mean (median) score for comparability is 12.89 (12.5). South Africa had the lowest comparability score of 2. This suggests that South African GAAP had the lowest number of inconsistencies with IFRS. Spain had the highest comparability score of 22.

The mean (median) score for accounting change, as the aggregate of the disclosure and comparability score, is 21.14 (20.50). The table shows that the accounting change variable ranges from 2 for South Africa to 38 for Spain.

Table 3.9: Descriptive statistics for disclosure, comparability, and accounting change

Country	Disclosure	Comparability	Accounting changes
Argentina	14	18	32
Australia	4	13	17
Austria	12	20	32
Belgium	13	15	28
Brazil	11	16	27
Canada	5	17	22
Chile	13	17	30
Denmark	11	13	24
Finland	15	19	34
France	12	19	31
Germany	11	20	31
Greece	17	20	37
Hong Kong	3	8	11
Ireland-Rep	1	15	16
Israel	6	9	15
Italy	12	19	31
Malaysia	8	9	17
Mexico	1	9	10
Netherlands	4	5	9
New Zealand	3	11	14
Norway	7	5	12
Pakistan	4	11	15
Peru	1	4	5
Philippines	10	10	20
Poland	12	18	30
Portugal	13	12	25
Russian Fed	16	18	34
Singapore	0	10	10
South Africa	0	2	2
South Korea	6	7	13
Spain	16	22	38
Sweden	10	11	21
Taiwan	6	10	16
Turkey	14	9	23
United Kingdom	1	15	16
Venezuela	5	8	13
Mean	8.25	12.89	21.14
Median	9.00	12.50	20.50
Stand. Dev.	5.15	5.23	9.49

Notes: This table reports, for IFRS adoption countries, the descriptive statistics for increased disclosure, increased comparability, and accounting change following adoption of IFRS. The variables are described in Table 3.1

3.6.1.2 Results for increases in disclosure

The sample is classified on whether adoption of IFRS results in large or small increases in disclosure. The classification uses the median score of 9. Thus, countries that had nine or more additional disclosures after adoption of IFRS are labelled as belonging to the category with large increases in disclosure, and countries with less than nine additional disclosures after adoption of IFRS are labelled as belonging to the category with small increases in disclosure. It is expected that the impact of adoption of IFRS on SEO underperformance will be more positive for firms in the large increases in disclosure category. The study re-estimates Equation (3.1) separately for large increases in disclosure and small increases in disclosure. Results are presented in Table 3.10.

The results for large increases in disclosure show that the coefficient on *Time*Mandatory* is positive and significant at the 5% level (coefficient = 0.016, p = 0.011). This suggests that large increases in disclosure are associated with a reduction in SEO underperformance following adoption of IFRS. For small increases in disclosure, the coefficient on *Time*Mandatory* is also positive, but only marginally significant at the 10% level (coefficient = 0.010, p = 0.092). This indicates that adoption of IFRS has only a marginal impact on SEO underperformance when it produces a relatively small increase in financial reporting disclosure.

Comparison of the coefficient on *Time*Mandatory* for large increases in disclosure and small increases in disclosure shows that large increases in disclosure have a greater impact on reducing SEO underperformance following adoption of IFRS than small increases in disclosure. The magnitude of reduction in SEO underperformance for

large increases in disclosure is economically significant, being 57% of the median value.[15] For small increases in disclosure, the magnitude of reduction in SEO underperformance is economically significant, being 36% of the median value.[16] Using a Chow test, the difference between the coefficients on *Time*Mandatory* for large and small increases in disclosure is positive and significant (difference = 0.006, $p < 0.01$), and also economically significant, being 21% of the median value.[17]

3.6.1.3 Results for increases in comparability

The study partitions the sample into large and small increases in comparability based on the sample median score of 12.5. Thus, firms in countries with comparability scores greater than 12.5 are categorised as having large increases in comparability and firms in countries with comparability score less than 12.5 are categorised as having small increases in comparability. It is expected that firms in countries that experienced larger increases in comparability will have a greater decline in SEO underperformance following adoption of IFRS, than will firms from countries that had smaller increases in comparability. This study re-estimate Equation (3.1) separately for these two categories. The results are presented in Table 3.11.

The results for large increases in comparability show that the coefficient on *Time*Mandatory* is positive and significant at the 1% level (coefficient = 0.024, $p <$

[15] 57% = 1.6/-2.80, where 1.6% is the coefficient on *Time*Mandatory* for large increases in disclosure in Table 3.10 and -2.80 is the median value of unadjusted asset-scaled net income for IFRS adoption countries in Table 3.4.

[16] 36% = 1.0/-2.80, where 1.0% is the coefficient on *Time*Mandatory* for small increases in disclosure in Table 3.10 and -2.80 is the median value of unadjusted asset-scaled net income for IFRS adoption countries in Table 3.4.

[17] 21% = 0.6/-2.80, where 0.6% (1.6 – 1.0 = 0.6) is the difference between the coefficients on *Time*Mandatory* for large and small increases in disclosure in Table 3.10 and -2.80 is the median value of unadjusted asset-scaled net income for IFRS adoption countries in Table 3.4.

0.001). This is economically significant, being 86% of the median value.[18] This suggests that large increases in comparability are associated with reduced SEO underperformance following adoption of IFRS. The coefficient on *Time*Mandatory* for small increases in comparability is also positive and significant at the 10% level (coefficient = 0.008, $p = 0.053$). Both large and small increases in comparability results in reduced SEO underperformance following adoption of IFRS. However, large increases in comparability lead to greater reduction in SEO underperformance than do small increases. Using Chow test, analysis of the difference between the coefficient on *Time*Mandatory* for large and small increases in comparability shows a positive and significant result (difference = 0.016, $p < 0.01$) that is economically significant, being 57% of the median value.[19]

3.6.1.4 Results for accounting change

The sample is classified into large and small accounting change based on the median value of 20.5. Firms in countries with accounting change scores greater than 20.5 are classified as large accounting change and firms in countries with accounting change score lower than 20.5 are classified as small accounting change. This measure captures the extent of change in financial reporting practices and its impact on SEO underperformance, and predicts that firms in countries with greater accounting change will record a greater impact on SEO underperformance than will firms in countries with small accounting change. Table 3.12 presents results of re-estimation of Equation (3.1) across subsamples of large and small accounting change.

[18] 86% = 2.4/-2.80, where 2.4% is the coefficient on *Time*Mandatory* for large increases in comparability in Table 3.11 and -2.80 is the median value of unadjusted asset-scaled net income for IFRS adoption countries in Table 3.4.

[19] 57% = 1.6/-2.80, where 1.6% (2.4 – 0.8 = 1.6) is the difference between the coefficients on *Time*Mandatory* for large and small increases in comparability in Table 3.11 and -2.80 is the median value of unadjusted asset-scaled net income for IFRS adoption countries in Table 3.4.

Table 3.12 shows that the coefficient on *Time*Mandatory* is positive and significant at the 5% level (coefficient = 0.010, p = 0.018) for firms in countries with large accounting change, but not significant for firms in countries with small accounting change. The result for large accounting change is also economically significant, being 36% of the median value.[20] This result suggests that adoption of IFRS is associated with a reduction in SEO underperformance of 36% in countries that experience large accounting change relative to their local accounting standards following adoption of IFRS.

Using Chow test, the difference between the coefficient on *Time*Mandatory* for the subsamples of large and small accounting change is positive and significant (difference = 0.006, $p < 0.01$), and also economically significant, being 21% of the median value.[21] Consistent with the prediction, the results in Table 3.12 indicate that the impact of adoption of IFRS on SEO underperformance is greater for firms in countries with large accounting change than for firms in countries with small accounting change.

[20] 36% = 1.0/-2.80, where 1.0% is the coefficient on *Time*Mandatory* for large accounting change in Table 3.12 and -2.80 is the median value of unadjusted asset-scaled net income for IFRS adoption countries in Table 3.4.

[21] 21% = 0.6/-2.80, where 0.6% (1.0 – 0.4 = 0.6) is the difference between the coefficients on *Time*Mandatory* for large and small accounting changes in Table 3.12 and -2.80 is the median value of unadjusted asset-scaled net income for IFRS adoption countries in Table 3.4.

Table 3.10: Results for increases in disclosure

	Large increase in disclosure		Small increase in disclosure	
Variables	Coefficient	*p*-value	Coefficient	*p*-value
Time	0.040	0.000	0.009	0.157
Mandatory	-0.013	0.041	-0.002	0.705
Time*Mandatory	**0.016**	**0.011**	**0.010**	**0.092**
Disclosure	0.008	0.000	0.004	0.000
Size	0.004	0.000	0.004	0.000
Leverage	-0.054	0.000	-0.049	0.000
Age	-0.031	0.000	-0.024	0.000
Asset growth	0.015	0.006	0.022	0.000
Tangibility	-0.007	0.092	-0.012	0.000
Capital expenditure	0.004	0.000	0.003	0.000
Cash to total assets	-0.041	0.002	-0.037	0.001
Asset turnover	0.042	0.000	0.039	0.000
Abnormal accruals	-0.208	0.000	-0.199	0.000
Market-to-book	0.053	0.000	0.049	0.000
Market value	0.000	0.671	0.001	0.076
Offer size	0.000	0.504	0.005	0.075
Global financial crisis	-0.020	0.000	-0.002	0.628
GDP (%)	0.004	0.025	0.004	0.009
Level of enforcement	0.006	0.000	0.005	0.000
Constant	-0.040	0.016	0.092	0.000
Industry fixed effect	Yes		Yes	
Country fixed effect	Yes		Yes	
Year fixed effect	Yes		Yes	
Observations	9,344		19,884	
Adjusted R^2	0.20		0.21	

Note: This table reports the regression results of the effect of increases in disclosure on adoption of IFRS and SEO underperformance. The table shows results separately for subsamples of firms in countries with large increases in disclosure and firms in countries with small increases in disclosure based on the median disclosure score. All variables are defined in Table 3.1.

Table 3.11: Results for increases in comparability

	Large increase in comparability		Small increase in comparability	
Variables	Coefficient	*p*-value	Coefficient	*p*-value
Time	-0.040	0.000	-0.015	0.000
Mandatory	-0.009	0.082	-0.010	0.008
Time*Mandatory	**0.024**	**0.000**	**0.008**	**0.053**
Comparability	0.001	0.034	0.001	0.034
Size	0.004	0.000	0.004	0.000
Leverage	-0.052	0.000	-0.052	0.000
Age	-0.024	0.000	-0.024	0.000
Asset growth	0.015	0.003	0.015	0.003
Tangibility	-0.014	0.000	-0.014	0.000
Capital expenditure	0.004	0.000	0.004	0.000
Cash to total assets	-0.037	0.001	-0.037	0.001
Asset turnover	0.040	0.000	0.040	0.000
Abnormal accruals	-0.193	0.000	-0.193	0.000
Market-to-book	0.055	0.000	0.055	0.000
Market value	0.000	0.451	0.000	0.451
Offer size	0.000	0.030	0.000	0.030
Global financial crisis	-0.010	0.056	-0.010	0.056
GDP (%)	0.005	0.006	0.005	0.006
Level of enforcement	0.003	0.000	0.003	0.000
Constant	-0.035	0.061	-0.005	0.677
Industry fixed effect	Yes		Yes	
Country fixed effect	Yes		Yes	
Year fixed effect	Yes		Yes	
Observations	15,555		13,673	
Adjusted R^2	0.35		0.37	

Note: This table reports the regression results of the effect of increases in comparability on adoption of IFRS and SEO underperformance. The table shows results separately for subsamples of firms in countries with large increases in comparability and firms in countries with small increases in comparability based on the median comparability score. All variables are defined in Table 3.1.

Table 3.12: Results for accounting change

	Large accounting change		Small accounting change	
Variables	Coefficient	*p*-value	Coefficient	*p*-value
Time	-0.016	0.000	-0.012	0.003
Mandatory	-0.009	0.015	-0.003	0.532
Time*Mandatory	**0.010**	**0.018**	**0.004**	**0.401**
Accounting change	0.000	0.136	0.000	0.252
Size	0.002	0.002	0.003	0.002
Leverage	-0.054	0.000	-0.060	0.000
Age	-0.019	0.000	-0.020	0.000
Asset growth	0.021	0.000	0.025	0.000
Tangibility	-0.010	0.000	-0.011	0.000
Capital expenditure	0.006	0.000	0.006	0.000
Cash to total assets	-0.033	0.000	-0.047	0.000
Asset turnover	0.051	0.000	0.051	0.000
Abnormal accruals	-0.221	0.000	-0.200	0.000
Market-to-book	0.052	0.000	0.049	0.000
Market value	0.001	0.001	0.001	0.005
Offer size	0.000	0.137	0.000	0.073
Global financial crisis	-0.008	0.007	-0.013	0.003
GDP (%)	0.000	0.670	0.002	0.140
Level of enforcement	0.001	0.074	0.003	0.001
Constant	0.050	0.000	0.079	0.000
Industry fixed effect	Yes		Yes	
Country fixed effect	Yes		Yes	
Year fixed effect	Yes		Yes	
Observations	9,019		20,209	
Adjusted R^2	0.34		0.37	

Note: This table reports the regression results of the effect of accounting change on adoption of IFRS and SEO underperformance. The table shows results separately for a subsample of firms in countries with large accounting change and firms in countries with small accounting change based on the median score for accounting change. All variables are defined in Table 3.1.

3.6.2 Investigating the role of implementation credibility

In developing the hypotheses, given that adoption of IFRS leads to increased disclosure, and comparability, and to a larger number of accounting changes, it is expected that adoption reduces information asymmetry and, thus, SEO underperformance. However, prior studies argue that the impact of adoption of IFRS is not determined by the quality of the accounting standards alone but is also dependent on how credibly the accounting standards are implemented. The study tests the role of implementation credibility as a channel through which adoption of IFRS reduces SEO underperformance.

Following Hong *et al*. (2014) and Byard *et al*. (2011), the study measures implementation credibility as the rule of law estimate from Kaufmann *et al*. (2007). The rule of law indicates the quality of law and regulatory enforcement in a country. Table 3.13 reports the rule of law values for IFRS adoption countries. The table shows that the rule of law ranges from 2.03 for Denmark to -1.39 for Venezuela. The mean and median value of rule of law is 0.83 (1.04).

Firms are classified into strong and weak implementation credibility based on the sample country median rule of law value of 1.04. Thus, firms in countries with rule of law values equal or greater than 1.04 are labelled as having strong implementation credibility, and firms in countries with rule of law values less than 1.04 are labelled as having weak implementation credibility.

Table 3.13: Country-level implementation credibility score

Strong implementation credibility			Weak implementation credibility	
Country	Score		Country	Score
Australia	1.81		Argentina	-0.58
Austria	1.87		Brazil	-0.48
Belgium	1.45		Greece	0.64
Canada	1.85		Israel	0.69
Chile	1.15		Italy	0.37
Denmark	2.03		Malaysia	0.58
Finland	1.95		Mexico	-0.49
France	1.31		Pakistan	-0.82
Germany	1.77		Peru	-0.75
Hong Kong	1.45		Philippines	-0.48
Ireland-Rep	1.62		Poland	0.25
Netherlands	1.75		Portugal	0.97
New Zealand	1.93		Russian Fed	-0.91
Norway	2.02		South Africa	0.24
Singapore	1.82		South Korea	0.72
Spain	1.10		Taiwan	0.77
Sweden	1.86		Turkey	0.08
United Kingdom	1.73		Venezuela	-1.39
Mean		0.83		
Median		1.04		
Standard deviation		1.01		

Notes: This table reports, for IFRS adoption countries, the descriptive statistics for implementation credibility. The implementation credibility is measured as the rule of law estimate from Kaufmann *et al*. (2007). The table is split between strong and weak implementation credibility based on the country median value. The variables, rule of law, is described in Table 3.1.

The study further partitions each implementation credibility into the accounting differences. For example, for increase in disclosure, the classification would be as follows: (1) strong implementation credibility and large increase in disclosure (2) strong implementation credibility and small increase in disclosure (3) weak implementation credibility and large increase in disclosure (4) weak implementation credibility and small increase in disclosure. This classification is also done for both increases in comparability and accounting change. Equation (3.1) are re-estimated for each of the subsample classifications and the results are reported in Tables 3.14 to 3.16.

3.6.2.1 Results for implementation credibility and increased disclosure

Table 3.14 reports the results for the roles of implementation credibility and increase in disclosure on the relationship between adoption of IFRS and SEO underperformance. The table reports the results separately for strong and weak implementation credibility. For each implementation credibility classification, the table reports separately for large and small increases in disclosure.

The results show that the coefficient on *Time*Mandatory* is positive and significant at 1% level (coefficient = 0.055, $p = 0.002$) for large increases in disclosure under strong implementation credibility but not significant for small increase in disclosure under strong implementation credibility. This suggests that SEO underperformance reduces for firms that experience increases in disclosure following adoption of IFRS and that implement IFRS credibly when reporting financial information.

Using Chow test, analysis of the strong implementation credibility shows that the difference between the coefficient on *Time*Mandatory* for large and small increases in disclosure is positive and significant at the 1% level (difference = 0.016, $p < 0.01$). This difference is economically significant, being 57% of the median value.[22] This suggests that following adoption of IFRS, firms with large increases in disclosure in countries with strong implementation credibility experience a reduction in SEO underperformance of 57%, relative to firms with small increases in disclosure in countries with strong implementation credibility.

For weak implementation credibility, the coefficient on *Time*Mandatory* for large increases in disclosure is negative and significant at the 1% level (coefficient = -0.022, $p = 0.008$) and negative and marginally significant at the 10% level (coefficient = -0.014, $p = 0.082$) for small increases in disclosure. The results suggest that, in general, SEO underperformance increases for firms in countries with weak implementation credibility. The effect is greater for firms in countries that require increases in disclosure but do not implement the accounting standards credibly. This is consistent with the reasoning that firms in countries with weak implementation credibility are likely to exploit the flexibility offered by accounting standards.

For weak implementation credibility, the difference between the coefficient on *Time*Mandatory* for large and small increases in disclosure is negative and significant at the 1% level (difference = -0.008, $p < 0.01$). This difference is economically

[22] 57% = 1.6/-2.80, where 1.6% (5.5 – 3.9 = 1.6) is the difference between the coefficients on *Time*Mandatory* for large and small increases in disclosure under strong implementation credibility in Table 3.14 and -2.80 is the median value of unadjusted asset-scaled net income for IFRS adoption countries in Table 3.4.

significant, being 29% of the median value.[23] This suggests that firms with large increases in disclosure from countries with weak implementation credibility experience worse SEO underperformance of 29%, relative to firms with small increases in disclosure.

3.6.2.2 Results for implementation credibility and increased comparability

Table 3.15 reports results for the roles of implementation credibility and increase in comparability on the effect of adoption of IFRS on SEO underperformance. The table reports results separately for the subsamples of strong implementation credibility and weak implementation credibility. For each implementation credibility classification, the table reports results separately for large and small increases in comparability.

The results show that the coefficient on *Time*Mandatory* is positive but marginally significant at the 10% level (coefficient = 0.014, p = 0.084) for large increases in comparability under strong implementation credibility, but not significant for small increases in comparability under strong implementation credibility. The results for large increases in comparability in strong implementation credibility countries are economically significant, being 50% of the median value.[24] This suggests that SEO underperformance reduces by 50% for firms when adoption of IFRS leads to large increases in the comparability of financial information provided the accounting standards are implemented credibly.

[23] 29% = -0.8/-2.80, where -0.8% (-2.2 + 1.4 = -0.8) is the difference between the coefficients on *Time*Mandatory* for large and small increases in disclosure under weak implementation credibility in Table 3.14 and -2.80 is the median value of unadjusted asset-scaled net income for IFRS adoption countries in Table 3.4.

[24] 50% = 1.4/-2.80, where 1.4% is the coefficient on *Time*Mandatory* for large increases in comparability under strong implementation credibility in Table 3.15 and -2.80 is the median value of unadjusted asset-scaled net income for IFRS adoption countries in Table 3.4.

Using Chow test, analysis of the strong implementation credibility group shows that the difference between the coefficient on *Time*Mandatory* for large and small increases in comparability is positive and significant at the 1% level (difference = 0.005, $p < 0.01$). This difference is economically significant, being 18% of the median value.[25] This suggests that large increases in comparability following adoption of IFRS for firms in countries with strong implementation credibility is associated with a reduction in SEO underperformance of 18%, relative to small increases in comparability for firms in countries with strong implementation credibility.

For weak implementation credibility, the coefficient on *Time*Mandatory* for large increases in comparability is not significant but is positive and marginally significant at the 10% level (coefficient = 0.030, $p = 0.093$) for small increases in comparability. This result suggests that firms experience a marginal reduction in SEO underperformance when adoption of IFRS leads a small increase in comparability in countries with weak implementation credibility.

3.6.2.3 Results for implementation credibility and accounting change

Table 3.16 reports results for the role of implementation credibility and the number of accounting changes on the relationship between adoption of IFRS and SEO underperformance. The table reports results separately for subsamples of strong and weak implementation credibility. For each implementation classification, the table reports results separately for large and small accounting change.

[25] 18% = 0.5/-2.80, where 0.5% (1.4 – 0.9 = 0.5) is the difference between the coefficients on *Time*Mandatory* for large and small increases in comparability under strong implementation credibility in Table 3.15 and -2.80 is the median value of unadjusted asset-scaled net income for IFRS adoption countries in Table 3.4.

The results show that the coefficient on *Time*Mandatory* is positive but marginally significant at the 10% level (coefficient = 0.032, p = 0.086) for large accounting change under strong implementation credibility, but not significant for small accounting change under strong implementation credibility. The results suggest that SEO underperformance reduces only when adoption of IFRS results in large accounting change, and for firms in countries with strong implementation credibility. The results for weak implementation credibility for both large and small accounting change are not significant.

Analysis of the strong implementation credibility shows that the difference between the coefficient on *Time*Mandatory* for large and small accounting change is positive and significant at the 1% level (difference = 0.019, $p < 0.01$). This difference is economically significant, being 68% of the median value.[26] This suggests that large accounting change following adoption of IFRS for firms in countries with strong implementation credibility is associated with a reduction in SEO underperformance by 68%, relative to small accounting change for firms in countries with strong implementation credibility.

For weak implementation credibility, the coefficient on *Time*Mandatory* for both large and small accounting change is positive but not significant

[26] 68% = 1.9/-2.80, where 1.9% (3.2 – 1.3 = 1.9) is the difference between the coefficients on *Time*Mandatory* for large and small accounting changes under strong implementation credibility in Table 3.16 and -2.80 is the median value of unadjusted asset-scaled net income for IFRS adoption countries in Table 3.4.

Table 3.14: Results for implementation credibility and increase in disclosure

	Strong implementation credibility				Weak implementation credibility			
	Large incr. in discl.		Small incr. in discl.		Large incr. in discl.		Small incr. in discl.	
Variables	Coeff	*p*-value	Coeff	*p*-value	Coeff	*p*-value	Coeff	*p*-value
Time	0.068	0.000	0.024	0.446	0.019	0.000	0.015	0.002
Mandatory	0.032	0.082	0.031	0.312	0.008	0.337	0.008	0.371
Time*Mandatory	**0.055**	**0.002**	**0.039**	**0.228**	**-0.022**	**0.008**	**-0.014**	**0.082**
Additional disclosure	0.002	0.117	0.001	0.144	-0.003	0.000	-0.004	0.000
Size	0.009	0.000	0.002	0.063	0.001	0.275	0.001	0.271
Leverage	-0.043	0.008	-0.057	0.000	-0.041	0.000	-0.041	0.000
Age	-0.024	0.004	-0.020	0.000	-0.029	0.000	-0.028	0.000
Asset growth	0.009	0.371	0.022	0.002	0.020	0.003	0.020	0.003
Tangibility	-0.010	0.196	-0.011	0.005	-0.013	0.004	-0.013	0.003
Capital expenditure	0.001	0.746	0.005	0.000	0.005	0.000	0.005	0.000
Cash to total assets	-0.006	0.802	-0.031	0.041	-0.008	0.594	-0.007	0.633
Asset turnover	0.038	0.000	0.045	0.000	0.037	0.000	0.037	0.000
Abnormal accruals	-0.188	0.000	-0.217	0.000	-0.174	0.000	-0.173	0.000
Market-to-book	0.048	0.000	0.049	0.000	0.061	0.000	0.061	0.000
Market value	0.000	0.838	0.000	0.799	0.003	0.000	0.003	0.000
Offer size	0.000	0.396	0.000	0.026	0.000	0.150	0.000	0.057
Global financial crisis	-0.036	0.000	-0.020	0.000	-0.017	0.004	-0.017	0.004
GDP (%)	0.002	0.523	0.003	0.176	0.010	0.000	0.010	0.000
Level of enforcement	0.003	0.286	0.001	0.306	-0.005	0.000	-0.002	0.004
Rule of law	0.009	0.725	0.000	0.879	0.010	0.000	0.047	0.042
Constant	-0.032	0.392	0.044	0.186	0.082	0.000	0.074	0.000
Industry fixed effect	Yes		Yes		Yes		Yes	
Country fixed effect	Yes		Yes		Yes		Yes	
Year fixed effect	Yes		Yes		Yes		Yes	
Observations	1,544		13,114		6,318		8,252	
Adjusted R^2	0.39		0.42		0.36		0.40	

Note: This table reports the regression results of the effect of implementation credibility and increases in disclosure in explaining the impact of adoption of IFRS on SEO underperformance. The table shows results separately for a subsample of firms in countries with strong implementation credibility and weak implementation credibility. For each implementation credibility subsample, the table reports result separately for large increase in disclosure and small increase in disclosure. The subsamples are created based on the median score for implementation credibility and increase in disclosure. All variables are defined in Table 3.1.

Table 3.15: Results for implementation credibility and increase in comparability

	Strong implementation credibility				Weak implementation credibility			
	Large incr in comp.		Small incr. in comp.		Large incr in comp.		Small incr. in comp.	
Variables	Coeff	*p*-value	Coeff	*p*-value	Coeff	*p*-value	Coeff	*p*-value
Time	-0.016	0.000	-0.017	0.050	-0.014	0.001	-0.038	0.037
Mandatory	-0.010	0.018	-0.008	0.523	0.005	0.488	-0.025	0.146
Time*Mandatory	**0.014**	**0.084**	**0.009**	**0.231**	**0.001**	**0.885**	**0.030**	**0.093**
Comparability	0.002	0.001	-0.001	0.226	-0.001	0.194	-0.001	0.144
Size	0.001	0.300	0.004	0.002	-0.001	0.550	0.003	0.000
Leverage	-0.052	0.000	-0.059	0.000	-0.039	0.000	-0.062	0.000
Age	-0.017	0.000	-0.013	0.003	-0.017	0.000	-0.025	0.000
Asset growth	0.023	0.000	0.018	0.005	0.025	0.001	0.023	0.000
Tangibility	-0.012	0.000	-0.013	0.010	-0.010	0.014	-0.006	0.022
Capital expenditure	0.007	0.000	0.006	0.000	0.007	0.000	0.006	0.000
Cash to total assets	-0.027	0.004	-0.040	0.004	-0.004	0.798	-0.054	0.000
Asset turnover	0.048	0.000	0.056	0.000	0.048	0.000	0.053	0.000
Abnormal accruals	-0.210	0.000	-0.218	0.000	-0.206	0.000	-0.220	0.000
Market-to-book	0.056	0.000	0.049	0.000	0.063	0.000	0.044	0.000
Market value	0.001	0.133	0.000	0.684	0.001	0.182	0.002	0.000
Offer size	0.000	0.160	0.000	0.584	0.000	0.416	0.000	0.000
Global financial crisis	-0.013	0.003	-0.011	0.214	-0.008	0.201	-0.010	0.010
GDP (%)	0.001	0.409	0.003	0.150	0.006	0.001	0.001	0.611
Level of enforcement	0.002	0.013	0.002	0.218	-0.002	0.445	-0.001	0.166
Rule of law	0.004	0.055	0.045	0.025	-0.003	0.087	-0.038	0.001
Constant	0.036	0.001	0.151	0.001	0.081	0.003	0.170	0.000
Industry fixed effect	Yes		Yes		Yes		Yes	
Country fixed effect	Yes		Yes		Yes		Yes	
Year fixed effect	Yes		Yes		Yes		Yes	
Observations	10,788		3,839		4,696		9,834	
Adjusted R^2	0.37		0.40		0.33		0.36	

Note: This table reports the regression results of the effect of implementation credibility and increases in comparability in explaining the impact of adoption of IFRS on SEO underperformance. The table shows results separately for a subsample of firms in countries with strong implementation credibility and weak implementation credibility. For each implementation credibility subsample, the table reports result separately for large increases in comparability and small increases in comparability. The subsamples are created based on the median scores for increases in implementation credibility and increase in comparability. All variables are defined in Table 3.1.

Table 3.16: Results for implementation credibility and accounting change

	Strong implementation credibility				Weak implementation credibility			
	Large acc. change		Small acc. change		Large acc. change		Small acc. change	
Variables	Coeff	*p*-value	Coeff	*p*-value	Coeff	*p*-value	Coeff	*p*-value
Time	-0.038	0.037	-0.022	0.014	-0.016	0.000	-0.015	0.001
Mandatory	-0.027	0.136	-0.010	0.267	0.011	0.129	-0.010	0.017
Time*Mandatory	**0.032**	**0.086**	**0.013**	**0.167**	**0.002**	**0.795**	**0.005**	**0.279**
Accounting change	0.001	0.102	0.001	0.150	0.001	0.016	0.000	0.539
Size	0.006	0.000	0.003	0.000	-0.001	0.419	0.001	0.203
Leverage	-0.076	0.000	-0.052	0.000	-0.037	0.000	-0.053	0.000
Age	-0.024	0.000	-0.022	0.000	-0.016	0.000	-0.017	0.000
Asset growth	0.026	0.000	0.020	0.000	0.024	0.001	0.023	0.000
Tangibility	-0.010	0.029	-0.003	0.355	-0.008	0.032	-0.008	0.003
Capital expenditure	0.005	0.000	0.006	0.000	0.007	0.000	0.007	0.000
Cash to total assets	-0.082	0.000	-0.044	0.000	-0.009	0.522	-0.031	0.002
Asset turnover	0.056	0.000	0.052	0.000	0.045	0.000	0.049	0.000
Abnormal accruals	-0.195	0.000	-0.232	0.000	-0.209	0.000	-0.211	0.000
Market-to-book	0.035	0.000	0.051	0.000	0.066	0.000	0.055	0.000
Market value	0.001	0.084	0.002	0.000	0.001	0.081	0.001	0.273
Offer size	0.000	0.198	0.000	0.000	0.000	0.303	0.000	0.253
Global financial crisis	-0.019	0.012	-0.004	0.279	-0.009	0.117	-0.013	0.006
GDP (%)	0.001	0.739	0.001	0.518	0.007	0.000	0.001	0.427
Level of enforcement	0.003	0.053	0.004	0.012	0.001	0.572	0.000	0.645
Rule of law	0.044	0.002	0.029	0.023	0.002	0.287	0.004	0.087
Constant	0.181	0.000	0.148	0.000	0.076	0.000	0.054	0.000
Industry fixed effect	Yes		Yes		Yes		Yes	
Country fixed effect	Yes		Yes		Yes		Yes	
Year fixed effect	Yes		Yes		Yes		Yes	
Observations	3,886		10,741		5,062		9,468	
Adjusted R^2	0.37		0.37		0.32		0.36	

Note: This table reports the regression results of the role of implementation credibility and the number of accounting changes in explaining the impact of adoption of IFRS on SEO underperformance. The table shows results separately for a subsample of firms in countries with strong implementation credibility and weak implementation credibility. For each implementation credibility subsample, the table reports result separately for large accounting change and small accounting change. The subsamples are created based on the median score for implementation credibility and accounting change. All variables are defined in Table 3.1.

3.7 Robustness

To test the robustness of the results reported above the study also tests Hypothesis 1 by use of alternative research design and application of different measures of SEO underperformance. The variation in research design is in the selection of the control sample using propensity score matching (PSM). In this PSM approach, the treatment firms (firms in IFRS adoption countries) are matched with the control firms (firms in non-IFRS adoption countries) on firm size, performance, and leverage. It is required that both treatment and control firms be in the same industry and year. A matching with replacement is used to reduce the differences that may exist between the matched sample and the treatment sample after the matching. The study then re-estimates Equation (3.1) using the unadjusted asset-scaled net income measure of SEO underperformance, and report the results in Column 1 of Table 3.17. The second alternative measure of SEO underperformance is the difference in asset-scaled net income defined as the asset-scaled net income of the treatment sample (firms in IFRS adoption countries) minus the asset-scaled net income, of matched sample (firms in non-IFRS adoption countries). That is

$$\left(\frac{Net\ income_{it}}{Total\ assets_{it-1}} - \frac{Net\ income_{mt}}{Total\ assets_{mt-1}}\right),$$

where *i* is firm in IFRS adoption country and *m* is firm in a matched non-IFRS adoption country. The results of re-estimation of Equation (3.1) using this measure are reported in Column 2 of Table 3.17.

The theoretical underpinning for the matching on firm-level variables is limited, because the treatment sample firms are from IFRS adoption countries, and the control sample firms are from non-IFRS adoption countries. Therefore, it could be argued that the matching should be on country-level variables. To test the sensitivity of the results

to this assumption, this study also applied the Teoh *et al*. (1998) approach of matching issuers and non-issuers on firm size, performance, and leverage. The matched non-SEO issuer is required to be in the same industry and has the closest asset-scaled net income to the issuer in the pre-offering year. The measure of SEO underperformance applied is the year-to-year change in the assets-scaled net income of SEO issuers, minus that of matched non-SEO issuers and is computed as

$$\left(\frac{Net\ income\ _{it}}{Total\ assets_{it-1}} - \frac{Net\ income_{it-1}}{Total\ assets_{it-2}}\right) - \left(\frac{Net\ income\ _{mt}}{Total\ assets_{mt-1}} - \frac{Net\ income_{mt-1}}{Total\ assets_{mt-2}}\right)$$

where *i* is SEO issuing firm and *m* is non-SEO issuing firm.

This measure addresses two issues. First, it addresses the problems in the first two measures, because issuers are matched to non-issuers based on firm-level factors. Second, as recommended by Barber and Lyon (1997), the third measure removes normal mean reversion in net income.

The results of re-estimation of Equation (3.1) using this approach are reported in Column 3 of Table 3.17. The results show that the coefficient on *Time*Mandatory* (coefficient = 0.003, $p = 0.009$) in Column 1 is positive and significant at less than 1% level. This indicates a reduction in SEO underperformance after adoption of IFRS and is economically significant, being 10% of the median value.[27] The coefficients on *Time*Mandatory* in Column 2 and *Issuer*Mandatory* in Column 3 are not significant. This is because the measures of SEO underperformance in Columns 2 and 3 are conservative. They require a greater dip in the post-SEO performance of firms in IFRS adoption countries in Column 2, or the post-SEO performance of issuers

[27] 10% = 0.3/-2.98, where 0.3% is the coefficient of *Time*Mandatory* in Column 1 of Table 3.17 and -2.98 is the median value of unadjusted asset-scaled net income for IFRS adoption countries.

Table 3.17: Results of PSM of IFRS adoption and non-IFRS adoption countries and issuers and non-issuers

	Column 1		Column 2		Column 3	
Variables	Coeff	*p*-value	Coeff	*p*-value	Coeff	*p*-value
Time	-0.009	0.001	0.006	0.202		
Mandatory	-0.002	0.051	0.004	0.489	0.004	0.063
Time*Mandatory	0.003	0.009	-0.006	0.273		
Issuer					-0.007	0.008
Issuer*Mandatory					0.003	0.347
Size	0.005	0.000	0.003	0.000	0.004	0.000
Leverage	-0.005	0.321	-0.020	0.009	0.003	0.670
Age	-0.015	0.000	-0.010	0.000	-0.009	0.000
Asset growth	0.097	0.000	0.037	0.000	0.092	0.000
Tangibility	-0.002	0.352	0.000	0.918	-0.002	0.403
Capital expenditure	0.003	0.000	0.001	0.329	0.004	0.000
Cash to total assets	-0.062	0.000	-0.044	0.000	-0.044	0.000
Asset turnover	0.061	0.000	0.021	0.000	0.059	0.000
Abnormal accruals	-0.317	0.000	-0.126	0.000	-0.295	0.000
Market-to-book	0.140	0.000	0.039	0.000	0.143	0.000
Market value	0.001	0.000	0.000	0.776	0.002	0.000
Offer size	0.003	0.000	0.002	0.890	0.003	0.037
GFC	-0.010	0.000	-0.004	0.315	-0.013	0.001
GDP (%)	0.001	0.490	0.000	0.798	0.001	0.327
Level of enforcement	0.001	0.009	0.001	0.561	0.001	0.467
Constant	0.068	0.000	0.012	0.481	-0.005	0.719
Industry fixed effect	Yes		Yes		Yes	
Country fixed effect	Yes		Yes		Yes	
Year fixed effect	Yes		Yes		Yes	
Observations	9,444		9,444		29,460	
Adjusted R^2	0.40		0.13		0.20	

Note: This table reports the regression results of the impact of adoption of IFRS on SEO underperformance using PSM of IFRS adoption countries and non-IFRS adoption countries and for SEO issuing firms and non-SEO issuing firms. Column 1 reports the PSM of IFRS adoption countries and non-IFRS adoption countries. Column 2 reports the PSM of the difference in the asset-scaled net income for firms in IFRS adoption countries and the asset-scaled net income of matched firms in non-IFRS adoption countries. Column 3 reports on the year-to-year change in asset-scaled net income of issuers and their matched asset-scaled net income of non-issuers. All variables are defined in Table 3.1.

in Column 3 in order to record an underperformance. Similarly, for Column 3, by subtracting the prior years' changes in asset-scaled net income, net income performance is underestimated in post-SEO years.

3.8 Conclusion

This study uses a difference-in-difference design and employs non-IFRS adoption countries as the benchmark sample to explore whether (i) adoption of IFRS has an impact on SEO underperformance; and (ii) the level of enforcement reinforces the effect of adoption of IFRS to produce a change in SEO underperformance.

First, the study shows that adoption of IFRS leads to a statistically and economically significant reduction in SEO underperformance. The study further tests the mechanisms through which adoption of IFRS impacts on SEO underperformance. The study documents increased disclosure, increased comparability, and the number of accounting changes as channels through which adoption of IFRS impacts on SEO underperformance. The study finds that adoption of IFRS that results in a large increase in financial reporting disclosure is associated with a relatively greater decline in SEO underperformance. A similar result is found for adoption of IFRS that results in an increase in comparability. For the effect of accounting change on the relationship between adoption of IFRS and SEO underperformance, the study finds significant impact on SEO underperformance only when adoption of IFRS results in large accounting changes. These findings suggest that increases in disclosure, increases in comparability, and large accounting changes resulting from adoption of IFRS, improve the quality and transparency in financial reporting and reduce information asymmetry among participants in SEO transactions. The reduction in SEO underperformance is economically significant ranging from 8% to 86%.

Second, the study finds that SEO underperformance reduces for firms only in countries with strong enforcement and, in particular, when accounting standards are

implemented credibly. The study also finds that when the level of enforcement and implementation credibility are accounted for, the reduction in SEO underperformance is economically significant ranging from 10% to 68%.

The findings of this study are statistically robust to the application of different measures of SEO underperformance but vary in economic terms.

CHAPTER FOUR

CONCLUSION TO THE THESIS

4.1 Introduction

This thesis examines the capital market effects of adoption of IFRS. Specifically, the thesis first uses a meta-analysis to determine whether adoption of IFRS has an impact on financial reporting comparability, market liquidity, and cost of capital. Second, it uses a cross-country sample of IFRS adoption countries with a control sample of non-IFRS adoption countries and employs a difference-in-difference design to investigate whether adoption of IFRS has an impact on SEO underperformance.

This final chapter of the thesis proceeds as follows. Section 4.2 provides a summary of the research findings. Section 4.3 discusses the contributions of the study and Section 4.4 outlines the limitations of the study. Section 4.5 concludes the chapter with directions for future research.

4.2 Summary of research findings

4.2.1 Chapter two research question

In chapter two, the study answers the research question, "*What is the impact of adoption of IFRS on financial reporting comparability, market liquidity, and cost of capital?*"

The study uses meta-analysis to address this research question and further employ a meta-regression to test the impact of the factors that cause inconsistencies in empirical

studies. The study observed a high concentration on cross-country samples and equity market research among the empirical studies on adoption of IFRS. The results from analysing 55 empirical studies with 1,259 effect sizes show that, overall, adoption of IFRS is associated with an increase in financial reporting comparability and market liquidity, and a decrease in the cost of equity. Reduction in the cost of debt is observed for voluntary adoption but not mandatory adoption.

The study finds that the mixed results in empirical studies are potentially due to the mode of adoption, differences in choice of measurements, control variables, the estimation methods, and various factors affecting the strength of the results. In particular, the study finds that multiplicity in the measures of financial reporting comparability and market liquidity causes inconsistencies in the empirical results.

4.2.2 Chapter three: research question one

In chapter three, the research question the study answers is, "*Does adoption of IFRS impact SEO underperformance?*"

The study examines 51 countries including 42 IFRS adoption countries and 9 non-IFRS adoption countries and finds that adoption of IFRS is associated with a reduction in SEO underperformance. The results are both statistically and economically significant. The study also documents that increase in disclosure, increase in comparability, and accounting change play a significant role in the relationship between adoption of IFRS and SEO underperformance. The effect of increased disclosure, increased comparability, and accounting change is strongest when the increase is large. The results are consistent with Hypothesis one and confirm that

adoption of IFRS improves financial reporting quality and transparency which reduces information asymmetry and uncertainties surrounding SEOs.

4.2.3 Chapter three: research question two

The second question the study answers in chapter three is, "*Does the level of enforcement in a country reinforces the impact of adoption of IFRS on SEO underperformance?*"

The results show that SEO underperformance only reduces for firms in countries with strong enforcement. The study further tests the effect of implementation credibility on the relationship between adoption of IFRS and SEO underperformance. The result shows that SEO underperformance reduces for firms from countries with strong implementation credibility. The effect is particularly strongest when firms experience large increase in disclosure, large in comparability, and large accounting change. The results are both statistically and economically significant and are consistent with prior studies investigating the capital market effects of adoption of IFRS (Byard *et al*., 2011; DeFond *et al*., 2015; Hong *et al*., 2014; Li, 2010)

4.3 Contribution and implication of the thesis

The thesis makes contributions in several respects. First, it complements the narrative reviews in ICAEW (2014) and De George *et al.* (2016) on the effects of IFRS adoption. These reviews cover broad areas such as transparency, cost of capital, cross-border investment, and comparability of financial reports and this study is the first to use meta-analysis to examine the impact of adoption of IFRS on financial reporting comparability, market liquidity, and the cost of capital.

Second, the thesis provides an additional application of the meta-analysis methodology by exploring the factors that influence the effects of adopting IFRS. The factors should be of interest to regulators and policymakers as they assess the impacts of adoption of IFRS.

Third, the thesis provides cross country evidence on SEO underperformance which, thus far, have been on the US market predominantly with a few studies on the UK, France and Canada. Considering the level of globalisation, the internationalisation of firms, the participation of investors in equity issues across multiple countries, and the global acceptance of IFRS, research on single countries provides limited evidence on the dynamics of SEO transaction. The use of a cross-country setting in this thesis offers a large sample to test the impact of adoption of IFRS on SEO underperformance. The results offer encouragement for firms to increase disclosure of financial information and, where feasible, consider issuing the SEO in countries that enforce standards and implement the standards credibly.

Overall, the study contributes to the general literature and debates on the capital market consequences of adopting IFRS.

4.4 Limitations of the study

The limitations of this study steam from three sources. First, the use of meta-analysis is subject to criticism for combining apples and oranges as it combines results from different empirical studies which use different measurements and research design and test different hypotheses. This limitation is mitigated by focussing on just three effects of adoption of IFRS: comparability, market liquidity, and cost of capital and

considering these separately. This research also uses random effects rather than fixed effect and includes controls for factors that may cause the empirical studies to differ. A second limitation of meta-analysis is that it combines results from studies that differ in quality, as indicated by the quality of the journals in which the studies were published. However, excluding some studies, because they were published in lower ranked journals, increases the 'file drawer' problem, detracts from the objectivity of meta-analysis, and adds to difficulties in replication.

Lastly, the research on SEO underperformance relies largely on a financial statement measure of underperformance though this is a common limitation for large sample cross country studies. A market measure would be difficult to estimate. This is because in estimating underperformance for a cross-country sample using market adjusted return, it is mostly difficult to obtain market indices that are consistent across countries and reflect market performance.

4.5 Future research

The empirical studies analysed in the meta-analysis principally focus on the years prior to 2010. Only few of the studies used more recent data sets on adoption of IFRS. The majority of the studies in the sample may, therefore, have reached conclusions on the impact of adoption of IFRS that may not reflect recent changes to some of the accounting standards. Additional studies on recent evidence on adoption of IFRS are therefore needed as a number of the standards have gone through significant revision and new standards have also been introduced.

It is noted that a high proportion of the sample studies examined multiple countries, addressed cost of equity and focused on relatively short sample periods. Future research should provide additional evidence on single countries to enable decisions to be made based on the evidence unique to a particular country setting. Furthermore, given the importance of the cost of debt, further study on the impact of IFRS on cost of debt is warranted. Future research can investigate the role of corporate governance and audit quality in IFRS implementation.

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