

CAPITAL MARKET REACTIONS TO IFRS IN THE UNITED STATES: EVIDENCE FROM FOREIGN
PRIVATE ISSUERS

by

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Abstract

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The rise of International Financial Reporting Standards (IFRS) as a contender to be the single globally-accepted set of accounting standards has been accompanied by a wealth of research studying the consequences of IFRS adoption. However, prior research does little to address the potential effects of and market sentiment toward the use of IFRS rather than U.S. GAAP in the United States. This study fills this gap by examining the accounting standard choices of foreign private issuers in the United States. In addition to identifying the factors that are associated with a firm's accounting standard choice in the U.S., this study addresses the capital market reaction to this choice by comparing the value relevance of U.S. GAAP and IFRS financial statements and the trading volume reaction surrounding earnings announcements. Several firm characteristics prove to be significantly related to firms' accounting standard choices in the United States, supporting the idea that firms choosing IFRS or U.S. GAAP are making this decision based on relative costs and benefits. Larger firms that are listed on more exchanges are more likely to use IFRS. Firms are also more likely to use IFRS in the United States when they are required to use IFRS in their country of incorporation. Several other factors are related to accounting standard choice to a lesser extent. Results suggest that the different accounting standards used by these firms is associated with the market reaction to their accounting information. While book value and operating cash flows appear to be more value relevant under U.S. GAAP, earnings are more value relevant under IFRS. Additionally, IFRS financial statements appear to be more value relevant as a whole for foreign private issuers. However, additional tests suggest that these differences in value relevance may be driven by firm characteristics other than accounting standard choice. A firm's

accounting standards are also related to the market reaction surrounding the earnings announcement, with firms using IFRS experiencing less abnormal trading volume. Once again, the possibility that these differences in trading volume could be related to other firm characteristics cannot be ruled out. Taken together, the results suggest that IFRS may be just as useful as U.S. GAAP to investors in the United States, if not more so, for foreign private issuers.

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Chapter 1 Introduction

This study compares the characteristics of foreign private issuers that use International Financial Reporting Standards (IFRS) to meet filing requirements in the United States to those that use U.S. Generally Accepted Accounting Principles (GAAP). After identifying the characteristics associated with a firm's accounting standard choice, this study attempts to determine if this choice has any effect on the value relevance of financial statements provided to U.S. capital market participants or the trading volume reaction that surrounds the release of these statements.

1.1 Overview of the Study

This study will address three primary research questions. The first question to be empirically examined is aimed at determining firm characteristics that are related to a foreign private issuer's choice between IFRS and U.S. GAAP in the United States. Firm characteristics are chosen to proxy for potential costs and benefits associated with the use of IFRS or U.S. GAAP. After identifying potential reasons for a firm's accounting standard choice, the second question will determine if this accounting standard choice leads to differences in the value relevance of financial statements. Specifically, this study will answer whether a firm's net income, book value of equity, and operating cash flows are incorporated into stock prices differently depending on the accounting standards used to prepare the financial statements. After determining if there is a difference in the level to which this information gets incorporated into stock prices, the third research question will examine the process through which the information gets incorporated. In particular, this study will examine the abnormal trading volume surrounding the filing of a foreign private issuer's financial statements with the SEC to determine if the market reacts differently to information prepared in accordance with IFRS as opposed to that prepared in accordance with U.S. GAAP.

Academic research investigating the effects of International Financial Reporting Standards (IFRS) adoption has increased drastically in recent years. At the same time, questions regarding the future of IFRS in the United States have also increased. Despite the concurrent growth in each of these, current academic research provides very little evidence pertaining to the possible consequences of IFRS adoption in the United States. Ever-changing opinions and outlooks on IFRS adoption in the United

States create a constant need for research to aid in reaching a final decision. This study will attempt to fill this need by examining various aspects of IFRS adoption in a more relevant sample than those used by prior studies. The purpose of this research paper is to examine the usefulness of financial statements prepared in accordance with IFRS to U.S. investors by using a sample of foreign private issuers registered with the Securities and Exchange Commission (SEC). The level of usefulness will be assessed by comparing the value relevance of financial information and the trading volume surrounding the release of form 20-F filings of firms using U.S. GAAP and firms using IFRS. In addition, this paper will begin by identifying firm-characteristics that are associated with a firm's decision to file IFRS or U.S. GAAP financial statements in the United States. This in itself can provide useful insights into investor and firm perceptions regarding the use of IFRS in the United States and potentially hint at accounting quality and capital market outcomes of adoption.

The history of IFRS in the United States stretches at least 40 years; however, the commitment of the SEC to adopt or converge with IFRS has not been constant over this time. As more and more companies begin multinational operations and the marketplace becomes increasingly more global, many users and developers of financial statements are finding a need for internationally comparable financial statements. The first interest in international accounting began in the 1950's and 60's as a result of economic integration and international capital flows occurring after World War II (FASB 2012). In 1973, the International Accounting Standards Committee (IASC, superseded by IASB) was established by nine countries (including the U.S.) with the mission to formulate and publish basic accounting standards in the public interest and to promote the worldwide acceptance of these standards (FASB 2012). By 1988, interest in a global set of accounting standards was growing and even the FASB chairman expressed support for international standards that would gradually replace national standards. In the 1990's, the focus on "harmonizing" accounting standards worldwide changed to a focus on convergence (FASB 2012). As of 2009, over 100 countries, including the European Union, have adopted IFRS or a variant (FASB 2012). Despite the rapid growth and acceptance of international standards, the SEC remains reluctant to set a definite date for convergence of U.S. GAAP or even confirm whether or not the U.S. standards will eventually converge with IFRS.

The United States and FASB have been key players in the creation of international standards from the time the IASC was formed in 1973. In 2002, FASB and IASB formalized their intent to converge U.S. GAAP and IFRS in the Norwalk Agreement (FASB 2012). This has led to numerous joint projects to improve and converge various standards. In 2008, the SEC issued a proposed roadmap for convergence with a goal of having a final decision by 2011 and use of IFRS by U.S. issuers beginning in 2014 (FASB 2012). With the 2011 deadline for a decision in the past, the SEC recently issued a new staff report for convergence in July 2012. The most recent plans of the SEC neglect to establish a timeline for convergence or a final decision.

In a step towards convergence, the SEC announced that it would begin accepting financial statements from foreign private issuers prepared using IFRS without a reconciliation to U.S. GAAP for financial statements ending after November 15, 2007 (SEC). The term "foreign private issuer" refers to any non-US issuer other than a foreign government, unless it meets the following criteria:

- 1) More than 50% of the issuer's outstanding voting securities are held by US residents and any of the following
- 2) (i) the majority of the executives or directors are US residents or citizens (ii) more than 50% of the issuer's assets are located in the US (iii) the business is principally administered in the United States (Exchange Act Rule 3b-4(c)).

Recently, the future has appeared dim for IFRS in the U.S.; however, with a change in regime at the Securities and Exchange Commission, the potential use of IFRS in the United States, in at least a minor capacity, once again seems possible. In December 2014, Jim Schnurr, the Chief Accountant of the SEC, suggested allowing U.S. companies to provide supplementary financial information in accordance with IFRS. With the announcement, the SEC also expressed an interest in reaching a final decision regarding IFRS in the U.S.; however, questions about the impact of IFRS on U.S. capital markets still exist. Following the announcement, SEC commissioner Daniel Gallagher stated that this approach to IFRS introduction in the U.S. would allow the SEC to "see if people want it." This statement demonstrates that whether or not U.S. investors want financial information compliant with IFRS is an important question for the SEC to answer before they make a decision. However, the opportunity to determine if U.S. investors want or value IFRS information is already present in the U.S. capital markets. Foreign private

issuers currently have the choice to use local GAAP, IFRS, or U.S. GAAP when filing their Form 20-F with the SEC. Since 2007, filers who choose IFRS have been able to do so without providing a reconciliation to U.S. GAAP. Examining this sample that is already present can address many of the issues facing the SEC without any further action in the practical environment.

In discussions following the suggestion of voluntary IFRS usage in the United States, several key points have been raised that this development might address. One issue the SEC hopes to address with the allowance of voluntary supplemental IFRS information is whether or not U.S. investors want IFRS financial information—essentially whether or not it is useful to U.S. investors. Again, this question can be addressed by examining the sample of foreign private issuers that already exists without additional practical application of IFRS. Many researchers have attempted to answer the question of whether or not IFRS financial information is useful to investors by studying the value relevance of the financial statements. However, drawing conclusions about the value relevance of IFRS in the United States from prior research is difficult given the samples that have been used and the confounding factors that exist. This study addresses this issue by comparing the value relevance of IFRS and U.S. GAAP strictly in the U.S. capital markets.

This study will also build on the prior literature available to more fully answer the question of how useful IFRS information is to U.S. investors by using both a long-window and short-window approach. While the examination of value relevance is an association study with a long-term focus, the examination of trading volume, as well as value relevance, provides an event study analysis with a short-window focus. The bulk of prior literature has focused on value relevance; however, value relevance alone cannot answer the question. Value relevance only provides information on an end result—whether or not the information in the financial statements is incorporated into stock prices; however, it does not examine the process of how this information gets incorporated. While the information may be impounded into stock prices eventually (for example, three or six months after fiscal year end), the time and effort it takes to incorporate this information can differ. Comparing the trading volume of firms using IFRS to those using U.S. GAAP can provide information on the process through which the information gets incorporated into stock price and more fully answer the question of how useful the information is to investors. In addition to examining trading volume, this study will also examine price reactions as an additional short-

window analysis. As explained in later sections, price analysis can provide information on aggregate market opinions, while trading volume analysis can speak to individual investor reactions.

The characteristics associated with a firm's decision to use IFRS or U.S. GAAP in the United States are examined by conducting a probit regression of an indicator variable equal to one if a firm uses IFRS and zero if a firm uses U.S. GAAP on multiple proxies designed to capture potential costs and benefits of using IFRS in the United States. This can provide insights regarding which costs or benefits are most likely to motivate firms when they are choosing accounting standards. The second part of the study will primarily use the Ohlson (1995) model to examine value relevance; however, in addition to examining the value relevance of net income and book value of equity, this study will also include a variable to examine the value relevance of operating cash flows. Additionally, the model includes a variable to indicate whether a firm uses IFRS or U.S. GAAP. This variable is then interacted with each of the accounting variables to determine whether the value relevance of the accounting information differs depending on the accounting standards used. Because firms choose whether to use IFRS or U.S. GAAP in the United States, a difference-in-difference model is used to control for the selection bias that may be present. In addition to examining the coefficients, a separate analysis is conducted to examine the incremental explanatory power of earnings and book value. This methodology follows Collins et al. (1997) who decompose the Ohlson (1995) model into three equations. The relationship between the R^2 's of these three equations is then used to determine the incremental explanatory power that is specific to earnings and book value. In addition to conducting the analysis described above on the total sample period, it is also conducted on a yearly basis to determine if the value relevance of IFRS and U.S. GAAP accounting information has become more aligned as the standards have converged and U.S. investors have become more familiar with IFRS. The final analysis of this study will examine trading volume as a measure of information content. Specifically, the abnormal trading volume surrounding a firm's earnings announcement is regressed on a variable to indicate whether the firm uses IFRS or U.S. GAAP, as well as a number of controls. The coefficient on the indicator variable will show if financial statements prepared in accordance with IFRS leads to more or less trading volume surrounding the release of a firm's Form 20-F. While the value relevance study examines the relationship between accounting information and stock price to determine if the information is incorporated into the price, the trading

volume analysis provides information regarding the process through which the accounting information gets incorporated.

Tests of the relationship between various firm characteristics and accounting standard choice reveal that multiple firm characteristics are related to whether a firm uses IFRS or U.S. GAAP in a way that suggests firms are weighing the costs and benefits of each. Larger firms that are listed on more stock exchanges are more likely to use IFRS in the United States. This may be a decision to reduce reporting costs when listing on multiple exchanges. Firms are also more likely to use IFRS in the United States when they are required to use IFRS in their country of incorporation. This is another indicator that firms are choosing accounting standards to reduce the reporting burden. Additionally, firms are more likely to use IFRS after 2007 when the SEC eliminated the requirement that companies must provide a reconciliation to U.S. GAAP when using IFRS. Essentially, this suggests that firms began using IFRS in the United States once it became less of a reporting burden. Although the results are only weakly significant, the fact that firms that have been listed in the U.S. longer are more likely to use U.S. GAAP also indicates that these companies are concerned with reducing reporting costs, as it may be more costly to switch to IFRS than to continue using U.S. GAAP. Although the majority of characteristics associated with a firm's accounting standard choice in the U.S. seem to be related to reducing the effort necessary for reporting, there is also slight evidence that firms are also driven by the desire to attract U.S. investors. Results indicate that firms are more likely to use U.S. GAAP if the U.S. is their primary exchange, meaning they are more reliant on U.S. investors for equity financing. However, these results are only minimally significant.

In addition to firms that use IFRS differing from firms that use U.S. GAAP, the market reaction to these two groups of firms appears to differ. In tests of value relevance, earnings are more value relevant for IFRS firms, while book value and operating cash flows are more value relevant for U.S. GAAP firms. These results could be driven by differences in investor reactions to the information, differences in the financial statements produced that are a result of differences in the accounting standards, or underlying firm characteristics that are associated with the value relevance of the accounting information and the firm's accounting standard choice. Results of additional tests suggest that the difference in value relevance may be at least partly driven by underlying differences in firm characteristics. For example,

book values become more value relevant and earnings become less value relevant when firms are in financial distress and report negative earnings. Because a larger portion of U.S. GAAP firms report losses in their financial statements, the increased value relevance of book value and decreased value relevance of earnings could be a result of the income level of these firms, rather than the accounting standards used. Temporal analyses of the differences in value relevance do not suggest a clear trend in the relationship between IFRS and U.S. GAAP; however, there is weak evidence that the difference in the value relevance of earnings is increasing over time, while that of book value is decreasing.

Finally, tests of the relationship between abnormal trading volume surrounding earnings announcements and a firm's accounting standard choice also indicate potential differences between the two groups of firms. Abnormal trading volume is negatively related to a firm's use of IFRS, indicating that there is less trading volume reaction to earnings announcements for firms using IFRS compared to those using U.S. GAAP. One reason for less trading volume around an earnings announcement could be less information content in the report. However, given that earnings appear to be more value relevant for IFRS firms than U.S. GAAP firms, this explanation seems unlikely. A second explanation could be that there is less divergence of investor opinions surrounding earnings announcements for firms using IFRS. Lastly, the relationship between IFRS and abnormal trading volume could be driven by unidentified firm characteristics. This seems possible given that the significance of the results disappear when industry and country fixed effects are included. Additional tests also reveal that the abnormal trading volume reaction to a firm's 20-F filing is weak, suggesting that the information in the Form 20-F has already reached investors.

1.2 Significance of the Study

This study will contribute to the literature in several ways. First, it identifies firm-characteristics that are associated with a foreign private issuer's accounting standard choice in the United States. Understanding the potential underlying motivation behind a firm's choice of accounting standards can provide useful insights and possibly provide a signal to investors regarding the quality of the firm. Accounting standard choice can also reveal information about both firm and user opinions and perceptions of IFRS adoption in the United States.

Secondly, this study will expand on the current literature by examining a sample that is largely overlooked in prior literature. As will be detailed in the literature review, findings regarding the effects of IFRS adoption are mixed and vary with a wide range of factors. This makes it difficult to extrapolate these results to potential effects of IFRS adoption in the United States, although prior studies have tried. Using a sample of foreign private issuers can provide results that are indicative of the potential U.S. capital market reaction to IFRS adoption and eliminates many of the confounding factors present in prior research that attempts to address this issue. For example, a single market is examined rather than multiple markets which can introduce biases and confounding factors related to differences in market operations. In this way, this study will not only expand on prior academic literature, it should also be of interest to the Securities and Exchange Commission and other stakeholders who are concerned about the future of IFRS in the United States.

Finally, this study provides a more complete picture of the usefulness of IFRS accounting information by using both an association study and an event study to examine the usefulness of IFRS information. While results of trading volume studies can be interpreted in various ways, examining value relevance at the same time trading volume is examined can help decipher whether abnormal trading volume is a result of information content of the 20-F filings or a result of a lack of pre-disclosure information. Also, differences in trading volume could signal differing degrees of investor understanding depending on the accounting standard choice, even if results for value relevance are similar for both U.S. GAAP and IFRS. Therefore, a research design that examines both value relevance and trading volume effects of IFRS usage can provide a more complete understanding of the usefulness of IFRS than prior studies that only examine value relevance.

1.3 Organization of the Study

The remainder of this paper is organized as follows. Chapter 2 presents the background of IFRS and describes previous research related to the effects of IFRS adoption, value relevance, and trading volume. Section 2.1 discusses the costs and benefits of IFRS adoption including changes in accounting quality, changes in comparability, and capital market effects. Changes in accounting quality includes literature that uses earnings management and timely loss recognition as measures. The capital market effects discussed include cross-border investment, cost of capital, market liquidity and analyst

forecasting. After addressing potential benefits, section 2.1 covers firm-level and country-level characteristics of IFRS adopters, costs of IFRS adoption, and a cost and benefit comparison of IFRS and U.S. GAAP. Section 2.2 describes literature related to value relevance. It begins with a discussion of the definition of value relevance and measurements used in prior research. The section then describes the value relevance literature specifically related to IFRS adoption in countries other than the U.S. and the United States. Section 2.3 presents a review of trading volume literature, beginning with the use of trading volume as a measure of information content, and then followed by trading volume as a measure of pre-disclosure information availability. The section concludes with a discussion of prior literature addressing trading volume reactions surrounding IFRS announcements.

Chapter 3 develops the hypotheses that will be addressed in this study. Section 3.1 develops multiple hypotheses related to the factors that affect a firm's accounting standard choice in the United States. Section 3.2 explains hypotheses regarding the potential relationship between a firm's accounting standard choice and the value relevance of accounting information. Finally, section 3.3 develops the hypothesis regarding the differing trading volume reactions surrounding form 20-F filings depending on whether a firm uses IFRS or U.S. GAAP.

Chapter 4 describes the research design and methodology. Section 4.1 begins by explaining the measures of value relevance used, while section 4.2 discusses measures of trading volume. Section 4.3 describes the empirical models and statistical tests used to test the hypotheses. Section 4.4 discusses the data sources for the variables in the models.

Chapter 5 provides results of the analysis. Section 5.1 discusses the sample selection procedure for each test and descriptive statistics for the variables.

Finally, Chapter 6 concludes. Section 6.1 summarizes the research questions, hypotheses, and major findings. Section 6.2 reiterates the contributions of the paper, and Section 6.3 discusses future research opportunities related to this study.

Chapter 2 Literature Review

2.1 The Costs and Benefits of IFRS Adoption

While research regarding the effects of IFRS adoption in the United States is limited due to the minimal number of appropriate settings for a valid empirical analysis, conclusions have been drawn in

recent research based on theoretical understandings, anecdotal evidence, and empirical evidence from less-related settings regarding the costs and benefits of IFRS adoption in the United States. Observed benefits of IFRS adoption include improvements in accounting quality, increases in financial statement comparability, and capital market effects. Costs of IFRS adoption are less frequently documented than benefits, but they include one-time costs related to switching, as well as recurring costs¹.

2.1.1 Changes in Accounting Quality

Research regarding the effect of IFRS adoption on accounting quality spans a variety of countries and time periods. A 2008 study by Barth et al. finds a general improvement in accounting quality after IFRS adoption for a sample of firms from 21 different countries. These improvements include less earnings management, more timely loss recognition, and more value relevance when IFRS adopters are compared to a matched sample of firms applying non-U.S. domestic accounting standards (Barth et al. 2008). On the contrary, Ahmed et al. (2013) find an overall decrease in accounting quality following mandatory IFRS adoption. The results suggest that earnings smoothing increased, aggressive reporting of accruals increased, and the timeliness of loss recognition decreased after IFRS adoption. However, the authors do not find evidence of an increase in meeting or beating earnings targets (Ahmed et al. 2013). Ahmed et al. (2013) differs from Barth et al. (2008) in that they study a sample of firms that mandatorily adopt IFRS, while Barth et al. study a sample of firms that voluntarily adopt IFRS, potentially explaining the contrasting results. In order to more fully understand the relationship between IFRS and accounting quality, it is necessary to divide the literature to examine particular components of accounting quality, such as earnings management, timely loss recognition, and value relevance separately.

2.1.1.1 Earnings Management

A large amount of research regarding the effects of IFRS adoption has been conducted in the European Union, following the 2005 mandatory adoption. One way these papers examine whether or not IFRS adoption has improved accounting quality is by examining earnings management/discretionary accruals either before and after IFRS adoption or for adopters and non-adopters concurrently. Cai et al. (2008) compare a sample of firms from 21 mandatory adoption countries (both EU and non-EU members)

¹ Recurring costs can include direct costs such as preparation costs, as well as less direct costs, such as changes in real earnings management and capital structure.

to 11 non-adopter countries in the time period surrounding mandatory adoption in the EU. While the authors find an increase in earnings management for adopting firms in 2005, they find a decrease in 2006 (Cai et al. 2008). The authors find similar results in a later study, using an expanded sample (Cai et al. 2014). Similarly, Callao and Jarne (2010) find an increase in discretionary accruals immediately following mandatory IFRS adoption in the EU, although the result is only significant for France, Spain, and the UK. Chen et al. (2010) seem to find conflicting results in regards to earnings management. While there is evidence of less earnings management to meet or beat targets and a decrease in discretionary accruals, earnings smoothing appears to increase (Chen et al. 2010). Similar to Chen et al. (2010), Aubert and Grudnitski (2011) find minimal evidence that IFRS is associated with higher accrual quality for firms in Greece, Finland, and Sweden. However, contrary to Chen et al. (2010), Gebhardt and Novotny-Farkas (2011) find evidence of reduced income smoothing following IFRS adoption, although they use a sample limited to banks. Leventis et al. (2011) also use a sample of banks in the EU, and find that earnings management using loan loss provisions appears to be reduced following IFRS adoption. Ipino and Parbonetti (2011) also find evidence of decreased accruals-based earnings management following IFRS adoption; however, this result is only found in countries with strong legal enforcement. This is a common theme found throughout the literature². Additionally, there appears to be a trade-off between accruals-based earnings management and real earnings management (Ipino and Parbonetti 2011). In 2012, Aubert and Grudnitski investigate potential earnings management by studying the gap between reported earnings and the earnings consensus of analysts. These results point to a decline in earnings management following IFRS adoption (Aubert and Grudnitski 2012). Zeghal et al. (2012) also find a reduction in earnings management following IFRS adoption; however, a portion of their results depend on the extent of the differences between domestic GAAP and IFRS. This is another qualifying characteristic that is common in the literature³. Like the majority of papers discussed in this section, Capkun et al. (2013) use a sample that is primarily dominated by EU countries and firms. In the case of both voluntary and mandatory adoption, they find an increase in earnings management. They find that the degree of this increase is related to the amount of flexibility that existed in local GAAP before adoption. It appears that

² See for example Houque et al. (2012), Ahmed et al. (2013), and Cai et al. (2014).

³ See Cai et al. (2014).

firms with less flexibility in their prior standards exhibit a greater increase in earnings management following adoption, potentially because of the amount of discretion allowed in IFRS (Capkun et al. 2013). Mandatory or voluntary adoption also seems to be an influential condition for the effect of IFRS adoption on earnings management (Doukakis 2014). Doukakis finds that mandatory adoption seems to have no significant impact on earnings management, both real and accruals-based (2014).

While the studies discussed above use samples that cover a wide range of countries, a large portion of studies also examine effects in a single country sample and find conflicting results. In Finland, Aubert and Grudnitski (2011) find an increase in accruals quality following IFRS adoption. Jeanjean and Stolowy (2008) find an increase in earnings management to avoid losses in France; however, Zeghal et al. (2011) find a decrease in earnings management in France after IFRS adoption. Studies in Germany find no change, at best, in earnings management (Christensen et al. 2015; Salewski et al. 2014). While Salewski et al. (2014) finds no change in earnings management in the second four years after IFRS adoption (compared to a pre-adoption period), earnings management increases in the first four years. Similarly, Guenther et al. (2009) and Paananen and Lin (2009) find an increase in discretionary accruals and income smoothing, respectively. However, studies in other countries find an increase in accruals quality after IFRS adoption, including in Greece, Italy, Sweden and the UK (Aubert and Grudnitski 2011; Moscariello et al. 2014). Other studies find evidence of improved accounting quality/less earnings management in these countries, measured using other factors, such as volatility of earnings, reporting small profits, and correlation between discretionary accruals and cash flows (Iatridis and Rouvolis 2010; Marra et al. 2011; Morais and Curto 2008; Iatridis 2010; Samarasekera et al. 2012). However, at the same time, other studies either find no change in earnings management or an increase in earnings management indications (Paananen et al. 2008; Aussenegg et al. 2008; Jeanjean and Stolowy 2008).

Overall, the results of studies examining changes in earnings management surrounding IFRS adoption are mixed. This is no doubt partly due to the differences in time periods, settings, firm characteristics, and measurement techniques used in the studies. While it is difficult to draw any conclusions from these studies regarding the overall effectiveness of IFRS, some elements do seem rather consistent throughout the literature. The level of enforcement in a country seems critical in determining the effectiveness of IFRS adoption, indicating that the accounting standards alone cannot

improve accounting quality without strong country-level enforcement. As might be expected, improvements in accounting quality seem greatest for countries in which there are more differences between local GAAP and IFRS. Also, just as country-level enforcement is important, firm-level characteristics, such as strong corporate governance, can be related to the level of improvement seen surrounding IFRS adoption. There is also evidence in the literature that results may be stronger for voluntary adopters, as opposed to mandatory adopters. These conclusions seem to apply to other forms of accounting quality as well, such as timely loss recognition and value relevance, not just earnings management.

2.1.1.2 Timely Loss Recognition

The literature researching the value relevance of IFRS is equally as extensive, if not more so, as the literature examining earnings management. However, the discussion of this literature is deferred to a later section that discusses other value relevance literature, as well as literature specifically regarding the value relevance of IFRS. A slightly less studied area of accounting quality in the literature is timely loss recognition. Again, many of these studies are conducted in the EU following mandatory IFRS adoption in 2005. In studies with samples that cover multiple countries (mostly EU), the majority find a decline in the timeliness of loss recognition (Chen et al. 2010; Piot et al. 2010; Gebhardt and Novotny-Farkas 2011; Zeghal et al 2012; Ahmed et al. 2013), while one study finds a minimally significant increase (Aubert and Grudnitski 2011). Similarly, the majority of studies with a sample that spans a single country (Finland, Germany, and Sweden) find either no change in timely loss recognition or a decrease (Jarva and Lantto 2012; Christensen et al. 2015; Paananen 2008). There is minor evidence of an increase in timely loss recognition in the UK (Iatridis 2010; Samarasekera et al. 2012). Overall the results for timely loss recognition are more consistent than the results for accruals quality, indicating that timely loss recognition decreases following IFRS adoption.

2.1.2 *Changes in Comparability*

Even if IFRS adoption is not related to increased accounting quality, firms may still see benefits in the form of increased comparability. The measurement of financial reporting quality is less established in the literature than accounting quality, but several methods related to financial reporting information,

analysts' forecasts, stock market returns, information transfers, and opinion surveys have been used in the literature (ICAEW 2015).

Cairns et al. (2011) examine accounting policies related to fair value measurements and find increased comparability within the UK in regards to some accounting policies, and decreased comparability in regards to others⁴. Beuselinck et al. (2007) find that comparability is affected by firm-specific incentives, and IFRS adoption does not seem to instantly improve comparability as expected. However, Jones and Finley (2011) find statistical evidence that indicates a decrease in financial reporting diversity in general following mandatory IFRS adoption in the EU. Horton et al. (2013) take a greater increase in forecast accuracy for analysts covering portfolios that change from local GAAP to IFRS as compared to those covering portfolios that change from local GAAP to multiple GAAP to be an indication of improved comparability among the IFRS-adopting firms. Dargenidou and McLeay (2010) also use analysts' forecasts to assess comparability and find evidence that is consistent with improved comparability across countries. Lang et al. (2010) use the similarity between stock returns and accounting returns to assess comparability and conclude that IFRS adoption did not increase comparability in a sample of firms that span 26 countries. Jayaraman and Verdi (2014) use a similar comparison between returns and find that accounting comparability seems to increase for euro countries, but remains unchanged for non-euro countries.

Studies that measure information transfers as a sign of comparability find mixed results. For a sample of 27 European countries, Alves et al. (2010) fail to find evidence of a link between IFRS adoption and changes in the magnitude of cross-border information transfers. On the other hand, Kim and Li (2012) find evidence that increases in information transfers after 2005 are evident only when announcing and non-announcing firms are from countries with a high level of information barriers, meaning that IFRS adoption seems to reduce the effect of information barriers. Similar to the discussion regarding accounting quality, strong country-level enforcement seems to result in greater improvements in comparability (Wang 2014).

⁴ Cairns et al. (2011) find increased comparability in accounting for property, held-for-trading financial instruments, derivatives, and share-based payments. They find decreased comparability in accounting for investment property and other financial assets and liabilities.

Using other measures of information transfer, Andre et al. (2012) and Yip and Young (2012) also document improvements in comparability following IFRS adoption. Similar to Wang (2014), Cascino and Gassen (2015) conclude that comparability improvements are only seen in firms with high compliance incentives.

While the results are mixed for comparability, the majority of studies seem to support a potential improvement in comparability following IFRS adoption. The magnitude of the improvement seems to be conditional on country-level enforcement and firm-specific incentives, similar to the results for accounting quality. While there is evidence that comparability increases following IFRS adoption, there is also a large amount of evidence from the European Union suggesting that comparability is still incomplete (Cole et al. 2011; Nobes 2011; Nobes and Perramon 2013; Glaum et al. 2013).

2.1.3 Capital Market Effects

Numerous studies have investigated economic outcomes surrounding a country or firm's adoption of IFRS. These studies can be grouped into two categories; those studying the effect of mandatory adoption and those studying the effect of voluntary adoption. Literature researching both types of adoption will be reviewed in this study.

2.1.3.1 Cross-Border Investment

One of the proposed purposes of an international set of standards is to improve cross-border information flows and investing. A recent study by Chen et al. (2015) finds that firms that mandatorily adopt IFRS exhibit a higher propensity to cross-list following IFRS adoption. They also find that these results are stronger for IFRS adopters from countries with larger accounting differences from IFRS, lower disclosure requirements prior to IFRS, and less access to external capital prior to IFRS adoption (Chen et al. 2015). While reporting and disclosure requirements are a key cost to cross-listing that may deter some firms from listing on foreign exchanges prior to IFRS adoption, once firms are mandated to adopt IFRS, it seems that the benefits of cross-listing begin to outweigh the costs. For this reason, the U.S. could expect to see more foreign private issuers registering and filing IFRS financial statements following mandatory IFRS adoption and the elimination of the reconciliation requirement in the U.S. Several other studies also examine the relationship between IFRS adoption and cross-border investing, both through foreign direct investment (FDI) and portfolio investment. Overall, results in the European Union suggest

that FDI increases following IFRS adoption (Marquez-Ramos 2011; Francis et al. 2012; Gordon et al. 2012; Chen et al. 2014; Louis and Urcan 2014). However, similar to other benefits associated with IFRS adoption, the strength of the benefit is conditional upon certain characteristics of the adopters. Increases in FDI are more pronounced when the countries previously had a low degree of similarity in their local GAAPs prior to IFRS adoption (Francis et al. 2012). The increase in FDI is also more positively associated with IFRS adoption when the country pairs have greater institutional differences or when the increase in reporting uniformity is higher (Chen et al. 2014; Louis and Urcan 2014). Gordon et al. (2012) demonstrate that the increase in FDI associated with IFRS adoption is only statistically significant for developing economies, but not for countries with developed economies.

In addition to its association with FDI, IFRS adoption is also associated with an increase in cross-border portfolio investment. Lee and Fargher (2010) suggest that IFRS reduces investors' bias against foreign equities, which leads to greater foreign investment from investors after IFRS adoption. A decrease in this bias, often referred to as the home bias, is also evidenced in the U.S. (Khurana and Michas 2011). Other studies support the claim that IFRS adoption is associated with increased foreign investment (Amiram 2012; Beneish et al. 2015). While DeFond et al. (2011) also find an increase in foreign investment following IFRS adoption, these results are conditional on strong implementation credibility and a relatively large increase in uniformity. Aside from individual investors, it is also found that a larger portion of shares are held by foreign mutual funds and institutional investors (Yu 2010; Florou and Pope 2012). Hong et al. (2014) find an increase in the amount of capital raised from foreign markets after IFRS adoption. While all of these studies support increased foreign investment after IFRS adoption, again the results are conditional on firm, country, and investor characteristics. As discussed in prior sections, results surrounding IFRS adoption are stronger when there is a higher degree of divergence between the pre-IFRS standards and IFRS (Lee and Fargher 2010; Yu 2010; Florou and Pope 2012; Hong et al. 2014; Chen et al. 2015). In addition, the degree of enforcement in a country is also critical for determining the effect of IFRS adoption on foreign investment (Yu 2010; Florou and Pope 2012). Other country-level factors that can influence the degree of foreign investment include geographical distance, language differences, legal origin, culture, corruption and investor protection (Yu 2010; Amiram 2012).

Florou and Pope (2012) demonstrate that investor characteristics can also be important, as active investors and value and growth investors seem to respond more to IFRS adoption.

2.1.3.2 Cost of Capital

In addition to increases in cross-border investing, several studies have also examined the relationship between IFRS adoption and cost of capital. Even before mandatory IFRS adoption in the EU, Comprix et al. (2003) conducted a study to examine the market reaction to various announcements that increased the likelihood that IFRS would be adopted by the European Union. The results of the study suggest that the market viewed the adoption of IFRS favorably in the EU. Christensen et al. (2007) find similar results with a sample of UK firms that are identified as likely to benefit from IFRS adoption. Pae et al. (2008) also find similar results when examining Tobin's Q over the pre-adoption period. Additionally, these results appear to be strongest for firms with the greatest information asymmetries prior to IFRS adoption.⁵ Results in Armstrong et al. (2010) support the results discussed above, with the notable addition that the market reaction to IFRS news is negative for firms domiciled in code law countries. The results of these studies indicate that some of the cost of capital benefits associated with IFRS adoption are realized prior to adoption.

Although cost of capital effects after IFRS adoption may be diminished by prior stock market reactions, a number of studies examine the relationship between cost of capital (both debt and equity) and IFRS adoption. Hail and Leuz (2007) compare voluntary adopters and non-adopters and find weak evidence that IFRS adoption improved the cost of equity capital. As discussed above, the authors caution that the results could be weakened because of the anticipation effects in the market (Hail and Leuz 2007). Daske et al. (2008) find similar results and support the idea that the benefits of IFRS adoption are conditional on the level of enforcement and firm incentives. Li (2010) also finds evidence that cost of capital decreases following IFRS adoption for firms in strong legal enforcement countries only. Daske et al. (2013) conclude that the decrease in cost of capital is also conditional on the seriousness of the adopter, where "label" adopters do not see a decrease in cost of capital. Lee et al. (2008) support this same conclusion when they document a significant reduction in the cost of equity for firms with high

⁵ This includes firms that are not cross-listed in the U.S., have families as their largest shareholders, or have a shareholder who holds 20 percent or more of the firm's cash flow rights.

incentives for high-quality financial reporting and no reduction for firms with low incentives and enforcement. Palea (2007) and Gkougkousi and Mertens (2010) document a lower cost of equity following IFRS adoption, but in both cases the sample is limited to banks from the EU.

2.1.3.3 Market Liquidity

Firms may also experience changes in market liquidity following IFRS adoption. In addition to cost of capital, Hail and Leuz (2007) also examine three proxies for market liquidity following IFRS adoption in the European Union. They find significantly positive liquidity results for all three proxies (Hail and Leuz 2007).⁶ Daske et al. (2008) also investigate market liquidity and again find that benefits occur only where firms have incentives to be transparent and legal enforcement is strong. Christensen et al. (2013) expand on these results to demonstrate the difficulty in separating changes related to accounting standards and changes related to concurrent changes in enforcement. Daske et al. (2013) demonstrate that only serious adopters experience an increase in market liquidity, whereas "label" adopters do not. A handful of other studies find evidence of an increase in liquidity for IFRS adopters, although the characteristics of their samples vary (Platikanova and Perramon 2009; Gkhougkousi and Mertens 2010; Shibly and Dumontier 2014; Yao 2014).

2.1.3.4 Analyst Forecasting

Evidence also suggests that IFRS adoption is associated with changes in analyst forecast accuracy and dispersion. Several studies find both a decrease in dispersion and an increase in forecast accuracy following IFRS adoption (Wang et al. 2008; Beuselinck et al. 2010; Byard et al. 2011; Jiao et al. 2012; Choi et al. 2013; Panaretou et al. 2013; Garrido-Miralles and Sanabria-Garcia 2014; Houqe et al. 2014; Neel 2014). However, many of these studies identify only certain conditions in which these results hold. The results in Wang et al. (2008) vary from country to country depending on the legal origin of the country. The results of Byard et al. (2011) are only applicable for IFRS adopters in countries with both strong enforcement regimes and domestic accounting standards that differ significantly from IFRS. Horton et al. (2013) support the results in Byard et al. (2011), showing that results are stronger when there is a larger difference between IFRS earnings and local GAAP earnings. Contrary to Byard et al. (2011), Houqe et al. (2014) show that improvements in analyst forecast and dispersion do occur for firms

⁶ The three proxies used include the price impact of trades, the frequency of zero-return days, and bid-ask spreads.

in countries with low investor protection. Demmer et al. (2015) find that improvements in analyst forecast accuracy occur only when IFRS adoption is combined with enforcement improvements. Byard et al. also identify stronger firm-incentives for transparent financial reporting as a meaningful factor for strengthening the results for firms from countries with weak enforcement regimes and large domestic accounting standard differences (2011). Choi et al. (2013) identify firm-stability as another firm-level factor that can influence the results. They propose that growth firms do not see the same increase in accuracy and decrease in dispersion as stable firms because financial reporting information is less relevant in forming future expectations (Choi et al. 2013). In addition to the varying factors that can affect results, other studies find results that contradict improvements in accuracy and dispersion. Tan et al. (2011) demonstrate that increases in forecast accuracy occur only for foreign analysts after IFRS adoption; however, the accuracy of local analysts remains unchanged. While Jansson et al. (2012) find evidence of a decrease in forecast dispersion, they do not find an impact on forecast accuracy in five EU countries. Preiato et al. (2015) find little evidence of improvements in dispersion or accuracy following IFRS adoption. They suggest this may be because they cover a longer time period than other studies and allow for variation in the degree of enforcement (Preato et al. 2015). Although not examining accuracy or dispersion, Charitou et al. (2012) find a stronger market reaction to recommendation revision announcements in the post-IFRS period, more so in countries with a strong level of enforcement.

Overall, several things remain consistent between the results for accounting quality and the results for capital market effects. Any positive benefits associated with IFRS adoption seem to be dependent on firm incentives, enforcement levels, and the degree of differences between local standards and IFRS.

2.1.4 Firm-level and Country-level Characteristics of IFRS Adopters

In addition to studying the benefits of voluntary adoption, one group of research attempts to explain the various factors and characteristics of firms that voluntarily adopt IFRS. Francis et al. (2008) examine the voluntary adoption of IAS⁷ by private firms in the European Union. They determine that both firm factors and country factors are related to the decision to adopt IAS. Additionally, while firm factors seem to dominate the decision in more developed countries, country factors seem to be more relevant to

⁷ International Accounting Standards (IAS) are the predecessor to IFRS.

the decision in less developed countries. A potential explanation for this result is that firm incentives matter less when the payoffs the firm can receive from improved reporting are limited by the country's lack of institutional development (Francis et al. 2008). Similarly, Renders and Gaeremynck (2007) find that voluntary IFRS adoption is dependent on the level of investor protection in a country. Specifically, firms do not voluntarily adopt IFRS in countries with weak investor protection because of opportunistic behavior by management. This is another example of how country-level factors can play a role in a firm's decision to adopt IFRS. In response to a paper by Kim and Shi (2012), Christensen (2012) questions why so few firms voluntarily adopt IFRS despite the estimated benefits proposed by numerous academic studies. According to Christensen (2012), Kim and Shi (2012) find that benefits of IFRS adoption are greatest in countries with weak institutions, but firms from these countries are not voluntarily adopting IFRS. One potential explanation for this result could be the indirect costs associated with IFRS adoption proposed in Renders and Gaeremynck (2007), including the loss of private information. This discussion highlights the fact that it is important to remember that the decision of whether or not to use IFRS considers both the costs and benefits of adoption.⁸

2.1.5 Costs of IFRS Adoption

While a large portion of the literature focuses on the potential benefits of IFRS adoption, as previously stated, the decision is largely based on a cost-benefit analysis. Therefore, in order to understand the motivations and factors affecting a firm's accounting standard choice, it is also necessary to consider the costs associated with IFRS adoption. Firms that switch to IFRS, both within and outside the United States, will incur many one-time transition costs. Hail et al. (2010) explain some of these, including costs to adjust accounting systems and processes, costs to update documentation of internal control procedures, costs to train employees, costs to familiarize outside stakeholders, etc. In addition to one-time transition costs, firms are likely to encounter recurring costs as well. However, Hail et al. (2010) propose that direct costs of reporting may actually decrease over time as firms switch from U.S. GAAP to IFRS, as a result of decreased complexity in the accounting standards. Multinational firms are also likely to see cost savings as a result of preparing fewer sets of financial statements if they are already preparing IFRS financial statements for other jurisdictions (Hail et al. 2010). As previously discussed

⁸ The majority of research in this area primarily focuses on the benefits of IFRS adoption.

though, the authors come to the same conclusion/assumption that firms will voluntarily switch to IFRS only if the benefits exceed the costs. Contrary to Hail et al. (2010), Kim et al. (2012) document an increase in audit fees following IFRS adoption in the EU. Additionally, this increase is not limited to the transition year, but continues in subsequent years (Kim et al. 2012). In regards to costs in general, Vulcheva (2011) finds that delistings in four EU countries increase after IFRS adoption, perhaps signifying an increase in costs as a result of IFRS adoption. Similarly, Hitz and Muller-Bloch (2014) find that increased costs of IFRS lead firms to leave the regulated market in Germany and move to the 'Open Market,' which does not require IFRS.

Another potential recurring cost of IFRS adoption is an increase in real earnings management, particularly in situations in which accruals-based earnings management decreases. Evidence in this area is limited; however, Ipino and Parbonetti (2011) find evidence of increased real earnings management and reduced accruals-based earnings management following IFRS adoption. Additionally, Ho et al. (2015) find evidence that firms turn to activities-based earnings management as a substitute for accruals-based earnings management following IFRS adoption. On the other hand, Doukakis (2014) does not find evidence of an increase in earnings management after mandatory IFRS adoption.

Changes in accounting standards can also lead to the need to rewrite contracts that may rely on accounting measures. Voulgaris et al. (2014) argue that IFRS makes reported earnings less useful for managerial performance, which leads to less weight placed on EPS-based performance measures. They suggest the increased use of fair value accounting as a potential reason that earnings are less informative about managers' performance (Voulgaris et al. 2014). Balsam et al. (2014) also identify increases in CFO pay and turnover following the mandatory adoption of IFRS, suggesting that adoption increases the responsibility of the CFO. In addition to compensation contracts, some evidence suggests that IFRS adoption can also necessitate changes in debt contracts. Ball et al. (2014) identify a significant reduction in accounting-based debt covenants and a corresponding increase in non-accounting based debt covenants following mandatory IFRS adoption. This implies that IFRS may be less useful for debt contracting than prior accounting standards for several reasons. The authors suggest that the increased flexibility when applying accounting rules, the increased rule-making uncertainty, and the increased use of fair value accounting all make IFRS less attractive for debt contracts (Ball et al. 2014).

2.1.6 Cost and Benefit Comparisons of IFRS (IAS) and U.S. GAAP

As Ashbaugh (2001) states, it is important to document the factors associated with firms' disclosures of IAS or U.S. GAAP financial information because many equity markets, including the U.S. as of 2007⁹, allow registrants to report under alternative sets of standards. Ashbaugh (2001) is one of few studies to provide empirical evidence from a setting where firms can choose between IAS and U.S. GAAP by examining non-U.S. firms listed on the London Exchange. According to Ashbaugh, results of this study imply that non-U.S. firms choose to report IAS financial information because they can receive some of the benefits of providing more standardized financial information, while incurring costs less than what is required to implement U.S. GAAP. Two conclusions can be drawn from this statement. The first is that U.S. GAAP is thought to provide more benefits and create more standardized reports than IAS. The second is that implementing IAS is less expensive than implementing U.S. GAAP, at least in regards to non-U.S. firms. Based on this information, IAS financial statements appear to serve as a middle ground between local GAAPs and U.S. GAAP. Specifically, Ashbaugh (2001) identifies several characteristics of IAS and U.S. GAAP adopters that lead to this conclusion. According to the results, both IAS and U.S. GAAP users share culturally diverse shareholders, less demanding domestic reporting practices, and relatively large domestic market capitalization compared to those who use local GAAP. While both U.S. GAAP and IAS require more disclosure than local GAAPs for the firms analyzed, U.S. GAAP requires two additional disclosures beyond those of IAS for most firms in the sample, suggesting that U.S. GAAP is even more stringent than IAS and possibly more costly. The study also finds that non-U.S. firms are more likely to disclose U.S. GAAP information when they are also listed on an American exchange. Firms are also more likely to use U.S. GAAP as the number of exchanges on which they are listed increases; however, they are less likely to use U.S. GAAP if the disclosure requirements are greater than those of IAS. Overall, the results of this study suggest that the benefits of voluntarily disclosing IAS and U.S. GAAP information include providing information that is more communicative and more appealing to foreign financial information users; however, firms are restricted by the costs of providing this information.

⁹ The United States only allows foreign private issuers the choice to report financial statements prepared under IFRS, U.S. GAAP, or local GAAP with a reconciliation to U.S. GAAP. Domestic filers are still required to use U.S. GAAP for all filings, a discrepancy that several have pointed to as unfair in the literature.

Therefore, the general hypothesis of this paper is supported that non-U.S. firms disclose financial information prepared in accordance with IAS or U.S. GAAP when the benefits of these disclosures outweigh the costs (Ashbaugh 2001).

A more recent study by Kaya and Pillhofer (2013) examines the choice between IFRS and U.S. GAAP for foreign firms that are listed in the United States. They use their observations of this sample as signals of the U.S. capital markets' accounting standard preferences and demand for financial information. While this paper is one of the only studies to examine choices directly in the U.S. market, the analysis provided is purely descriptive, and limited to a two year sample window. Despite this, useful insights are drawn regarding the potential accounting standard preferences in the United States. The study finds that cross-listed firms from countries that require IFRS predominantly file IFRS reports in the United States; however, only 7 percent of firms from countries that permit IFRS (and roughly 20 percent of foreign filers overall) file IFRS reports in the U.S. The authors take this to suggest that cross-listed firms prefer to provide U.S. GAAP information, either by providing U.S. GAAP financial statements or financial statements reconciled to U.S. GAAP.¹⁰ The authors provide two explanations for these findings. The first is that cross-listed firms from countries that do not require IFRS may have been listed in the U.S. for a number of years. For these firms, the costs of switching to IFRS, either from U.S. GAAP or domestic GAAP reconciled to U.S. GAAP, could exceed the benefits. The second explanation is that cross-listed firms may use U.S. GAAP in order to attract U.S. market participants, reduce information processing costs, and to reduce U.S. home-bias frictions (Kaya and Pillhofer 2013).

Hail et al. (2010) also consider a direct comparison of U.S. GAAP and IFRS by conceptually discussing the potential adoption of IFRS in the United States. Similar to other studies, they come to the general conclusion that the decision to adopt IFRS relies mainly on a cost-benefit trade-off. Hail et al. (2010) point out that the proposed benefits of IFRS include that the standards will be more relevant to investors and more comprehensive than most local GAAP; however, this argument relies on the local standards being of lower quality than IFRS. As a result, this argument may be less applicable to the United States, which already have high-quality accounting standards. Additionally, some believe that

¹⁰ It is important to note that the sample period for this study is 2009 and 2010, therefore, firms filing IFRS financial statements with the SEC were no longer required to prepare a reconciliation to U.S. GAAP.

IFRS and U.S. GAAP are of similar quality with only small-differences remaining, again supporting the idea that improvements in reporting quality would be minimal at best with a change from U.S. GAAP to IFRS. Alternatively, some propose that IFRS would actually lead to lower quality in the United States as a result of more discretion and less guidance in the standards that can be conducive to earnings management. Overall, the authors believe that U.S. adoption of IFRS is unlikely to have a major impact on reporting quality. Although improvements are unlikely to be seen in reporting quality, benefits can still arise from IFRS adoption in the form of comparability. Again though, because the remaining differences between U.S. GAAP and IFRS are small, this may limit improvements in comparability following a switch (Hail et al. 2010).

2.2 Value Relevance

While the literature discussed above suggests numerous potential effects of IFRS adoption, the primary focus of this study is value relevance and trading volume. The literature regarding the value relevance of IFRS has grown extensively in recent years. For purposes of this study, the most relevant research will be studies comparing the value relevance of IFRS to the value relevance of U.S. GAAP.

2.2.1 Value Relevance Definition and Measurement

In academic research, an accounting amount is said to be value relevant if it has a predicted association with equity market values (Barth et al. 2001). According to the FASB, an accounting amount is relevant if it is capable of making a difference in financial statement users' decisions (FASB 1984). Tests of value relevance are a way for academic research to operationalize the FASB's criteria of relevance (Barth et al. 2001).

While the basic idea of value relevance tests is to determine if an accounting amount is related to stock prices, the literature contains several different approaches to measure this relationship. The majority of value relevance research focuses on the coefficients for accounting amounts in an estimation equation (Barth 1994; Barth et al. 1996; Eccher et al. 1996; Nelson 1996). Another group of studies examines whether the coefficient on the accounting amount of interest differs from those on other amounts in the financial statements (Barth et al. 1998; Aboody et al. 1999).

As an alternative to examining the coefficients on accounting amounts, some studies focus on the proportion of variance in share prices explained by accounting amounts, or R^2 (Beaver et al. 1982;

Beaver and Landsman 1983). If examining the value relevance of more than one accounting amount, such as earnings and book value, examining the R^2 alone can only indicate if the information as a whole is value relevant, but cannot speak to the value relevance of each piece of information. Collins et al. (1997) decompose the common Ohlson (1995) model into two separate equations for each component of accounting information (book value of equity and earnings). Decomposing the equation into two parts allows for the derivation of the incremental explanatory power of both earnings and book value. In this way, Collins et al. (1997) distinguish between the explanatory power that is common to both earnings and book value and the explanatory power that is unique to each component.

2.2.2 Value Relevance of IFRS in Countries other than the U.S.

Numerous studies compare the value relevance of IFRS to domestic standards of countries other than the U.S. with mixed results. Some studies make comparisons within a single country, while other studies focus on a broader sample that spans multiple countries. It is important to distinguish between the two because the results of value relevance studies vary extensively from country to country. Results of multi-country studies must be regarded with caution because they can average out conflicting results from various countries.

2.2.2.1 Single-country studies

When looking at results in individual countries, it is difficult to draw conclusions regarding the effects of IFRS, as many of the results are contradictory, even within the same country. Increases in value relevance of accounting information in general are documented in Abu Dhabi and Australia since IFRS adoption (Alali and Foote 2012; Chua et al. 2012). Liu et al. (2011) also find an increase in value relevance after the adoption of IFRS-convergent accounting standards in China. However, results in the European Union are not as clear. In Finland and Poland there is little or no evidence of an improvement in value relevance following the implementation of IFRS (Schadewitz and Vieru 2007; Jarva and Lantto 2012; Dobija and Klimczak 2010). Jarva and Lantto (2012) differs from the other studies mentioned in that the authors examine the book values of assets and liabilities, rather than the book value of equity or net income. Schadewitz and Vieru (2007) use 2004 as the sample period and only examine adjustments between local GAAP and IFRS and find no evidence of value relevance for book value adjustments. When comparing German GAAP to IFRS, Hung and Subramanyam (2007) fail to find a significant

difference in value relevance following IFRS adoption. In Greece, results also indicate that there is no significant difference between the value relevance of accounting information under GAS and under IFRS (Papadatos et al. 2011). These results also show that the value relevance is conditional on certain firm-specific characteristics, such as firm size and level of fixed assets. While another study conducted in Greece demonstrates that the combined value relevance of accounting information has not changed, similar to Papadatos et al. (2011), the value relevance of book value of equity has increased, and that of earnings has decreased (Tsalavoutas et al. 2012). This highlights an important consideration when examining the value relevance literature. While the combined value relevance of accounting information can change in one direction or not at all, the value relevance of individual components of the financial information (earnings, book value, etc.) can change in a direction contradictory to the total value relevance. Additional studies in the European Union also find results that suggest the changes in value relevance for earnings and book value can occur in different directions.

While these studies find little or no evidence of improvements in value relevance, some studies actually find a decline in value relevance after IFRS adoption in Portugal and Sweden, although the decline in Sweden is insignificant (Morais and Curto 2008; Oliveira et al. 2010; Paananen 2008). Additional studies fail to find consistent results surrounding the mandatory adoption of IFRS in the European Union (Devalle et al. 2010; Gjerde et al. 2008; Iatridis and Rouvolis 2010; Iatridis 2010; Kargin 2013; Agostino et al. 2011). As previously mentioned, not only are these results difficult to organize and reconcile, applicability to the United States is limited since results vary by country.

2.2.2.2 Multi-Country Studies

While the prior studies listed examine the value relevance of IFRS in a single-country setting, Barth et al. (2008) compare IAS financial statements to financial statements that use local GAAP for 21 different countries and find that value relevance is higher under international standards than local standards. A number of studies rely on samples from multiple countries within the European Union. While the results of these studies are not necessarily reconcilable, a few overall themes arise in the literature. Overall, studies in the European Union seem to find an increase in the value relevance of earnings following IFRS adoption (Capkun et al. 2008; Wang et al. 2008; Morais and Curto 2009; Devalle et al. 2010; Agostino et al. 2011; Kang 2013). While this is the general trend, there are still exceptions to

these findings. Zeghal et al. (2012) use a sample from 15 European Union countries and document a decrease in the value relevance of net income. The conflicting results could potentially be a result of a different time period used in the analysis of Zeghal et al. (2012). While the Zeghal et al. study examines results of IFRS adoption in 2006 and 2007, many of the studies previously discussed terminate their analysis in 2005.

Although results for the value relevance of earnings seem fairly consistent, results for the value relevance of book value of equity are not as clear-cut. In general, the EU studies that address book value seem to find a decrease in the value relevance of book value following IFRS adoption, or insignificant results (Capkun et al. 2008; Devalle et al. 2010; Agostino et al. 2011; Zeghal et al. 2012). However, Morais and Curto (2009) document an increase in the value relevance of book value of equity once IFRS is adopted. In addition, Barth et al. (2014) also provide evidence for value relevance of net income, as well as book value of equity, incremental to that provided by local GAAP accounting information. This is determined by examining the value relevance of adjustments made as a result of differences between IFRS and local GAAPs in 2004 (Barth et al. 2014).

In addition to finding differences in the value relevance of earnings and book value individually, some research also examines differences in the combined value relevance of earnings and book value or accounting information in general. Platikanova and Nobes (2006) find mixed results for the value relevance of IFRS accounting information as a whole by examining the information asymmetry component of the bid-ask spread. Overall, their results suggest that there is no increase in the value relevance of accounting information once IFRS is adopted, although they do find mixed results when examining individual countries (Platikanova and Nobes 2006). Similarly, Aubert and Grudnitski (2011) find no support that accounting information produced under IFRS is more value relevant than that prepared under local GAAP. On the other hand, Morais and Curto (2009) find an increase in the value relevance of financial information in the period that firms apply IFRS as opposed to when they applied local accounting standards.

Although most value relevance studies focus on earnings, book value, or combined accounting information, a few studies also examine the value relevance of particular line items. For example, Aharony et al. (2010) examine the value relevance of goodwill, research and development expense, and

the revaluation of property, plant and equipment after IFRS adoption in the European Union. For all three numbers, the authors document an increase in value relevance after IFRS adoption (Aharony et al. 2010). On the other hand, Sahut et al. (2011) find that goodwill appears to be less value relevant after IFRS adoption in the EU; however, the book value of other intangible assets appears more value relevant. Sahut et al. (2011) cover a wider sample period than Aharony et al. (2010), possibly contributing to the difference in their findings.

Similar to the discussion of accounting quality literature above, certain conditions are identified in the literature that moderate the relationship between IFRS adoption and changes in value relevance. Wang et al. (2008) divide their sample into four groups based on legal origins (French, Scandinavian, English, German). Improvements in value relevance vary between the groups, with some showing greater improvements than others. Overall, the authors find improvements in value relevance for both measures used for their group of code law countries (Wang et al. 2008). Clarkson et al. (2011) divide their sample into common law and code law groups and find similar results for both groups, while Kang (2013) finds that the increase in value relevance is stronger for firms in common law countries. Morais and Curto (2009) also identify differences in value relevance improvements after IFRS adoption depending on whether adoption is mandatory or voluntary. They find that value relevance is higher during the period that IFRS application is mandatory than during the time it is voluntary (Morais and Curto 2009). While Agostino et al. (2011) examine banks, they note that value relevance increases more for banks that they classify as more transparent. This finding could potentially apply to firms outside the banking industry as well. Aharoney et al. (2010) document that improvements in value relevance are larger when the domestic GAAP and IFRS differences are larger for the three accounting numbers analyzed.¹¹

As expected, a number of factors, including firm-specific and country-specific factors, have been found to contribute to the degree of change in value relevance. All of these studies taken together provide contradicting and confusing results regarding the value relevance of IFRS-based financial statements, none of which provide clear insight into the effects a switch to IFRS in the United States might have on value relevance. Ahmed et al. (2013) attempt to organize and make sense of the

¹¹ Aharoney et al. (2011) examine goodwill, research and development expense and revaluation of property, plant, and equipment.

numerous studies related to the value relevance of IFRS in a meta-analysis. The study combines the data from 57 papers with 96 independent samples to obtain consolidated results. Results of this study show that on average, the book value of equity decreases with IFRS adoption, while the book value of earnings increases. While the results of this study are interesting, they offer little predictive power regarding IFRS adoption in an individual country.

2.2.3 Value Relevance of IFRS in the United States

A handful of prior research is more applicable to this study. Jermakowicz et al. (2007) show that the value relevance of accounting information increases after DAX-30 firms adopt either U.S. GAAP or IFRS rather than German standards, but they do not distinguish between IFRS and U.S. GAAP adoption. In an early study in the area, Harris and Muller (1999) show that IAS amounts are more highly associated with price per share than U.S. GAAP amounts for foreign firms preparing reconciliations in the United States. Barth et al. (2012) find that IFRS amounts are more comparable to U.S. GAAP amounts than when domestic standards were previously applied. However, comparability is conditional on certain factors, such as level of enforcement, and legal origins of the country. Although comparability and accounting quality improve for IFRS firms after they adopt IFRS, U.S. GAAP amounts are more value relevant than IFRS amounts. The Barth et al. (2012) study compares foreign firms to U.S. firms, which introduces the problem of comparing value relevance in two different markets. The difference in value relevance could be a result of the markets in which the IFRS firms are listed, rather than a result of the financial statement standards applied. For example, markets in other countries may be less efficient, making accounting information less relevant. Bartov et al. (2005) address this issue by comparing the value relevance of International Accounting Standards (IAS), U.S. GAAP, and German GAAP all within the German market. Their results indicate that IAS and U.S. GAAP are more value relevant than local standards, but they do not detect a difference between IFRS and U.S. GAAP. On the other hand, a study by Lin et al. in 2012 finds that U.S. GAAP accounting information is still more value relevant than IFRS accounting information in Germany. However, this study is comparing the earlier years when a firm used U.S. GAAP to the years after it switched to IFRS. Differences in value relevance observed could partially be a factor of economic changes over time. Although previous studies find that value relevance is higher for U.S. GAAP accounting information, another study finds that accounting quality under U.S. GAAP and

IFRS is comparable (Chiu and Lee 2013). This study examines foreign private issuers that file 20-F reconciliations with the SEC before and after the elimination of the reconciliation requirement. The value relevance of IFRS accounting information actually increases after the reconciliation is eliminated, purportedly because accounting numbers are no longer being managed to minimize reconciling items. Chiu and Lee (2013) compare U.S. firms using U.S. GAAP to cross-listed foreign firms using IFRS.

2.3 Trading Volume

2.3.1 Trading Volume as a Measure of Information Content

In addition to value relevance, the information content of an earnings announcement can also be examined through trading volume reaction. Price changes and trading volume surrounding earnings announcements have both been used to determine if announcements have information content (Beaver 1968). An announcement is said to have information content if it leads to "changes in investors' assessments of the probability distribution of future returns" (Morse 1981). While early research in the field found similar results for trading volume and price reactions, Bamber (1986) points out that there is reason to believe the results of these two types of studies will not always be similar. Security prices can reflect an average or aggregate change in investors' beliefs, but trading volume reflects investors' activity (Bamber 1986). In other words, price changes can be interpreted as the market evaluation of new information, while volume is often interpreted as an indication of the extent to which investors disagree about the meaning of the information (Karpoff 1987; Beaver 1968). Bamber states that trading volume "preserves differences between investors' interpretations of accounting disclosures that are suppressed in the averaging process that determines prices" (1987). Bamber proposes and finds that firm size is inversely related with unexpected trading volume, even when holding the level of unexpected earnings constant (1986). She offers two potential reasons for this relationship. Either smaller firms' earnings announcements are harder to predict, which leads to more surprises than larger firms' earnings releases, or earnings releases of smaller firms' constitute a larger portion of the total information available about the firms (Bamber 1986). Bamber also furthers prior results by showing that trading volume is significantly positively correlated with the absolute value of unexpected earnings (1986). This supports the use of trading volume as a measure of the level of information content in an earnings release. However, when discussing price-volume relationships, Karpoff points out that price adjustments to new information tend

to be relatively quick, while abnormally high volume persists for some time after information events (1987). He argues that if this represents "churning" by uninformed traders, then the interpretation of trading volume as a measure of information content in event studies may be doubtful (Karpoff 1987). However, in the same year, results from Bamber suggest that both the magnitude and duration of trading volume reaction to quarterly earnings announcements are related to unexpected earnings and firm size, a proxy for the availability of pre-disclosure information (1987). Bamber explains that the more informative a disclosure, the greater the divergence of opinions and beliefs following the disclosure (1987)¹². This supports the idea that there will be a greater degree of disagreement among investors, resulting in more trading volume, following more informative announcements. In addition, Bamber (1987) relies on behavioral research to explain a potential reason for the prolonged abnormal trading volume after an announcement. According to Bamber, research indicates that people need more time to respond and response times are more variable when they receive more information (1987).¹³ Additionally, while price changes can indicate a consensus change in beliefs, further information-processing after the information release can continue to result in price increases or decreases (Morse 1981). As Morse points out, the time it takes for information to be processed in the market should be important to accountants, since accountants provide the market with processed information and further market processing may indicate that accountants are providing a non-optimal level of information (1981). Although Morse is referring to price reactions, continuing information-processing could be another explanation for the length of time that abnormal trading volume is present following earnings announcements. Both this and the findings from Bamber (1987) suggest the duration of abnormally high trading volume may be a result of information being provided to the market, rather than the trading of uninformed investors as suggested by Karpoff (1987). In addition to these two arguments, Holthausen and Verrecchia (1990) provide support for trading volume analysis being as relevant as price changes for assessing information content. As previously discussed above, trading volume can represent both an increase in information available, as well as a divergence of opinions among investors as a result of this information. The two can occur at the same

¹² Bamber (1987) p. 512 provides citations for this proposal from both capital markets and human information processing research.

¹³ Bamber (1987) provides support for this statement in citations on p. 513.

time, as pointed out by Bamber (1987) when explaining that more information leads to a greater dispersion of interpretations and reaction times. Holthausen and Verrecchia describe these two effects as the "informedness effect" and the "consensus effect" (1990). The authors continue to state that an increase in informedness will result in an increase in trading volume, while an increase in consensus will result in a decrease in trading volume. Therefore, the overall effect on trading volume will be influenced by each of these, possibly in different directions (Holthausen and Verrecchia 1990). Holthausen and Verrecchia also show, through theoretical reasoning, that examining both changes in price variance and changes in trading volume concurrently can help determine which of the two effects dominates (1990).

2.3.2 Trading Volume as a Measure of Pre-disclosure Information Availability

While the literature previously discussed focuses on trading volume as a measure of information content provided in an earnings announcement or similar information release, another portion of the literature suggests that an abnormal level of trading volume can also be informative about the level of information that was available in the market prior to the disclosure. This is similar to what is captured by the size measure in Bamber's two studies (1986; 1987). Kim and Verrecchia show that a difference in the precision of information that investors have prior to an announcement leads to differential belief revision among traders when new information is released, which creates trading volume (1991). They further explain how differences in risk aversion alone cannot produce trading volume, but these differences can affect volume in the presence of differential precision (Kim and Verrecchia 1991). Additionally, the authors point out that while trading volume is often believed to signify differing interpretations of information, an increased level of trading volume can be observed based on the level of differential precision, even without different interpretations. They also suggest that the combination of volume and return studies could identify systematic differences in investors' knowledge or other characteristics (Kim and Verrecchia 1991). The theoretical findings in Kim and Verrecchia (1991) are supported by Atiase and Bamber (1994), who find that the magnitude of trading volume reaction is an increasing function of the magnitude of the associated price reaction and the level of pre-disclosure information asymmetry.

2.3.3 IFRS Announcements and Trading Volume Reactions

The few studies that examine trading volume around IFRS-based announcements commonly interpret abnormal trading volume as a measure of information content. For example, Chen and Sami

(2008) examine the relationship between abnormal trading volume and the magnitude of the earnings reconciliation from IAS to U.S. GAAP on the form 20-F. They find that the magnitude of the reconciliation is positively associated with abnormal trading volume in the U.S. markets, suggesting that the earnings reconciliation provides information to U.S. investors. While their sample period covers 1995 to 2004, a later paper by the same authors finds similar results for 2005 and 2006, immediately before the elimination of the reconciliation requirement (Chen and Sami 2013). Additionally, the authors also find that the strength of the relationship between the earnings reconciliation and abnormal trading volume is dependent on the level of institutional ownership in the firm and whether or not the firm is a first-time IFRS user (Chen and Sami 2013). Landsman et al. (2012) also interpret a high level of trading volume for firms using IFRS to mean that there is more information content in the financial information prepared under IFRS. To support the information content interpretation, they identify three mechanisms through which IFRS adoption may increase information content - reducing reporting lag, increasing analyst following, and increasing foreign investment. As discussed above, interpretations of abnormal trading volume can vary, but examining trading volume parallel with other occurrences can make it possible to distinguish between the various interpretations. As stated in Landsman et al. (2012), research in this area is limited; however, a few prior studies examine trading volume reaction for 20-F filers. Bailey et al. (2006) find that trading volume is higher for these firms after they are cross-listed in the United States, with increases being greater for firms from developed countries. The authors identify the changes in the disclosure environment as the source for increased trading volume.

Chapter 3 Hypotheses Development

3.1 Voluntary IFRS Adoption

Before examining the potential usefulness of IFRS-compliant financial statements in the United States, it is important to first understand which firms are most likely to adopt IFRS if given the choice. The voluntary adoption of IFRS by certain firms can also signal potential motives behind IFRS adoption and attitudes towards the standards. As stated numerous times in the literature, IFRS will be voluntarily adopted when the perceived benefits outweigh the costs. Therefore, a generalized hypothesis regarding the use of IFRS by foreign private issuers is given as follows:

H1: Foreign private issuers will use IFRS financial statements in their SEC filings when the benefits outweigh the costs.

However, in order to test this hypothesis, a more detailed explanation of the potential costs and benefits is needed. The following hypotheses will focus on specific firm-characteristics that will contribute to the level of costs and benefits a firm realizes by adopting IFRS in order to predict which firms are most likely to use IFRS in the United States. Numerous factors can affect a firm's accounting standard choice, making the resulting decision complex. This study will attempt to identify the most relevant factors based on the literature review of costs and benefits discussed above.

3.1.1 U.S. Investor Preference for U.S. GAAP

If the goal of firms listing in the United States is to obtain financing from U.S. investors, it is in their best interest to provide financial statements that appeal to these investors. In survey results, it has been shown that U.S. investors prefer U.S. GAAP (McEnroe and Sullivan 2006). A study conducted by Gavin, Anderson and Company implies that this apparent bias is not simply driven by nonprofessional or less informed investors. U.S. portfolio managers, analysts, and financial researchers all claim that the use of U.S. GAAP is important in making investment decisions, indicating that even professional investors see a benefit to U.S. GAAP over IFRS (Bradshaw et al. 2004). An experiment conducted by Maroney et al. supports the potential for a "home bias" by showing that 20-F reconciling items are valued differently depending on the country of origin (2008). The view that U.S. GAAP is the preferred set of standards in the U.S. is supported by prior literature that suggests cross-listed firms may use U.S. GAAP to attract U.S. market participants, reduce information processing costs, and reduce U.S. home bias (Khanna et al. 2004; Bradshaw et al. 2004; Bushee 2004; Khurana and Michas 2011). If the accounting standard decision is based solely on pleasing U.S. investors, it seems likely that all firms listing in the United States would provide U.S. GAAP financial statements in order to strengthen their ability to obtain financing from these investors. However, this is not the case. In fact, over recent years, the number of foreign firms using IFRS in the United States has been steadily increasing. Based on the previous assumption that U.S. GAAP is the optimal choice for these firms, in order for a firm to use IFRS instead, it must be true that the benefits of using U.S. GAAP do not outweigh the costs, as stated in hypothesis one. Ashbaugh (2001) concludes that non-U.S. firms report IAS financial information in order to receive some of the

benefits of providing more standardized financial information, while incurring costs less than those realized when implementing U.S. GAAP. Although the setting for Ashbaugh (2001) is the London Stock Exchange, it supports the idea that U.S. GAAP is the optimal choice for foreign private issuers; however, it is potentially more costly than using IFRS, which leads to a mixture of choices by foreign private issuers. Therefore, it is necessary to consider other factors that can contribute to a firm's decision regarding accounting standards.

3.1.2 Factors of IFRS Adoption in the United States

Based on prior literature, several factors can contribute to the amount of costs and benefits that a firm experiences from using U.S. GAAP or IFRS in the United States. As previously stated, firms are more likely to use IFRS in the United States if the perceived benefits outweigh the costs. Firms listed in the United States benefit from appealing to U.S. investors. However, for some firms, the benefits of using U.S. GAAP to appeal to U.S. investors may be stronger than for others. As discussed in the literature review, cross-listed firms may use U.S. GAAP to attract U.S. market participants, reduce information processing costs, and reduce U.S. home bias (Khanna et al. 2004; Bradshaw et al. 2004; Bushee 2004; Khurana and Michas 2011). These effects are likely to be more important to firms who have more to gain from appealing to U.S. investors. In other words, firms who receive more of a financial benefit from appealing to U.S. investors. This leads to the following hypothesis:

H1a: Cross-listed firms are more likely to use U.S. GAAP in the United States when the location of their primary stock exchange is in the United States.

In this case, the benefits of using U.S. GAAP are increased for foreign private issuers. Cross-listed firms are also more likely to use U.S. GAAP if the costs associated with its use are reduced. Kaya and Pillhofer (2013) document that many firms that are permitted to use IFRS in their home countries choose not to file IFRS-compliant financial statements in the United States. As a potential explanation, they propose that firms who have been listed in the U.S. for a number of years before IFRS adoption, may find it less expensive to continue using U.S. GAAP rather than switching to IFRS. Additionally, prior research also finds that firms are more likely to cross-list following IFRS adoption (Chen et al. 2015). This could mean that firms from countries mandating IFRS will begin cross-listing in the United States and are likely to use IFRS for their financial statements. These two points lead to the following hypothesis:

H1b: The likelihood of a cross-listed firm using U.S. GAAP increases with the number of years the firm has been listed on a U.S. exchange.

The accounting requirements in a firm's home country not only affect the firm's propensity to cross-list, but also the firm's accounting standard choice in countries in which it chooses to cross-list. Kaya and Pillhofer (2013) find that firms from countries that require IFRS predominantly file IFRS financial statements in the United States. Therefore, the hypothesis follows that:

H1c: Foreign private issuers from countries that require IFRS are more likely to file IFRS financial statements in the United States.

The relationship between a firm's home country and its accounting standard choice in the United States can also be less direct. For example, rather than relying simply on the accounting standard requirements of the home country, it can also rely on the institutional characteristics of the home country. Prior literature suggests that the benefits of IFRS adoption are often stronger for firms in countries with stronger enforcement (e.g. Ipino and Parbonetti 2011; Daske et al. 2008; Christensen et al. 2013; Byard et al. 2011; Li 2010). Therefore, foreign private issuers from countries with strong enforcement may not find it necessary to file U.S. GAAP financial statements in order to appeal to U.S. investors. On the other hand, firms from countries with weak enforcement, may perceive a need to file U.S. GAAP financial statements in the United States in order to send a stronger signal to U.S. investors. This leads to the following hypothesis:

H1d: Firms from countries with a stronger level of enforcement are more likely to use IFRS in the United States.

IFRS may also prove to be less costly for firms with multinational operations. Multinational firms are likely to see cost savings as a result of preparing fewer sets of financial statements if they are already preparing IFRS financial statements for other jurisdictions (Hail et al. 2010). Additionally, previous literature suggests that IFRS improves comparability across countries, which could increase the benefits of using IFRS for multinational firms (Horton et al. 2013; Dargenidou and McLeay 2010; Andre et al. 2012; Yip and Young 2012). As a result of decreased costs and increased benefits of using IFRS for multinational firms, the following hypothesis is proposed:

H1e: The likelihood of foreign private issuers using IFRS in the United States increases with the firm's foreign sales as a percentage of total sales.

While the level of foreign sales captures the multinational level of a firm's operations, firms can also issue securities in multiple countries in order to increase their financing sources without any other operations in these countries. The more exchanges on which a firm is cross-listed, the more likely it is that the firm is required to file IFRS financial statements in one of these jurisdictions. This would decrease the cost of providing IFRS-compliant financial statements in the United States, leading to the following hypothesis:

H1f: The likelihood of foreign private issuers using IFRS in the United States increases with the number of exchanges on which the firm is listed.

Finally, a firm's choice of accounting standard can be influenced by the differences in the standards themselves, rather than firm or country characteristics. Although relatively small, differences remain between U.S. GAAP and IFRS (Hail et al. 2010). These differences can lead to differences in reported income (as shown in the reconciliations of foreign private issuers prior to 2007). Firms are aware of these differences as evidenced by the following quote taken from a 20-F filing for the fiscal year 2014:

Currently we report our financial statements under IFRS. There have been and there may in the future be certain significant differences between IFRS and U.S. GAAP, including differences related to revenue recognition, share-based compensation expense, income tax and earnings per share. As a result, our financial information and reported earnings for historical or future periods could be significantly different if they were prepared in accordance with U.S. GAAP. In addition, we do not intend to provide a reconciliation between IFRS and U.S. GAAP unless it is required under applicable law. As a result, you may not be able to meaningfully compare our financial statements under IFRS with those companies that prepare financial statements under U.S. GAAP.¹⁴

Although the effect of the differences between the two sets of standards on financial statements will vary with firm-specific characteristics, firms are more likely to choose the accounting standards that present the results of their operations in the best possible light. For instance, one set of standards may allow firms to manage their earnings through discretionary accruals easier than the other set of standards. As discussed above, the literature addresses the relationship between IFRS and earnings management fairly extensively with mixed results. Additionally, most of these studies compare IFRS to

¹⁴ Taken from the 2014 20-F for ProQR Therapeutics.

standards other than U.S. GAAP that are often of lower quality. A commonly cited difference between IFRS and U.S. GAAP is the lack of precision in IFRS relative to U.S. GAAP (Sun et al. 2011). Prior literature has shown that accruals-based earnings management and income increasing accounting choices are more prevalent when standards are less precise (Ewert and Wagenhofer 2005; Trompeter 1994). In this way, earnings management could be more feasible under IFRS than U.S. GAAP. However, the mixed results of prior research regarding the effect of IFRS adoption on accruals-based earnings management makes it difficult to predict which set of standards will tolerate more earnings management. Therefore, the following hypothesis is stated in the null form:

H1g: A firm's propensity to use accruals-based earnings management does not lead to a difference in the likelihood of firms to use IFRS or U.S. GAAP in the United States.

While a firm's decision regarding which set of accounting standards to use is complex, the hypotheses detailed above are designed to capture some of the major factors that can affect the amount of costs incurred or benefits received from using IFRS in the U.S. capital markets. The combination of these factors should determine whether or not the benefits of using U.S. GAAP outweigh the costs, which as prior literature suggests, will ultimately lead to a firm's accounting standard choice.

3.2 The Value Relevance of IFRS

As discussed above, differences exist between U.S. GAAP and IFRS. These differences could lead to differences in how relevant the information provided by each set of standards is to the market. Differences in value relevance can also be a result of differences in investor perceptions, rather than just the differences in the standards themselves.

Results of prior literature are mixed, making it difficult to hypothesize whether U.S. GAAP or IFRS is more value relevant for foreign private issuers in the United States. Additionally, many prior studies examine settings in which firms are moving from a lower quality set of accounting standards to IFRS. In this case, it seems reasonable to expect an increase in value relevance following IFRS adoption. However, many suggest that U.S. GAAP is at least of comparable quality to IFRS, if not higher quality (Hail et al. 2010). For example, Jermakowicz (2007) finds that the value relevance of accounting information is greater when firms apply U.S. GAAP or IFRS as opposed to German GAAP in Germany. While the author does not distinguish between the two sets of standards, these results indicate that the

two sets of accounting standards may have a comparable effect on the financial statements. To support this, Chiu and Lee (2013) find that the value relevance of IFRS and U.S. GAAP in the United States is comparable. Additionally, Bartov et al. (2005) also find that U.S. GAAP and IAS are both more value relevant than German GAAP in the German market, but they do not find a difference in value relevance of IAS and U.S. GAAP. Results of these studies suggest that the value relevance of the two sets of standards may be comparable; however, two of the three studies discussed are conducted in Germany. Market and investor characteristics could lead to different results in the United States.

In fact, some prior literature suggests that U.S. GAAP is more value relevant than IFRS. While Barth et al. (2012) find an improvement in value relevance for foreign firms after they adopt IFRS, results suggest that U.S. GAAP is still more value relevant. Because this study compares foreign markets to U.S. markets though, it is difficult to distinguish whether the difference in value relevance is a result of differences in accounting standards or differences in the efficiency of the markets in incorporating information into stock prices. Lin et al. (2012) compare U.S. GAAP and IFRS value relevance in the German market and find that U.S. GAAP amounts are more value relevant than IFRS amounts, suggesting that U.S. GAAP is more value relevant than IFRS even in a single-market setting.

Additional research findings outside of value relevance studies also lend credibility to the potential of U.S. GAAP to be more value relevant than IFRS in the U.S. market. A recent experimental study examining investor assessments of reliability and relevance shows that an investor's perception of relevance of accounting information is heavily influenced by perceived reliability of the information, despite the fact that these are two distinct constructs (Kadous et al. 2012). The documented home bias in the literature, as well as survey results of U.S. market participants, suggest that they are likely to believe that U.S. GAAP accounting information is more reliable than IFRS accounting information (Maroney et al. 2008; McEnroe and Sullivan 2006). Therefore, based on the study by Kadous et al. (2012), investors would also be likely to view U.S. GAAP accounting information as more relevant than IFRS information.

However, arguments can also be made that IFRS will be more value relevant for foreign private issuers than U.S. GAAP. Results of Harris and Mueller (1999) show that IAS amounts are more value relevant than U.S. GAAP amounts provided in 20-F reconciliations. Chiu and Lee (2013) also find that

the value relevance of IFRS financial statements for foreign private issuers increases after the 20-F reconciliation requirement is eliminated because amounts are no longer being managed to minimize reconciliations to U.S. GAAP. This suggests that the IFRS amounts may be more value relevant for the foreign private issuers than the U.S. GAAP amounts. Based on the discussion above, the direction of any difference between the value relevance of the two sets of standards is unclear; therefore, the following hypothesis is stated in the null form:

H2: There is no difference in the value relevance of U.S. GAAP and IFRS-based accounting information for foreign private issuers in the United States.

The most common accounting information examined for value relevance in the accounting literature is earnings and book value. Collins et al. (1997) show that the value relevance of one can increase while the other decreases, or they can move in the same direction. The literature discussed above provides numerous examples of instances in which changes in value relevance of earnings and book value move in opposite directions after IFRS adoption (Ahmed et al. 2013). Therefore, the value relevance of earnings and the value relevance of book value must be evaluated separately. Additionally, the value relevance of firms' operating cash flows can vary with the accounting standards used (Ho et al. 2015; Ho et al. 2001). A more complete picture of the value relevance of accounting information can be obtained by including cash flows in the analysis. Similar to the discussion regarding accounting information in general, it is difficult to predict whether earnings, book value, and operating cash flows will be more value relevant under IFRS or U.S. GAAP.

H2a: There is no difference in the value relevance of U.S. GAAP and IFRS-based earnings for foreign private issuers in the United States.

H2b: There is no difference in the value relevance of U.S. GAAP and IFRS-based book value of equity for foreign private issuers in the United States.

H2c: There is no difference in the value relevance of U.S. GAAP and IFRS-based operating cash flows for foreign private issuers in the United States.

While differences still exist between IFRS and U.S. GAAP, the two sets of standards have increased in similarity over the years as a result of the FASB's and IASB's joint projects. As prior literature has documented, changes in accounting quality (including value relevance) are stronger when

firms move from a set of accounting standards that are more diverged from IFRS. Therefore, as the differences between two sets of accounting standards decrease, differences in accounting quality should decrease as well, leading to the following hypothesis:

H2d: The difference in value relevance between U.S. GAAP and IFRS accounting information decreases over time.

3.3 Trading Volume around Form 20-F Filings

The level of information content of an announcement can be derived by examining abnormal trading volume surrounding the announcement, as well as value relevance. While studies examining trading volume after IFRS adoption are limited, studies examining information content in other ways are not. Prior research associates a higher degree of information content with a higher level of abnormal trading volume around an announcement (Bamber 1986). The discussion of value relevance above highlights that it is difficult to predict whether IFRS or U.S. GAAP-based financial statements provide more information to U.S. investors. For this reason, the following hypothesis is stated in the null form:

H3: There is no difference in abnormal trading volume surrounding Form 20-F filings for firms using U.S. GAAP and those using IFRS.

As discussed above, abnormal trading volume can be interpreted in several ways. The most common interpretation in research related to the adoption of IFRS is as a measure of information content. However, an increased level of abnormal trading volume can also be interpreted as a divergence of opinions among investors. Examining trading volume and value relevance concurrently can help distinguish between these two different interpretations. For example, if IFRS information appears to be less value relevant than U.S. GAAP information, but there is a higher level of trading volume surrounding the form 20-F filing of IFRS users than U.S. GAAP users, this would support the interpretation that the level of trading volume is a result of a divergence of investor opinions, rather than information content.

Similarly, results for value relevance and abnormal trading volume in the same direction may support an information content interpretation of the abnormal trading volume, rather than a divergence of opinions. Additionally, an accounting number can prove to be value relevant, but this relevance does not mean that the announcement has provided new information to the market (Barth et al. 2001). Therefore,

an examination of abnormal trading volume can also determine if the information is new information in addition to being value relevant.

Chapter 4 Research Design

4.1 Measures of Value Relevance

Prior research examines the value relevance of accounting information in several ways, as discussed in the literature review above. Similar to the majority of studies conducted in the value relevance area, the methodology begins by using the Ohlson (1995) model. However, in addition to earnings and book value, the model used in this study will also include operating cash flows, as shown in Equation 1. Additionally, the model includes an indicator variable equal to 1 if a firm uses IFRS and 0 if the firm uses U.S. GAAP. This variable is then interacted with each of the three accounting variables, in order to determine if the information is more or less value relevant under IFRS.

$$P_{it} = \alpha_0 + \alpha_1 E_{it} + \alpha_2 BV_{it} + \alpha_3 OCF_{it} + \alpha_4 IFRS_{it} + \alpha_5 (E_{it} * IFRS_{it}) + \alpha_6 (BV_{it} * IFRS_{it}) + \alpha_7 (OCF_{it} * IFRS_{it}) + \varepsilon_{it} \quad \text{Equation 1}$$

In this study, P_{it} is the price of a share of firm i three months after the fiscal year end to allow time for the release of the accounting information. Stock prices used in this analysis are adjusted for stock splits and dividends. E_{it} is the earnings per share of firm i during year t , BV_{it} is the book value per share of firm i at the end of year t , and OCF_{it} is the operating cash flows per share of firm i during year t . α_5 , α_6 , and α_7 are the coefficients of interest to assess whether there is a difference in value relevance between IFRS and U.S. GAAP in the United States.

Prior studies have also examined the R^2 of the regression as a measure of value relevance. In addition to examining the coefficients from Equation 1, this study will also examine the incremental R^2 of earnings, book value, and operating cash flows following the methodology of Collins et al. (1997) and Ho et al. (2001). The methodology begins with the following three regression equations.

$$P_{it} = a_0 + a_1 E_{it} + \varepsilon_{it} \quad \text{Equation 2}$$

$$P_{it} = b_0 + b_1 BV_{it} + \varepsilon_{it} \quad \text{Equation 3}$$

$$P_{it} = c_0 + c_1 OCF_{it} + \varepsilon_{it} \quad \text{Equation 4}$$

Following Ohlson (1995) the model shown below as Equation 5 is estimated and compared with equations 2 and 3 in order to calculate the explanatory power of earnings that is incremental to book value and that of book value that is incremental to earnings.

$$P_{it} = d_0 + d_1 E_{it} + d_2 BV_{it} + \varepsilon_{it} \quad \text{Equation 5}$$

Decomposing the equation into multiple parts allows for the derivation of the incremental explanatory power of earnings, book value, and cash flows relative to each other. By only using Equation 1 to examine the value relevance of book value and earnings, prior research neglects to distinguish between explanatory power that is common to the three pieces of accounting information, and the incremental explanatory power that is distinct to each.

The explanatory power of each equation is determined as the R-squared from each equation. R^2_5 is the total explanatory power of equation 5, while R^2_2 and R^2_3 represent the explanatory power of equations 2 and 3, respectively. These three coefficients of determination are used to determine the incremental explanatory power of book value and earnings relative to each other. $R^2_5 - R^2_2 = R^2_{BV/E}$ represents the incremental explanatory power of book value, that is, the value relevance that is distinct to book value and is not shared with earnings. The incremental explanatory power of earnings is determined as $R^2_5 - R^2_3 = R^2_{E/BV}$. The remaining explanatory power from equation 1 that is not captured in R^2_{BV} or R^2_E represents the explanatory power that is common to both.¹⁵

A similar methodology is used to determine the incremental explanatory power of earnings and cash flows relative to one another, beginning with Equation 6.

$$P_{it} = e_0 + e_1 E_{it} + e_2 OCF_{it} + \varepsilon_{it} \quad \text{Equation 6}$$

Equation 6 is compared to equations 2 and 4 as described above in order to arrive at the explanatory power that is unique to earnings or operating cash flows relative to each other. $R^2_6 - R^2_2 = R^2_{OCF/E}$ represents the explanatory power that is incremental to operating cash flows when compared to earnings. Similarly, $R^2_6 - R^2_3 = R^2_{E/OCF}$ portrays the explanatory power that is unique to earnings relative to cash flows.

¹⁵ This explanation comes directly from Collins et al. (1997). As mentioned in Collins et al. (1997), this decomposition is used in Easton (1985) and is derived theoretically by Theil in 1971.

The final part of this analysis requires the use of Equation 7, in which all three variables are included in the regression.

$$P_{it} = f_0 + f_1 E_{it} + f_2 BV_{it} + f_3 OCF_{it} + \varepsilon_{it} \quad \text{Equation 7}$$

This equation is then compared to equations 5 and 6 to arrive at the explanatory power that is unique to each accounting variable relative to the other two.

These measures of value relevance are comparable to prior research that examines the coefficients on earnings, book values, and operating cash flows to study the value relevance IFRS financial statements. However, this study takes prior research a step further by decomposing the equation to study the incremental value relevance of earnings, book value, and cash flows. Research to date that studies the value relevance of IFRS has primarily focused on studying the coefficients. Therefore, the measures of incremental value relevance represented by the comparison of R^2 in multiple equations provide measures of value relevance that have been present in the literature since Easton (1985), but have been ignored in research studying the value relevance of IFRS. Additionally, only a handful of studies examine the value relevance of operating cash flows, as well as earnings and book value.

In addition to measuring the incremental value relevance using the difference among multiple R^2 's, the R-squared from a model containing the $IFRS_{it}$ interaction terms and a model without the interaction terms models are used to calculate F-tests to determine if the interaction terms with IFRS and other control variables increase the goodness of fit for the model.

4.2 Measures of Trading Volume

As with value relevance, there are multiple methods established in the literature to measure trading volume reactions. Trading volume can be measured as the number of shares traded or the number of individual trades that occur. Prior research suggests that the number of shares traded captures investors' decisions to act, as well as the magnitude of the action, whereas the number of transactions solely captures the number of times investors act (Cready and Ramanan 1995). However, because transaction data is not readily available and expensive to obtain, the majority of studies rely on the number of shares traded to measure trading volume. Cready and Ramanan (1995) lay out guidelines under which transaction data may be necessary, primarily when sample sizes are small and trading

responses are expected to be small. Because this study does not meet the criteria established by Cready and Ramanan (1995) to necessitate the use of transaction data, measures of trading volume will use the number of shares traded. The number of shares traded is often scaled by the number of shares outstanding in previous research studies. This controls for firm size and growth in the number of shares outstanding and traded over time (Bamber et al. 2011).

Because this study is interested in trading spurred by the information provided in a firm's form 20-F, it is beneficial to remove any non-informational trading before conducting the analysis. While a large portion of the literature attempts to remove non-informational trading by controlling for trading during non-announcement periods, this methodology faces certain challenges as explained by Bamber et al. (2011). Kandel and Pearson (1995) argue that a constant flow of information to the market leads to a substantial amount of informed trading even in non-announcement periods. For this reason, removing the average or normal level of trading from trading around an announcement possibly removes some informed trading as well (Bamber et al. 2011). Bamber et al. (2011) suggest that absent a theoretical rationale, studies should examine both an adjusted and unadjusted measure of trading volume. Therefore, this study will use an adjusted measure in primary tests, but use an unadjusted measure in later robustness tests. Because trading volume is highly skewed, even in non-announcement periods, the firm-specific adjustment for non-informational trading will use the median of trading volume during the non-announcement period, rather than the mean (Bamber et al. 1997).

Following Landsman et al. (2012), abnormal trading volume will be defined as follows:

$$AVOL_{it} = \ln(V_{it}/V_i) \quad \text{Equation 8}$$

V_{it} , the daily volume during the period surrounding the earnings announcement, is the shares of firm i traded during day t , with $t = -1, 0, 1$ relative to the earnings announcement day 0. V_i is the median daily trading volume for firm i for days $t-60$ to $t-10$ and $t+10$ to $t+60$. Contrary to Landsman et al. (2012), the median daily trading volume is used to adjust for non-information trading, rather than the average, based on the explanation above. However, an additional analysis is also conducted using mean daily trading volume to measure abnormal trading volume.

4.3 Tests of Hypotheses

4.3.1 Tests of Hypothesis 1

This paper will begin by testing Hypothesis 1, that foreign private issuers use IFRS for their form 20-F filings when the benefits outweigh the costs. To test the first hypothesis, the following regression model is estimated using a probit regression:

$$\begin{aligned} IFRS_{it} = & \beta_0 + \beta_1 SIZE_{it} + \beta_2 LEV_{it} + \beta_3 GROWTH_{it} + \beta_4 EARNMAN_{it} + \beta_5 HOMEIFRS_{it} \\ & + \beta_6 USFIN_{it} + \beta_7 EXCHANGE_{it} + \beta_8 FORSALES_{it} + \beta_9 ENFORCE_{it} + \beta_{10} CLTIME_{it} \\ & + \beta_{11} PERIOD_{it} + \varepsilon_{it} \end{aligned} \quad \text{Equation 9}$$

Where:

$IFRS_{it}$ = 1 if a foreign private issuer prepares financial statements in accordance with IFRS and 0 if the firm uses U.S. GAAP. For primary analyses, a firm is considered to use IFRS if it uses any variation of IFRS; however, for robustness tests, IFRS is limited to only IFRS as issued by the IASB.

$SIZE_{it}$ = the natural log of the firm's market value of equity at year-end. This variable is included based on prior research to control for the effect that firm size has on a firm's decision to use IFRS or U.S. GAAP in the United States (Kim and Shi 2012; Barth et al. 2008). Prior research finds that larger firms are more likely to use IFRS.

LEV_{it} = end of year total liabilities divided by end of year book value of equity. This variable is included as a control based on prior research (Kim and Shi 2012; Barth et al. 2008). Prior research finds that less levered firms are more likely to use IFRS.

$GROWTH_{it}$ = percentage change in sales from prior year. This variable is included as a control based on prior research (Kim and Shi 2012; Barth et al. 2008). Prior research finds that firms with a higher growth rate are more likely to use IFRS.

$EARNMAN_{it}$ = the level of discretionary accruals, calculated as the residual from a regression of the Modified Jones model as detailed in Appendix B. The significance of the coefficient on this variable will test hypothesis 1g.

$HOMEIFRS_{it}$ = 1 if country of incorporation requires IFRS; 0 otherwise. This variable represents the accounting standard requirements of a firm's home country, defined as the country of incorporation. The significance of the coefficient on this variable will test hypothesis 1c.

$USFIN_{it}$ = 1 if the firm's primary exchange is in the United States; 0 otherwise. This variable is intended to capture the level of reliance of a firm on U.S. investors for financing. The more financing a firm receives from the U.S., the more important it will be for the firm to appeal to U.S. investors. The significance of the coefficient on this variable will test hypothesis 1a.

$EXCHANGE_{it}$ = number of exchanges on which a firm is listed. This variable is based on the assumption that as the number of exchanges on which a firm is listed increases, the likelihood that the firm is required to use IFRS in a jurisdiction increases, decreasing the cost of filing IFRS-based financial statements in the United States. The significance of the coefficient on this variable will test hypothesis 1f.

$FORSALE_{it}$ = the natural log of the firm's foreign sales. This variable is used as a control in Kim and Shi (2012), but is used in this study to test the effect of a firm's multinational operations on its accounting standard choice as stated in hypothesis 1e.

$ENFORCE_{it}$ = level of enforcement in the firm's country of incorporation. The measure for the level of enforcement is an index created by Brown et al. (2014). This index is unique from those used in prior literature in that it focus on factors that are specifically relevant to enforcing accounting standard compliance. The significance of the coefficient on this variable will test hypothesis 1d.

$CLTIME_{it}$ = year - first year that foreign private issuer registered with the SEC. This variable captures the length of time that a firm has been registered in the United States. The significance of the coefficient on this variable will test hypothesis 1b.

$PERIOD_{it}$ = 1 if the year is 2007 or later, and 0 if the observation is prior to 2007. This variable is used to capture the effect of the elimination of the form 20-F reconciliation for IFRS filers. This variable should control for the extent that the elimination of the reconciliation affects a firm's decision to use IFRS in the United States.

In addition to conducting a probit regression of Equation 9 as stated, a second probit regression is conducted which includes industry and country fixed effects. The regression is also conducted with two versions of the IFRS variable. The first definition of IFRS includes firms that use any variant of IFRS. The second definition restricts the definition of IFRS to only include firms that use IFRS as issued by the IASB. Univariate analyses are also conducted for each variable.

4.3.2 Tests of Hypothesis 2

To test Hypothesis 2, firms will be split into two groups—those that use IFRS and those that use U.S. GAAP. However, simply splitting based on the value of the variables leaves the analysis vulnerable to selection bias. Therefore, Equation 1 will be estimated using a difference-in-difference approach. The difference-in-difference approach is similar to an OLS regression; however, it is designed to measure the difference in the changes in the outcome variable (in this case, stock price) between a treatment and control group over time, similar to an experimental study. As described above, the coefficients in this equation will assess the value relevance of each piece of accounting information. The coefficients on the interaction terms will represent the difference in the value relevance for firms using IFRS and firms using U.S. GAAP. Although many firms file their form 20-F with the SEC earlier than required, the SEC allows foreign private issuers four months to submit their filings after the fiscal year-end. Therefore, in addition to analyzing Equation 1 with the stock prices three months after the fiscal year-end, the analysis is repeated with stock prices six months after the fiscal year-end. Similar to the tests of hypothesis 1, the analysis is repeated with country and industry fixed effects. Also, as explained in tests of hypothesis 1, the regression is conducted with the more restrictive definition of IFRS; however, these results are untabulated.

In order to ensure that the relationship between a firm's accounting standard choice and the value relevance of its accounting information is not driven by other firm characteristics, Equation 7 is estimated including control variables that are based on prior literature.

$$\begin{aligned} P_{it} = & \beta_0 + \beta_1 E_{it} + \beta_2 BV_{it} + \beta_3 OCF_{it} + \beta_4 IFRS_{it} + \beta_5 INT_{it} + \beta_6 ONE_{it} + \beta_7 LOSS_{it} + \beta_8 SIZE_{it} + \\ & \beta_9 (E_{it} * IFRS_{it}) + \beta_{10} (BV_{it} * IFRS_{it}) + \beta_{11} (OCF_{it} * IFRS_{it}) + \beta_{12} (E_{it} * INT_{it}) + \beta_{13} (BV_{it} * INT_{it}) + \\ & \beta_{14} (OCF_{it} * INT_{it}) + \beta_{15} (E_{it} * ONE_{it}) + \beta_{16} (BV_{it} * ONE_{it}) + \beta_{17} (OCF_{it} * ONE_{it}) + \beta_{18} (E_{it} * LOSS_{it}) + \\ & \beta_{19} (BV_{it} * LOSS_{it}) + \beta_{20} (OCF_{it} * LOSS_{it}) + \beta_{21} (E_{it} * SIZE_{it}) + \beta_{22} (BV_{it} * SIZE_{it}) + \\ & \beta_{23} (OCF_{it} * SIZE_{it}) + \varepsilon_{it} \end{aligned} \quad \text{Equation 10}$$

Where:

$INT_{it} = 1$ if a foreign private issuer is in an industry that is identified as intangible-intensive, and 0 otherwise. Intangible-intensive industries are defined as the two-digit SIC codes 48 (electronic components and accessories), 73 (business services), and 87 (engineering, accounting, R&D and

management related services) and three-digit SIC codes 282 (plastics and synthetic materials), 283 (drugs), and 357 (computer and office equipment), following Collins et al. (1997).

$ONE_{it} = 1$ if a firm reports one-time items, and 0 otherwise. One-time items include extraordinary items, discontinued operations, and special items.

$LOSS_{it} = 1$ if a firm reports negative core earnings, and 0 otherwise. Core earnings are defined as net income minus one-time items.

$SIZE_{it}$ = the natural log of the firm's market value of equity at year-end.

Previous literature suggests that earnings, book value, and operating cash flows can all become less value relevant when firms rely heavily on intangibles (Collins et al. 1997). Therefore, the accounting information of firms in intangible-intensive industries may be less value relevant. The level of nonrecurring items a firm reports can also affect the value relevance of earnings and book value. As firms report more one-time items, their earnings become more transient, making them less reliable for predicting future earnings and forcing investors to rely more on book values (Collins et al. 1997). Therefore, the value relevance of earnings may decrease and that of book value may increase as the level of one-time items increases. Similarly, earnings become less value relevant when firms are in financial distress because they are less predictive of the future. Again, this pushes investors to place more reliance on the book value of the firm (Collins et al. 1997). Because of this, firms reporting losses may experience lower value relevance of earnings, but higher value relevance of book value. Finally, firm size can moderate the relationship between accounting information and stock prices. Because smaller firms often include start-up companies whose future potential is not predicted by current earnings and firms that are more prone to financial distress, book values can take on increased importance for smaller firms, while earnings may be less related to stock prices (Collins et al. 1997). Each of these four firm characteristics are interacted with each accounting information variable.

To test the incremental value relevance of each piece of accounting information, an OLS regression will be used to estimate Equation 2 for each of the two groups (those that use IFRS and those that use U.S. GAAP) separately. R^2_1 from these regressions will speak to whether these two pieces of information are value relevant as a whole for firms using IFRS or U.S. GAAP. This will test Hypothesis 2 and partially tests Hypotheses 2a and 2b.

Equations 3 and 4 are then run separately for firms that use IFRS and firms that use U.S. GAAP. Incremental explanatory power for earnings and book value is then calculated by subtracting the R^2 's of these two equations from R^2_1 for each of the two groups as explained in section 4.1. The incremental explanatory powers obtained from the sample of IFRS firms and the sample of U.S. GAAP firms will then be compared for differences. This will provide evidence to reject or support Hypotheses 2a and 2b.

Finally, in order to test Hypothesis 2d, Equation 1 will be estimated for each year individually to determine if value relevance is changing over time. Any changes in the coefficients of Equation 1 or the adjusted R^2 's will provide evidence to support whether the value relevance of each set of standards is changing over time. In addition to conducting a separate regression for each year, a pooled regression is also conducted that includes a variable, TIME, which equals the year of the observation minus 2003. This variable is then used to create three-way interaction terms with IFRS and each of the three accounting variables (BV, E, and OCF). A similar analysis is conducted using the variable PERIOD instead of TIME, which is equal to one if an observation occurs after the SEC eliminated the reconciliation requirement for IFRS filers in 2007 and 0 otherwise.

4.3.3 Tests of Hypothesis 3

As with the value relevance test, selection bias remains an issue for testing the effects of accounting standard choice on trading volume around form 20-F filings. Again, a difference-in-difference approach will be used to control for selection bias. After calculating the abnormal trading volume as explained in section 4.2, the following regression equation will be used to examine the effect of IFRS adoption on abnormal trading volume, following Landsman et al. (2012):

$$AVOL_{it} = \beta_0 + \beta_1 IFRS_{it} + \beta_2 TREND_{it} + \beta_3 SIZE_{it} + \beta_4 NUMEST_{it} + \beta_5 REPLAG_{it} + \beta_6 LEV_{it} + \beta_7 DLOSS_{it} + \beta_8 UE_{it} + \beta_9 DISP_{it} + \varepsilon_{it} \quad \text{Equation 11}$$

where;

$$AVOL_{it} = \ln(V_{it}/V_i)$$

$$IFRS_{it} = 1 \text{ if the firm uses IFRS; } 0 \text{ otherwise}$$

$$TREND_{it} = \text{year} - 2003$$

$$NUMEST_{it} = \text{number of analysts that follow a firm during the year of the 20-F filing}$$

$$REPLAG_{it} = \text{time from fiscal year end to the earnings announcement date}$$

LEV_{it} = end of year total liabilities divided by end of year book value of equity

$DLOSS_{it}$ = 1 if reported earnings are less than zero; 0 otherwise

UE_{it} = absolute difference between actual earnings per share and most recent mean analyst earnings estimate

$DISP_{it}$ = standard deviation of analysts' earnings forecasts, scaled by closing stock price

The significance of the coefficient on $IFRS_{it}$ will test Hypothesis 3. A positive coefficient on this variable indicates that more abnormal trading volume surrounds the earnings announcements for firms following IFRS, whereas a negative coefficient indicates that a higher degree of abnormal trading volume is associated with foreign private issuers that use U.S. GAAP. The remainder of the variables are controls identified by prior research that potentially affect trading volume volatility (Landsman et al. 2012).

In addition to conducting the regression as shown, the analysis is conducted a second time including industry and country fixed effects. The analysis is also repeated using the more restrictive definition of IFRS described in the tests of hypotheses 1 and 2. As described in the measures of abnormal trading volume, the primary analysis uses median trading volume to calculate abnormal trading volume; however the regression is repeated using mean trading volume to define abnormal trading volume.

A final test of hypothesis 3 is conducted surrounding the filing of the firm's 20-F rather than the announcement date. When using this time period, $REPLAG_{it}$ is replaced with the time between the firm's fiscal year-end and the date it files the form 20-F with the SEC.¹⁶

4.4 Data

Data for this analysis is obtained from multiple sources. For Equation 1, data for P_{it} is obtained from CRSP monthly stock files. Data for E_{it} , BV_{it} , and OCF_{it} is retrieved from Compustat North America. Data related to a firm's accounting standard choice, $IFRS_{it}$, is hand-collected from the firm's filings (either form 20-F or 40-F) on EDGAR. This information is obtained from the auditor report in the forms.

For Equation 9, the data to calculate $SIZE_{it}$, LEV_{it} , and $GROWTH_{it}$ is found in Compustat North America. The year of a foreign private issuer's first filing with the SEC on EDGAR is retrieved from WRDS

¹⁶ An event study is also conducted using three-day cumulative abnormal returns surrounding the earnings announcement; however, results are insignificant and untabulated.

SEC Analytics Suite, in order to calculate $CLTIME_{it}$. Information regarding the accounting standard requirements of a firm's home country is obtained from the PWC publication, "IFRS Adoption by Country," in order to create the variable, $HOMEIFRS_{it}$. Foreign sales used to calculate the variable $FORSALE_{it}$ is obtained from the Compustat's Historical Segments data. Segments are defined as foreign if they are in a country other than the firm's country of incorporation. All segments defined as foreign are then totaled to arrive at total foreign sales. The number of exchanges on which a firm is listed, $EXCHANGE_{it}$, and the primary stock exchange of the firms used to define $USFIN_{it}$ is retrieved from Datastream. As previously mentioned, the level of enforcement in a firm's home country, $ENFORCE_{it}$, is an index obtained from Brown et al. (2014).

The data to calculate the dependent variable in Equation 11, $AVOL_{it}$, is retrieved from CRSP using Eventus. Data for the variables, $NUMEST_{it}$, UE_{it} , and $DISP_{it}$, is obtained from IBES. In order to calculate $REPLAG_{it}$, the date the form 20-F is filed is obtained from WRDS SEC Analytics or the earnings announcement date is retrieved from IBES. The data to $DLOSS_{it}$ is obtained from Compustat.

Chapter 5 Empirical Results

5.1 Sample Selection and Descriptive Statistics

The sample for this study begins with all foreign private issuers registered with the Securities and Exchange Commission during the years 2004 through 2014. The sample period begins with 2004 because prior to the European Union's mandatory adoption in 2005, very few firms filed financial statements with the SEC that were compliant with IFRS as issued by the IASB. The sample period ends in 2014 because at the time of this study, this is the most recent data available. Because this study is interested in a comparison of the value relevance/abnormal trading volume associated with IFRS and U.S. GAAP-based financial statements, observations that use a local GAAP other than IFRS are eliminated. In order to test Hypothesis 1, several variables are retrieved from Compustat in order to estimate Equation 9. Therefore, any firms that do not appear in Compustat are eliminated from the sample.

In tests of Hypothesis 2, the sample is further restricted to only include firms that are also present in CRSP. This is necessary in order to obtain the dependent variable for tests of Hypothesis 2.

Finally, in order to test Hypothesis 3, data is needed from IBES regarding analyst forecasts. Therefore, the sample for these tests is limited to only include firms that are also present in the IBES database. The sample selection procedure for each of the three tests are detailed in Table 1.

-----Insert Table 1 Here-----

Table 2 presents details regarding firms' accounting standard choices by year and country. Although firms that use a local GAAP are excluded from the tests of hypotheses, these firms are included in Table 2 because they provide information regarding how firms are changing their accounting standard choice. Table 2 Panel A shows the number of firms using IFRS, U.S. GAAP, or local GAAP in each year of the sample period. As previously mentioned, very few foreign private issuers used IFRS prior to mandatory adoption in the European Union in 2005. However, although only 38 firms were using IFRS in 2004, the sample includes 420 IFRS users by 2014, surpassing the number of U.S. GAAP users. Despite the growth in IFRS usage in the United States, the number of firms using U.S. GAAP remains relatively constant during the sample period. Table 2 Panel B reveals that the majority of firms using IFRS appear to be switching from a local GAAP rather than U.S. GAAP. By the end of the sample period, very few firms are using anything other than IFRS or U.S. GAAP. The large jumps in the number of IFRS users in 2005 and 2011 coincide with the adoption of IFRS in the European Union and Canada, respectively. However, it appears that the elimination of the reconciliation requirement by the SEC in 2007 did not lead to a large increase in the number of firms using IFRS.

-----Insert Table 2 Here-----

The increase in the use of IFRS by foreign private issuers that is concurrent with mandatory adoption suggests that requirements in a firm's home country are a major contributor to the accounting standard decision in the United States; however, Table 2 Panel B reveals that this does not entirely explain the accounting standard choice. Over the course of the sample period, 1,117 firm-year observations use U.S. GAAP even after IFRS is required in their home countries. Additionally, 473 firm-year observations use IFRS in the United States even though it is not required in their home countries.

After restricting the sample to meet the requirements of the hypotheses tests, Table 3 provides the descriptive statistics for the variables used in each analysis. The statistics are presented separately for firms using U.S. GAAP and firms using IFRS in order to allow a comparison of the firm characteristics.

-----Insert Table 3 Here-----

The descriptive statistics presented in Table 3 suggest that firms using IFRS are typically bigger, and have a higher growth rate than firms using U.S. GAAP. Results of t-tests are significant at the 1% and 10% level, respectively. This is consistent with prior research that finds larger, growing firms are more likely to adopt IFRS. While prior research finds that less levered firms are more likely to adopt IFRS, results of the t-test reveal that any difference in leverage between firms using U.S. GAAP and firms using IFRS is not significant at conventional levels (Kim and Shi 2012; Barth et al. 2008). Descriptive statistics reveal that there is no significant difference in the level of earnings management exhibited by the two groups of firms. Consistent with hypothesis 1c, 51 percent of firm-year observations using U.S. GAAP are from countries that require IFRS, whereas 85 percent of IFRS users are from countries requiring IFRS. This difference is significant at the 1% level. Firms using IFRS are listed on more exchanges and have a higher level of foreign sales than firms using U.S. GAAP. The difference in both measures is significant at the 1% level, lending support to hypotheses 1e and 1f. As predicted by hypothesis 1d, the average level of enforcement in a firm's home country is slightly higher for IFRS users than U.S. GAAP users, although this difference is insignificant. Contrary to hypothesis 1b, firms using IFRS have been cross-listed in the United States longer than U.S. GAAP users. Based on the descriptive statistics, a larger portion of firms seem to use IFRS after the elimination of the reconciliation requirement in 2007.

Looking at the descriptive statistics for variables used in tests of hypothesis 2, firms using IFRS appear to report higher book values, earnings, and operating cash flows than firms using U.S. GAAP. The difference for each of these is significant at the 1% level. The stock price of IFRS firms is also higher than that of U.S. GAAP firms, and this difference is significant. Descriptive statistics for control variables used in additional tests of hypothesis 2 reveal that more U.S. GAAP users are in intangible-intensive industries. Additionally, U.S. GAAP firms report more losses than IFRS firms.

The descriptive statistics of control variables used for testing hypothesis 3 show that U.S. GAAP users have a higher level of abnormal trading volume surrounding earnings announcements than IFRS users. This difference is significant at the 1% level when AVOL is measured using medians, as well as when it is measured using means. suggest that firms using IFRS have a lower analyst following and larger forecast errors. While there is no significant difference in the lag between a firm's fiscal year-end and earnings announcement depending on accounting standard choice, firms using IFRS have a shorter report lag than firms using U.S. GAAP when report lag is measured as the time between fiscal year-end and the filing of the 20-F with the SEC. This could be because U.S. GAAP users have to prepare an additional set of financial statements. Additionally, U.S. GAAP firms have a significantly higher number of analysts following, and these analysts produce a significantly lower forecast error compared to IFRS firms. However, there is not a significant difference in the level of dispersion of analyst forecasts depending on the accounting standards.

Table 4 provides Pearson correlation coefficients separated into three panels. Panel A contains correlations for variables used in tests of hypothesis 1. Panel B provides correlations for variables used in testing hypothesis 2, and Panel C provides correlations for the variables related to hypothesis 3 tests.

-----Insert Table 4 Here-----

5.2 Tests of Hypothesis 1

Table 5 presents results for three tests of hypothesis 1 (Equation 6). Model 1 tests a probit regression of Equation 6 as shown. Model 2 includes industry and country fixed effects in the regression. Model 3 uses a different measure of the dependent variable, IFRS. In Model 1, a firm is considered to use IFRS if it uses any variation of IFRS; however in Model 3, the definition is limited to firms that use IFRS that is in accordance with the IASB.

-----Insert Table 5 Here-----

In each model, $SIZE_{it}$, LEV_{it} , and $GROWTH_{it}$ are included as control variables based on prior literature (Kim and Shi 2012; Barth et al. 2008). Consistent with prior literature, the coefficient on $SIZE_{it}$ is positive and significant at the 1% level in every test; however, LEV_{it} and $GROWTH_{it}$ are not significant in any of the models. $PERIOD_{it}$ is included as an additional control variable to indicate whether an

observation is before or after the elimination of the Form 20-F reconciliation requirement for IFRS filers in 2007. As expected, this variable is positive and significant at the 1% level in all three models, suggesting that firms are more likely to use IFRS after the reconciliation requirement is eliminated. The variable $USFIN_{it}$ is used to test Hypothesis 1a. This variable is equal to 1 if a firm's primary stock exchange is in the United States and 0 otherwise. It is designed to capture the level of a firm's reliance on U.S. markets for equity financing. While the variable is insignificant in Model 1, it is significantly positive at the 1% and 10% levels in Models 2 and 3, respectively. This supports Hypothesis 1a that a firm is more likely to use U.S. GAAP in the United States if its primary stock exchange is located in the U.S. Tests of Hypothesis 1b examine the coefficient on the variable $CLTIME_{it}$. Hypothesis 1b predicts that firms that have been listed in the United States longer are more likely to use U.S. GAAP for their financial statements in their SEC filings. The negative coefficient on this variable in all three models supports Hypothesis 1b; however it is only significant at the 10% level in Models 1 and 2 and is not significant at conventional levels in Model 3. Hypothesis 1c predicts that firms are more likely to use IFRS in the United States if they are required to use IFRS in their country of incorporation. The variable $HOMEIFRS_{it}$ is used to test this hypothesis. The coefficient is positive and significant at the 1% level in all three models, lending strong support to hypothesis 1c. However, results for tests of hypothesis 1d seem to contradict the hypothesized relationship between the level of enforcement in a firm's home country and its accounting standard choice in the United States. The negative coefficient on $ENFORCE_{it}$ in each of the three models suggests that firms are more likely to use U.S. GAAP if they have a stronger level of enforcement in their home country. Although this is contrary to the prediction of hypothesis 1d, the level of the relationship between $ENFORCE_{it}$ and $IFRS_{it}$ is minimal. This is supported by the descriptive statistics that revealed the average level of enforcement among both groups of firms is relatively similar. The results of tests of hypothesis 1e are also contrary to expectations. The negative coefficient on $FORSALES_{it}$ indicates that firms with a higher percentage of foreign sales are less likely to use IFRS in the United States. The result is significant at the 1% level in Models 1 and 3; however, the result is insignificant in Model 2 when industry and country fixed effects are included. This could suggest that the variable is picking up other country and industry characteristics in Models 1 and 3. Similar to hypothesis 1e, hypothesis 1f is based on the idea that firms are more likely to use IFRS in the United States when they are more multinational.

However, contrary to hypothesis 1e, hypothesis 1f examines the level of multinationality in a firm's equity markets rather than its operations. The coefficient on $EXCHANGE_{it}$ is positive and significant in all three models, suggesting that firms are more likely to use IFRS in the United States when they are listed on more exchanges, as predicted in hypothesis 1f. The results for this variable may be significant, while the results for $FORSALES_{it}$ are not because firms may have more filing requirements associated with listing on exchanges than collecting revenue in foreign countries. Finally, tests of hypothesis 1g examine whether a firm's level of accruals-based earnings management is associated with its accounting standard choice. The coefficient on $EARNMAN_{it}$ is used to test this hypothesis; however, it is insignificant in all three models. Because coefficients from probit regressions cannot be directly interpreted, results for Model 1 include marginal effects as well in Table 5.

Overall, results of the three tests support the majority of hypotheses that fall under hypothesis 1. A number of firm characteristics appear to be associated with a firm's accounting standard choice, suggesting that there are differences between firms that use IFRS and firms that use U.S. GAAP that are driving their accounting standard decisions. Many of the characteristics that are significant seem to be related to reporting efficiency and minimizing reporting requirements. Because of these differences, it seems reasonable to expect differences in the usefulness of the accounting information produced by these firms, which is tested in hypotheses 2 and 3.

5.3 Tests of Hypothesis 2

5.3.1 Tests of Value Relevance using Coefficients

Table 6 presents the results for tests of hypothesis 2 that use the coefficients on variables as the measure of value relevance. Three models are used to test the effect of a firm's accounting standard choice on the relationship between stock prices and accounting information. Model 1 tests Equation 1 as stated in the methodology. Model 2 replaces the dependent variable with the stock price six months after fiscal year-end. While it is common to use the stock price three months after year-end in tests of value relevance, foreign private issuers are allowed four months to file their Form 20-F. Therefore, extending the amount of time between the fiscal year-end and the observation of stock prices past three months allows enough time to ensure that all foreign private issuers have filed their forms and investors have had time to incorporate this information into stock prices. Model 3 includes industry and country fixed effects.

-----Insert Table 6 Here-----

The results of all three models are similar in the significance and sign of coefficients. As expected, book value, earnings and operating cash flows (BV_{it} , E_{it} , and OCF_{it}) are positively related to stock prices. Additionally, the size of the coefficients is consistent with prior literature. The variables of interest for testing hypotheses 2a, 2b, and 2c are the interactions of the accounting information (BV_{it} , E_{it} , and OCF_{it}) and $IFRS_{it}$. In all three models, the coefficients on $BV_{it} * IFRS_{it}$ and $OCF_{it} * IFRS_{it}$ are negative and significant at the 1% level, while the coefficient on $E_{it} * IFRS_{it}$ is positive. This suggests that earnings are more value relevant when firms use IFRS, while book value and operating cash flows are more value relevant when firms use U.S. GAAP.

Although this result holds when including industry and country fixed effects, certain firm characteristics can be associated with higher value relevance of earnings and book value. Therefore, the next test of hypotheses 2a, 2b, and 2c includes certain characteristics identified in prior literature. Specifically, these control variables are designed to capture whether or not the firm is in an intangible-intensive industry (INT_{it}), the amount of one-time items reported (ONE_{it}), whether or not the firm reports a loss ($LOSS_{it}$), and the size of the firm ($SIZE_{it}$). These variables are primarily based on results in Collins et al. (1997) that find these characteristics to have an influence on the shift from the value relevance of earnings to book value. Table 7 presents results that include these control variables and their interactions with the accounting information variables.

-----Insert Table 7 Here-----

Once the control variables are included, the significance of $BV_{it} * IFRS_{it}$ and $E_{it} * IFRS_{it}$ disappears. However, $OCF_{it} * IFRS_{it}$ remains negative and significant. This is reasonable considering that the control variables added primarily relate to the value relevance of earnings and book value. As expected, the results suggest that the presence of one-time items leads to an increased value relevance of book value and decreased value relevance of earnings. One-time items also appear to increase the value relevance of operating cash flows given that the coefficient is positive and significant at the 5% level. With one-time items making earnings more transient and potentially decreasing the value relevance of earnings, investors may rely more on cash flows, making them more value relevant. As expected, book value is

more relevant for firms experiencing negative earnings, while earnings are less value relevant¹⁷. Earnings also seem to be more value relevant for larger firms, as expected based on prior research. Contrary to prior research, the variables $BV_{it} * INTANGIBLE_{it}$ and $E_{it} * INTANGIBLE_{it}$ produce positive coefficients that are significant at the 1% level. Prior literature has found that firms in intangible-intensive industries may experience lower value relevance of earnings and book value as a result of a larger reliance on intangibles that are not presented on the financial statements. However, given that a larger portion of intangible-intensive firms use U.S. GAAP based on the descriptive statistics, and results of other tests suggest that the value relevance of book value is higher for U.S. GAAP firms, the positive coefficient on $BV_{it} * INTANGIBLE_{it}$ could partly be subsuming the effects of the accounting standard difference. When considered as a whole, the results of the coefficient tests suggest that there is a difference in the value relevance of book value, earnings, and operating cash flows between IFRS users and U.S. GAAP users in the sample, but these differences may also be driven by other firm characteristics.

5.3.2 Tests of Incremental Value Relevance using R^2

Table 8 presents the results of value relevance tests that use R^2 as a measure of value relevance rather than the coefficients. In addition to the adjusted R^2 from the regressions, incremental value relevance of each piece of accounting information is calculated by comparing the R^2 's from the decomposed regressions, as explained in the methodology section.

-----Insert Table 8 Here-----

For each regression analysis presented in the table, R^2 , or total value relevance of the accounting information, is higher for firms that use IFRS than firms that use U.S. GAAP. Results of the incremental value relevance tests support the general results found in tests of the coefficients. The incremental explanatory power of earnings over book value is higher for IFRS firms than U.S. GAAP firms, while that of book value over earnings is higher for U.S. GAAP users. This is consistent with results from the previous section that suggest that the value relevance of earnings is higher for IFRS users, while the value relevance of book value is higher for U.S. GAAP users. The value relevance of earnings that is

¹⁷ The coefficient on $BV_{it} * LOSS_{it}$ is significant at the 5% level; however, the coefficient on $E_{it} * LOSS_{it}$ is not significant.

incremental to cash is also higher for IFRS users. However, the value relevance of operating cash flows that is unique from earnings is higher for U.S. GAAP firms. Again, this is consistent with results from the coefficient tests. Finally, the incremental explanatory power of each piece of accounting information in relation to the other two is tested. Consistent with the other results, the incremental explanatory power of earnings is higher for IFRS firms, while that of book value and operating cash flows is higher for U.S. GAAP firms.

In addition to being consistent with results of coefficient tests, these results are also consistent with expectations based on prior literature and the descriptive statistics. Prior literature suggests that earnings in relation to book value become less value relevant during times of financial difficulty, while the value relevance of book value in relation to earnings increases. Similarly, operating cash flows in relation to earnings may become more value relevant during times of financial distress when more transient items are recorded (Ho et al. 2001). Based on the descriptive statistics, U.S. GAAP firms report significantly more losses than IFRS firms. This could explain why earnings appear more value relevant for IFRS firms, and operating cash flows and book value appear more value relevant for U.S. GAAP firms. Therefore, the difference in value relevance seen for the two groups may be a result of firm characteristics other than the accounting standards. However, if the use of U.S. GAAP causes firms to report more losses, than the difference in value relevance could still be linked to accounting standard choice. If this is the case, the difference in value relevance would be driven by actual differences in reporting, rather than any kind of investor perception or bias.

5.3.3 Tests of Temporal Changes in Value Relevance

Table 9 presents the results of tests of hypothesis 2d. In order to examine the change in the difference of IFRS and U.S. GAAP value relevance, regressions of Equation 1 are conducted separately for each year in the 11-year sample period.

-----Insert Table 9 Here-----

It is difficult to observe any trend in the interaction terms for each year. However, while it is not true for every year in the sample period, the majority of the yearly results mirror the pooled results, with

earnings being more value relevant for IFRS firms and book value and operating cash flows being more value relevant for U.S. GAAP firms¹⁸.

In order to test for a trend in the difference in value relevance between IFRS and U.S. GAAP firms, regressions of Equation 1 are conducted with the addition of a trend variable, $TIME_{it}$, and three-way interaction terms composed of the accounting information variables, $IFRS_{it}$, and $TIME_{it}$. These results are presented in Table 10.

-----Insert Table 10 Here-----

With the addition of these variables, the interaction terms, $E_{it} * IFRS_{it}$ and $BV_{it} * IFRS_{it}$, are no longer significant. However, the negative coefficient on $OCF_{it} * IFRS_{it}$ remains significant at the 5% level. While there is not a significant trend in for the difference in the value relevance of operating cash flows between IFRS and U.S. GAAP, the three-way interaction terms for book value and earnings reveal that the difference in value relevance of book value seems to decrease over time, while the difference in the value relevance of earnings is increasing. A second regression analysis is conducted, which replaces $TIME_{it}$ with a binary variable, $PERIOD_{it}$, equal to one if an observation is after the elimination of the reconciliation requirement in 2007 and zero otherwise. Results for this test are similar to those of the previous regression. The difference in the value relevance of book value for IFRS firms and U.S. GAAP firms is smaller after 2007, while that for earnings is larger.

As a final test of whether or not there is a difference in value relevance between firms that use IFRS and firms that use U.S. GAAP, several F-tests are conducted to determine if adding the $IFRS_{it}$ interaction terms improves the value relevance model.

-----Insert Table 11 Here-----

The first test reveals that the use of the $IFRS_{it}$ interaction terms in the value relevance equation improve the model over the simple value relevance regression with price regressed on only the three accounting information variables. Based on the second test, the addition of the $IFRS_{it}$ interaction terms improves the model even when all of the control variables are included. This is interesting because many of the interaction variables decreased in significance when the controls were included. However, based

¹⁸ Most of the coefficients on the interaction terms in the yearly regressions do not meet conventional significance levels; however, this may partially be a result of the small sample sizes.

on this result, it appears there is still a difference in the value relevance of IFRS and U.S. GAAP accounting information, at least as a whole. One final test ensures that the control variables are necessary by revealing that the addition of the controls improves the model even when the $IFRS_{it}$ interaction terms are already included.¹⁹

5.3 Tests of Hypothesis 3

Table 11 reports results for five models that test whether or not a firm's use of IFRS or U.S. GAAP is related to the abnormal trading volume that surrounds the earnings announcement. In each model, abnormal trading volume, $AVOL_{it}$, is the dependent variable, although the measurement varies. Model 1 is a regression analysis of Equation 11 as shown. Model 2 adds industry and country fixed effects to this regression. Model 3 examines the abnormal trading volume surrounding the filing of a firm's 20-F with the SEC, rather than the earnings announcement date. In Model 4, abnormal trading volume is calculated using the means over the respective time periods, rather than the medians. In Model 5, the $IFRS_{it}$ variable is defined to only include firms that use IFRS as issued by the IASB. In all models, the primary variable of interest is $IFRS_{it}$, while the remainder of the variables are control variables identified in prior literature. The results remain fairly consistent across all five models, except for Model 3. In the other four models, $IFRS_{it}$ is negatively related to abnormal trading volume and significant at the 1% level in all but Model 2. Because the significance on $IFRS_{it}$ disappears when industry and country fixed effects are included, the significance of the coefficient in the other models may be driven by other industry and country characteristics.

-----Insert Table 12 Here-----

The remainder of the variables included in the model are control variables, and the majority of these are consistent with predictions based on prior literature as detailed in Table 12.

Chapter 6

Summary and Conclusions

6.1 Summary of Research Questions, Hypotheses and Major Findings

This paper examines the factors underlying a foreign private issuer's decision to use IFRS or U.S. GAAP in the United States and tests whether or not the market uses IFRS and U.S. GAAP information

¹⁹ All results of the F-tests are significant at the 1% level.

differently. The first research question is addressed by modeling a firm's choice of IFRS or U.S. GAAP as a function of various proxies chosen to represent the related costs and benefits of using IFRS. The question of whether or not U.S. investors use the information provided by IFRS or U.S. GAAP differently is examined in two ways. First, the value relevance of the two sets of information is tested by several regressions of stock price on pieces of accounting information with a variable to indicate IFRS usage that is interacted with each piece of accounting information. The purpose of these tests is to determine if the information in the financial statements is impounded into the stock price over a long-window time period. The second test of the usefulness of accounting information to U.S. investors is an event study that uses abnormal trading volume to measure the degree of information contained in the financial statements or the level of disagreement among investors regarding the information. These two methods combined provide both a long-window and short-window view of the usefulness of accounting information.

Prior research examines the value relevance of IFRS accounting information in relation to multiple other accounting standards; however, few studies compare the value relevance of IFRS and U.S. GAAP. Those that do are often prone to sample selection issues that can draw into question the legitimacy of the results. This paper is unique from prior literature in that it uses a sample that allows for a direct comparison of IFRS and U.S. GAAP without examining multiple markets. The sample is comprised entirely of foreign private issuers that are listed in the United States.

Before comparing the usefulness of the two sets of accounting information, the paper begins by examining the characteristics that are associated with a firm's decision to use IFRS or U.S. GAAP in the United States. Hypothesis 1 includes multiple hypotheses that are designed to capture the costs and benefits associated with using each set of accounting standards. These hypotheses are tested using a probit regression that regresses a binary variable to indicate IFRS or U.S. GAAP usage on multiple firm characteristics. Hypothesis 1a states that foreign private issuers will be more likely to use U.S. GAAP when their primary exchange listing is in the United States. Based on prior research, evidence suggests that investors may have a home bias that extends to accounting standards, meaning that U.S. investors will have a preference for U.S. GAAP. Therefore, the more heavily a firm relies on U.S. investors for its equity financing, the more important it is to appeal to these investors, increasing the benefits of using U.S. GAAP. Results suggest that firms whose primary stock exchange is in the United States are more likely

to use U.S. GAAP; however, the significance of these results is questionable. Hypothesis 1b posits that the longer a firm is listed in the United States, the more likely it is to use U.S. GAAP because it is less costly for the firm to continue using U.S. GAAP than to switch its reporting process to provide IFRS financial statements in the U.S. Based on the results of the probit regression, firms that have been listed in the United States longer are more likely to use U.S. GAAP; however, these results are only significant at the 10% level. Because it is less costly for a firm to use IFRS financial statements in the United States if it is already preparing them for another jurisdiction, hypothesis 1c predicts that firms are more likely to use IFRS in the United States if they are required to use IFRS in their country of incorporation. Results of the regression strongly support this hypothesis. Hypothesis 1d tests the idea that firms from countries with a higher level enforcement are more likely to use IFRS in the United States because they feel less need to use U.S. GAAP as a signal of quality for U.S. investors. Results do not support this hypothesis. The effect of a firm's multinationality on its accounting standard choice in the United States is examined in tests of hypotheses 1e and 1f. Hypothesis 1e predicts that firms with a higher percentage of foreign sales will be more likely to use IFRS as a result of the increased multinational nature of their operations, while hypothesis 1f predicts that the likelihood of a firm using IFRS in the United States increases with the number of exchanges on which a firm is listed because it is more likely they are already preparing IFRS-compliant financial statements for another jurisdiction. Both of these hypotheses are supported by the results. Finally, tests of hypothesis 1g examine the relationship between a firm's level of earnings management and its accounting standard choice; however, the results do not identify an association.

Overall, the results of the tests described above suggest that firms choose accounting standards in the United States in order to maximize reporting efficiency, with a slight focus on appealing to U.S. investors as well. After determining the characteristics associated with a firm's accounting standard choice, tests of hypothesis 2 examines the difference in the value relevance of earnings, book value and operating cash flows for the two groups of firms. The effect of accounting standard choice on the value relevance of accounting information is not predicted because of mixed results in prior literature. Value relevance is examined in several ways. The first method uses an OLS regression based on the Olson (1995) model of value relevance, which regresses price on earnings and book value. In this paper, the model includes a measure of operating cash flows, as well as interaction terms for each piece of

accounting information and an indicator variable to signify accounting standard choice. The coefficients on these interaction terms reveal the difference in value relevance for the two sets of standards. While results vary slightly across tests, earnings appear to be more value relevant for IFRS users, but book value and operating cash flows are more value relevant for U.S. GAAP firms. In addition, tests designed to calculate the incremental value relevance of each piece of accounting information, rather than the total value relevance, produce similar results. The difference in value relevance of book value and operating cash flows appears to decrease over time, while the difference in the value relevance of earnings is increasing, although some of these results are not significant. As a final test, the regression analysis is repeated with additional control variables that have been shown to affect the relative value relevance of book value and earnings in prior literature. The inclusion of these controls causes the difference in the value relevance of book value and earnings to become insignificant; however, results for operating cash flows remain significant. This suggests that observed differences in the value relevance of the two sets of standards may be driven by other firm characteristics.

Tests of hypothesis 3 compare the market reaction to earnings announcements for each group of firms. As with hypothesis 2, hypothesis 3 does not predict a direction for the effect of accounting standard choice on abnormal trading volume. In most models tested, the use of IFRS is negatively related to abnormal trading volume, suggesting that either there is less information content in the earnings announcements of IFRS firms or there is less divergence of opinions among investors for these firms. Given the increased value relevance of earnings in the prior section, a lack of information content in the earnings announcement seems unlikely to drive the results. It is important to note that once industry and country fixed effects are included in the regression, the significance of the relationship between IFRS usage and abnormal trading volume disappears, suggesting that the results may be driven by other characteristics.

6.2 Contribution

This paper contributes to the accounting literature regarding the adoption of IFRS in several ways. With tests of hypothesis 1, the paper provides insights to the reasoning behind foreign private issuers' accounting standard choices in the United States. An examination of the factors associated with a firm's use of IFRS or U.S. GAAP in the United States indicates that a firm's decision may be largely

influenced by minimizing the reporting burden. There is minimal evidence that firms may choose U.S. GAAP when it is more important for them to appeal to U.S. investors, suggesting that U.S. investors may have a preference for U.S. GAAP. Prior literature has not identified the reasons behind a foreign private issuer's accounting standard choice in the United States.

This paper also contributes to the literature with the use of a unique sample that is better equipped to answer questions regarding the potential adoption of IFRS in the United States. Prior literature attempts to hypothesize about market reactions to IFRS in the United States by examining samples outside the U.S. where countries have adopted IFRS. However, this type of analysis is prone to potential confounding factors that make it difficult to contribute differences to accounting standards. For example, comparing the value relevance of U.S. GAAP in the United States to that of IFRS in other markets cannot address U.S. investor sentiments toward IFRS. By using a sample that examines the use of IFRS and U.S. GAAP in the United States, this study removes many of these confounding factors from the analysis of the results. This sample is also a better indication of U.S. investor reactions toward the adoption of IFRS than prior literature that examines the use of IFRS in other markets because U.S. investors may have different biases and react differently than financial statement users in other countries.

Finally, this study contributes to the literature by combining the use of an association study and an event study to examine the usefulness of IFRS financial statements to U.S. investors. While the value relevance study identifies whether or not the information in the financial statements is incorporated into the stock price after three months, the trading volume study examines how investors react to the earnings announcements of these two groups of firms immediately upon release. By using both methods, this study provides a more complete picture regarding the usefulness of IFRS financial statements by examining whether or not the information in these statements is incorporated into stock prices and the process through which this information is incorporated.

6.3 Future Research

In addition to contributing to the literature in several ways, the use of a unique sample in this study also creates the opportunity for additional future research regarding the use of IFRS or U.S. GAAP in the United States. Although measures of analyst following and forecast error are only used as controls in this study, descriptive statistics indicate that there may be differences in these measures for the two

groups of firms. Future research can examine the differences in measures related to analysts using this study in order to study analyst reactions to IFRS in the United States.

While this study begins examining whether or not a foreign private issuer's accounting standard choice affects the market reaction to financial information, future research can more fully examine which firm characteristics may be driving results. Results of this paper indicate that firm characteristics such as negative earnings may be driving differences in value relevance rather than accounting standards. However, future research can address this possibility by more closely examining the differences in the frequency of reported losses for U.S. GAAP and IFRS users and whether or not they vary systematically over time with the value relevance of the accounting information. Future research can also attempt to identify whether or not the differences in the accounting standards are leading to the difference in the frequency of reported losses, or whether firms that are more likely to experience losses are also more likely to use U.S. GAAP. This type of analysis can also be conducted for other variables identified in the study to influence value relevance and market reactions.

This study contributes to the literature in several ways, with the biggest contribution being the use of a unique sample to answer questions regarding the potential use of IFRS in the United States. Not only does this study contribute to the literature by using the sample, the identification of this sample also creates many potential future research opportunities to more fully understand the potential consequences of IFRS adoption in the United States, which can aid in any future decisions of the Securities and Exchange Commission.

Appendix A

Tables

Table 1 Sample Selection Process

Sample Selection Procedure for Tests of H1	Firm-year Observations
Observations from SEC's Foreign Private Issuer Lists (2004 through 2014)	11,571
Less: Firm-year observations not in COMPUSTAT (no GVKEY)	(1,882)
Less: Firm-year observations missing financial statements in EDGAR	(664)
Less: Firm-year observations using Local GAAP	(2,569)
Less: Firm-year observations missing Compustat data	(657)
Less: Firm-year observations missing enforcement data	(1,409)
Less: Firm-year observations missing Datastream data	(1,989)
Final number of firm-year observations for tests of H1	2,401

Sample Selection Procedure for Tests of H2	Firm-year Observations
Observations from SEC's Foreign Private Issuer Lists (2004 through 2014)	11,571
Less: Firm-year observations not in COMPUSTAT (no GVKEY)	(1,882)
Less: Firm-year observations missing financial statements in EDGAR	(664)
Less: Firm-year observations using Local GAAP	(2,569)
Less: Firm-year observations missing Compustat data	(223)
Less: Firm-year observations missing CRSP data	(836)
Final number of firm-year observations for tests of H2	5,397

Sample Selection Procedure for Tests of H3	Firm-year Observations
Observations from SEC's Foreign Private Issuer Lists (2004 through 2014)	11,571
Less: Firm-year observations not in COMPUSTAT (no GVKEY)	(1,882)
Less: Firm-year observations missing financial statements in EDGAR	(664)
Less: Firm-year observations using Local GAAP	(2,569)
Less: Firm-year observations missing IBES data	(2,504)
Final number of firm-year observations for tests of H3	3,954

Table 2 Accounting Standard Choice by Year and Country

Panel A: Distribution by Year and Accounting Standard

Year	IFRS	U.S. GAAP	Local GAAP	Total observations
2004	38	331	514	883
2005	127	352	416	895
2006	123	358	371	852
2007	109	378	341	828
2008	137	358	300	795
2009	161	358	272	791
2010	195	371	238	804
2011	370	372	70	812
2012	409	364	23	796
2013	419	353	12	784
2014	420	346	12	778
	2508	3941	2569	9018

Panel B: Distribution by Country and Accounting Standard

Country	IFRS	U.S. GAAP	Local GAAP	Total observations
<i>IFRS Not Required</i>	<i>473</i>	<i>2824</i>	<i>2450</i>	<i>5747</i>
Argentina	4		100	104
Australia	1	3	13	17
Austria		1		1
Belgium		1	1	2
Bermuda	57	198	20	275
Brazil	9	77	69	155
British Virgin Islands	28	234		262
Canada	12	427	1735	2174
Cayman Islands	49	783	5	837
Chile	1		59	60
China	112		10	122
Colombia			23	23
Denmark	1	1	2	4
Finland	3		1	4
France		10	15	25
Germany	5	11	2	18
Greece		4		4
Guernsey	1	4		5
Hong Kong	28	18	28	74
Hungary	1			1
India	41	73	10	124
Indonesia	9		11	20
Ireland		4	5	9
Isle of Man	2			2
Israel	1	275	39	315
Italy		1	6	7
Japan	6	242		248
Jersey	10	4		14
Korea	1	42	31	74
Liberia		17		17
Luxembourg	3	3	1	7
Marshall Islands	19	255		274
Mexico	16		120	136
Netherlands	1	12	11	24
New Zealand	1		2	3
Norway		3	3	6
Peru	4		7	11

Country	IFRS	U.S. GAAP	Local GAAP	Total observations
Philippines		2		2
Portugal			2	2
Russia	5	24		29
Singapore		33	3	36
South Africa	1	5	2	8
Spain		1	6	7
Sweden	1		2	3
Switzerland	39	42		81
Taiwan		4	53	57
Turkey		1		1
United Kingdom	1	9	53	63
<i>IFRS Required</i>	<i>2035</i>	<i>1117</i>	<i>119</i>	<i>3271</i>
Antigua		11		11
Argentina	24		14	38
Australia	108	11	18	137
Austria	1	1		2
Bahamas		13		13
Belgium	17	1		18
Brazil	93	6	7	106
Canada	680	308	43	1031
Chile	60		3	63
Curacao		3		3
Cyprus	2			2
Denmark	21	3		24
Finland	16			16
France	88	34		122
Germany	58	34		92
Greece	8	16		24
Hungary	6			6
Ireland	40	31		71
Israel	104	408		512
Italy	30	14	10	54
Korea	32	5		37
Liberia		1		1
Luxembourg	47	11		58
Mauritius	5			5
Mexico	41			41
Netherlands	86	107	4	197
New Zealand	7			7
Norway	19	6	2	27

Country	IFRS	U.S. GAAP	Local GAAP	Total observations
Panama	7	16		23
Papua New Guinea	6			6
Peru	6			6
Philippines	8	5		13
Portugal	11			11
Russia		6		6
South Africa	38	28	1	67
Spain	48	6		54
Sweden	6		3	9
Taiwan	12			12
Turkey	8	1		9
United Kingdom	292	31	14	337
Total observations	2508	3941	2569	9018

Table 3 Descriptive Statistics

This table reports the summary statistics for the dependent and independent variables in all tests of hypotheses 1, 2, and 3. The sample is subdivided and statistics are reported separately for firms using IFRS and firms using U.S. GAAP. Results for t-tests of the differences in each variable for IFRS and U.S. GAAP users are also reported.

<i>Firm-year observations using U.S. GAAP</i>								
Variable	N	Minimum	Lower Quartile	Mean	Median	Upper Quartile	Maximum	Std Dev
$SIZE_{it}$	3305	0.1806	4.7843	6.3417	6.1334	7.8261	12.4403	2.2581
LEV_{it}	1434	-204.8096	0.3626	1.6997	0.9332	1.9056	114.8022	8.6255
$GROWTH_{it}$	1434	-1.0000	-0.0504	0.2423	0.0777	0.2343	73.2162	2.1187
$EARNMAN_{it}$	1434	-3.1372	-0.0471	0.0000	0.0034	0.0462	2.1674	0.2013
$HOMEIFRS_{it}$	1434	0	0	0.5077	1	1	1	0.5001
$USFIN_{it}$	1434	0	1	0.8096	1	1	1	0.3927
$EXCHANGE_{it}$	1434	1	2	2.2943	2	3	7	0.9317
$FORSALES_{it}$	1415	-2.8134	4.7584	6.7304	6.7427	8.5881	13.1902	2.7519
$ENFORCE_{it}$	1434	10	34	43.1806	48	54	54	11.3481
$CLTIME_{it}$	1434	-1	6	8.8556	9	12	19	4.2801
$PERIOD_{it}$	1434	0	0	0.6290	1	1	1	0.4832
P_{it}	3372	0.0470	3.9600	19.2164	10.2000	24.0750	597.0000	28.5120
BV_{it}	3372	-2.6394	2.7564	9.3534	5.7483	10.4941	89.4633	12.4956
E_{it}	3372	-6.5196	-0.1950	0.6697	0.3622	1.2525	12.6615	2.1971
OCF_{it}	3372	-7.8209	0.0366	1.5606	0.7671	2.1310	25.6961	3.2006
INT_{it}	3305	0	0	0.3225	0	1	1	0.4675
ONE_{it}	3305	0	0	0.1812	0	0	1	0.3852
$LOSS_{it}$	3305	0	0	0.3150	0	1	1	0.4646
$AVOL_{it}$ (median)	2462	-2.4739	0.1063	0.4993	0.4783	0.8719	3.4787	0.6342
$AVOL_{it}$ (mean)	2463	-3.6283	-0.0295	0.3534	0.3582	0.7633	3.3171	0.6926

Table 3 cont.

$TIME_{it}$	2462	1	4	6.1316	6	9	11	3.0747
$NUMEST_{it}$	2462	2	9	37.3582	23	49	594	44.8614
$REPLAG_{it}$ (Announce)	2462	10	41	56.1722	53	67	390	24.6931
$REPLAG_{it}$ (Filing)	2391	11	76	111.4563	100	133	598	53.6097
$DLOSS_{it}$	2462	0	0	0.2758	0	1	1	0.4470
UE_{it}	2462	0	0.05	0.5164	0.13	0.37	78.5	2.6696
$DISP_{it}$	2462	0	0.0738	0.3569	0.1560	0.3150	28.6366	1.1802

Firm-year observations using IFRS

Variable	N	Minimum	Lower Quartile	Mean	Median	Upper Quartile	Maximum	Std Dev	Diff		t-value	P-value
$SIZE_{it}$	1979	1.7105	6.4619	8.2964	8.6671	10.1720	12.7601	2.3913	-1.9546	***	-29.78	(<0.0001)
LEV_{it}	1019	-519.5000	0.5803	2.0651	1.1509	2.2442	75.1549	17.9805	-0.3655		-0.67	(0.5035)
$GROWTH_{it}$	1019	-1.2301	-0.0569	0.1114	0.0561	0.1744	6.1962	0.4797	0.1309	*	1.94	(0.0528)
$EARNMAN_{it}$	1019	-5.4887	-0.0381	-0.0008	-0.0012	0.0338	4.4891	0.2633	0.0008		0.09	(0.9314)
$HOMEIFRS_{it}$	1019	0	1	0.8518	1	1	1	0.3555	-0.3441	***	-18.84	(<0.0001)
$USFIN_{it}$	1019	0	1	0.7831	1	1	1	0.4123	0.0265		1.61	(0.1068)
$EXCHANGE_{it}$	1019	1	2	2.9058	3	4	7	0.9645	-0.6115	***	-15.79	(<0.0001)
$FORSALES_{it}$	986	-3.4112	6.8799	8.5620	9.2352	10.7022	13.8650	2.9241	-1.83	***	-15.63	(<0.0001)
$ENFORCE_{it}$	1019	9	37	43.2385	48	54	54	12.4964	-0.0579		-0.12	(0.9051)
$CLTIME_{it}$	1019	-1	7	9.7439	10	13	20	4.3521	-0.8882	***	-5.03	(<0.0001)
$PERIOD_{it}$	1019	0	1	0.8155	1	1	1	0.3881	-0.1865	***	-10.20	(<0.0001)
P_{it}	2025	0.0800	7.0900	28.4928	19.0300	40.8500	411.8400	30.8253	-9.2764	***	-11.22	(<0.0001)
BV_{it}	2025	-2.6394	4.0512	14.6809	10.2278	19.4270	89.4633	15.5749	-5.3276	***	-13.80	(<0.0001)
E_{it}	2025	-6.5196	-0.0164	1.6564	0.9689	2.7929	12.6615	2.8210	-0.9867	***	-14.33	(<0.0001)
OCF_{it}	2025	-7.8209	0.2842	3.5915	2.0539	5.2585	25.6961	5.3232	-2.0309	***	-17.50	(<0.0001)
INT_{it}	1979	0	0	0.2370	0	0	1	0.4253	0.0856	***	6.82	(<0.0001)

Table 3 cont.

ONE_{it}	1979	0	0	0.2107	0	0	1	0.4079	-0.0295	***	-2.63	(0.0085)
$LOSS_{it}$	1979	0	0	0.2314	0	0	1	0.4219	0.0835	***	6.55	(<0.0001)
$AVOL_{it}$ (median)	1490	-1.6845	0.0276	0.3323	0.3163	0.6037	2.9548	0.5101	0.1670	***	8.62	(<0.0001)
$AVOL_{it}$ (mean)	1490	-2.1402	-0.1064	0.2009	0.1922	0.5123	2.7122	0.5485	0.1524	***	7.24	(<0.0001)
$TIME_{it}$	1490	1	6	7.7054	8	10	11	2.8664	-1.5738	***	-15.99	(<0.0001)
$NUMEST_{it}$	1490	2	9	32.4228	19	39	267	37.8315	4.9354	***	3.55	(0.0004)
$REPLAG_{it}$ (Announce)	1490	9	39	54.9819	53	67	295	21.1992	1.1903		1.55	(0.1219)
$REPLAG_{it}$ (Filing)	1346	23	74	98.6152	90	119	670	44.5259	12.8411	***	7.46	(<0.0001)
$DLOSS_t$	1490	0	0	0.1919	0	0	1	0.3940	0.0838	***	5.97	(<0.0001)
UE_{it}	1490	0	0.06	1.0086	0.2	0.54	313.6722	9.0203	-0.4922	**	-2.53	(0.0114)
$DISP_{it}$	1490	0	0.1039	4.8567	0.2252	0.5150	6282.6331	162.7678	-4.4997		-1.37	(0.1702)

Table 3 cont.

$SIZE_{it}$	the natural log of the firm's market value of equity at year-end
LEV_{it}	end of year total liabilities divided by end of year book value of equity
$GROWTH_{it}$	percentage change in sales from prior year
$EARNMAN_{it}$	the level of discretionary accruals, calculated as the residual from a regression of the Modified Jones model
$HOMEIFRS_{it}$	1 if country of incorporation requires IFRS; 0 otherwise. This variable represents the accounting standard requirements of a firm's home country, defined as the country of its primary listing.
$USFIN_{it}$	1 if the firm's primary exchange is in the United States; 0 otherwise
$EXCHANGE_{it}$	number of exchanges on which a firm is listed
$FORSALES_{it}$	foreign sales as a percentage of total sales
$ENFORCE_{it}$	level of enforcement in country of primary listing. The measure for the level of enforcement is an index created by Brown et al. (2014).
$CLTIME_{it}$	year - first year that foreign private issuer registered with the SEC
$PERIOD_{it}$	1 if the year is 2007 or later, and 0 if the observation is prior to 2007
P_{it}	the price of a share of firm i three months after the fiscal year end
BV_{it}	the earnings per share of firm i during year t
E_{it}	the book value per share of firm i at the end of year t
OCF_{it}	the operating cash flows per share of firm i during year t
INT_{it}	1 if a foreign private issuer is in an industry that is identified as intangible-intensive, and 0 otherwise. Intangible-intensive industries are defined as the two-digit SIC codes 48 (electronic components and accessories), 73 (business services), and 87 (engineering, accounting, R&D and management related services) and three-digit SIC codes 282 (plastics and synthetic materials), 283 (drugs), and 357 (computer and office equipment)
ONE_{it}	1 if a firm reports one-time items, and 0 otherwise. One-time items include extraordinary items, discontinued operations, and special items.
$LOSS_{it}$	1 if a firm reports negative core earnings, and 0 otherwise. Core earnings are defined as net income minus one-time items.
$AVOL_{it}$ (median)	$\ln(V_{it}/V_i)$, where V_{it} , the daily volume during the period surrounding the 20-F filing, is the shares of firm i traded during day t, with $t = -1, 0, 1$ relative to the 20-F filing day 0 and V_i is the median daily trading volume for firm i for days t-60 to t-10 and t+10 to t+60
$AVOL_{it}$ (mean)	$\ln(V_{it}/V_i)$, where V_{it} , the daily volume during the period surrounding the 20-F filing, is the shares of firm i traded during day t, with $t = -1, 0, 1$ relative to the 20-F filing day 0 and V_i is the mean daily trading volume for firm i for days t-60 to t-10 and t+10 to t+60
$TREND_{it}$	year - 2003
$NUMEST_{it}$	number of analysts that follow a firm during the year of the 20-F filing

Table 3 cont.

$REPLAG_{it}$ (Announce)	time from fiscal year end to earnings announcement
$REPLAG_{it}$ (Filing)	time from fiscal year end to filing of the 20-F
$DLOSS_t$	1 if reported earnings are less than zero; 0 otherwise
UE_{it}	absolute difference between actual earnings per share and most recent mean analyst earnings estimate
$DISP_{it}$	standard deviation of analysts' earnings forecasts, scaled by closing stock price

Note:

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 4 Pearson Correlation Coefficients

Panel A: Pearson Correlation Coefficients for Independent and Dependent Variables in Tests of Hypothesis 1

Variable	$IFRS_{it}$	$SIZE_{it}$	LEV_{it}	$HOMEIFRS_{it}$	$CLTIME_{it}$	$PERIOD_{it}$	$GROWTH_{it}$	$EXCHANGE_{it}$	$USFIN_{it}$	$FORSALES_{it}$	$EARNMAN_{it}$	$ENFORCE_{it}$
$IFRS_{it}$	1.0000	0.4024	0.0139	0.3543	0.1023	0.1988	-0.0360	0.3052	-0.0241	0.3041	-0.0010	-0.0039
		(<0.0001)	(0.4970)	(<0.0001)	(<0.0001)	(<0.0001)	(0.0777)	(<0.0001)	(0.2372)	(<0.0001)	(0.9628)	(0.8483)
$SIZE_{it}$		1.0000	0.0634	-0.0183	0.0315	-0.0754	-0.0490	0.4758	0.1647	0.8715	0.0180	-0.2233
			(0.0019)	(0.3704)	(0.1231)	(0.0002)	(0.0163)	(<0.0001)	(<0.0001)	(<0.0001)	(0.3785)	(<0.0001)
LEV_{it}			1.0000	-0.0331	0.0214	-0.0257	-0.0032	0.0646	-0.0290	0.0773	0.0077	-0.0239
				(0.1046)	(0.2955)	(0.2084)	(0.8757)	(0.0015)	(0.1554)	(0.0001)	(0.7054)	(0.2411)
$HOMEIFRS_{it}$				1.0000	0.2644	0.4399	-0.0029	0.0739	-0.1155	-0.0183	-0.0379	0.3003
					(<0.0001)	(<0.0001)	(0.8852)	(0.0003)	(<0.0001)	(0.3688)	(0.0634)	(<0.0001)
$CLTIME_{it}$					1.0000	0.4910	-0.0168	0.0233	-0.0659	0.0861	-0.0018	0.2410
						(<0.0001)	(0.4100)	(0.2542)	(0.0012)	(<0.0001)	(0.9286)	(<0.0001)
$PERIOD_{it}$						1.0000	-0.0220	0.0559	-0.1224	-0.0542	-0.0487	0.2998
							(0.2821)	(0.0062)	(<0.0001)	(0.0079)	(0.0170)	(<0.0001)
$GROWTH_{it}$							1.0000	0.0123	-0.0739	-0.0773	0.0830	0.0228
								(0.5460)	(0.0003)	(0.0001)	(<0.0001)	(0.2631)
$EXCHANGE_{it}$								1.0000	-0.1736	0.4220	0.0259	0.0883
									(<0.0001)	(<0.0001)	(0.2038)	(<0.0001)
$USFIN_{it}$									1.0000	0.1946	-0.0163	-0.2778
										(<0.0001)	(0.4254)	(<0.0001)
$FORSALES_{it}$										1.0000	0.0365	-0.1642
											(0.0736)	(<0.0001)
$EARNMAN_{it}$											1.0000	-0.0200
												(0.3278)
$ENFORCE_{it}$												1.0000

Table 4 cont.

Panel B: Pearson Correlation Coefficients for Independent and Dependent Variables in Tests of Hypothesis 2

Variable	P_{it}	BV_{it}	E_{it}	OCF_{it}	$IFRS_{it}$	INT_{it}	ONE_{it}	$LOSS_{it}$	$SIZE_{it}$
P_{it}	1.0000	0.6566 (<0.0001)	0.6724 (<0.0001)	0.5733 (<0.0001)	0.1519 (<0.0001)	0.0161 (0.2409)	0.0057 (0.6812)	-0.3241 (<0.0001)	0.5689 (<0.0001)
BV_{it}		1.0000	0.6387 (<0.0001)	0.6195 (<0.0001)	0.1819 (<0.0001)	-0.1199 (<0.0001)	-0.0201 (0.1437)	-0.2974 (<0.0001)	0.5224 (<0.0001)
E_{it}			1.0000	0.5772 (<0.0001)	0.1894 (<0.0001)	-0.0393 (0.0042)	0.2814 (<0.0001)	-0.4922 (<0.0001)	0.5215 (<0.0001)
OCF_{it}				1.0000	0.2305 (<0.0001)	-0.0008 (0.9523)	0.0001 (0.9930)	-0.2863 (<0.0001)	0.4833 (<0.0001)
$IFRS_{it}$					1.0000	-0.0912 (<0.0001)	0.0081 (0.5576)	-0.0897 (<0.0001)	0.3792 (<0.0001)
INT_{it}						1.0000	-0.0087 (0.5255)	-0.0152 (0.2687)	-0.0618 (<0.0001)
ONE_{it}							1.0000	-0.0070 (0.6099)	0.0026 (0.8476)
$LOSS_{it}$								1.0000	-0.4535 (<0.0001)
$SIZE_{it}$									1.0000

Table 4 cont.

Panel C: Pearson Correlation Coefficients for Independent and Dependent Variables in Tests of Hypothesis 3

VARIABLE	$AVOL_{it}$	$IFRS_{it}$	$TREND_{it}$	$NUMEST_{it}$	$REPLAG_{it}$ (Announce)	$REPLAG_{it}$ (Filing)	LEV_{it}	$DLOSS_{it}$	UE_{it}	$DISP_{it}$
$AVOL_{it}$	1.0000	-0.1316 (<0.0001)	-0.0192 (0.5651)	0.0408 (0.0009)	-0.0473 (<0.0001)	0.0028 (0.9719)	-0.0558 (<0.0001)	-0.0410 (0.0290)	-0.0076 (0.2642)	-0.0009 (<0.0001)
$IFRS_{it}$		1.0000	0.3173 (<0.0001)	-0.0456 (0.0474)	-0.0235 (0.4499)	-0.1211 (<0.0001)	0.0646 (<0.0001)	-0.0830 (<0.0001)	0.0459 (<0.0001)	0.0233 (<0.0001)
$TREND_{it}$			1.0000	0.0812 (<0.0001)	0.0212 (<0.0001)	-0.2726 (<0.0001)	0.0161 (0.0189)	0.0851 (<0.0001)	0.0103 (0.8445)	0.0126 (<0.0001)
$NUMEST_{it}$				1.0000	-0.1950 (<0.0001)	-0.1868 (<0.0001)	-0.0199 (0.0062)	-0.0597 (<0.0001)	0.0024 (<0.0001)	-0.0102 (<0.0001)
$REPLAG_{it}$ (Announce)					1.0000	0.2489 (<0.0001)	-0.0337 (0.0006)	0.1684 (<0.0001)	0.0559 (0.2370)	0.0001 (0.3334)
$REPLAG_{it}$ (Filing)						1.0000	0.0010 (0.0007)	-0.0024 (0.6112)	0.0181 (0.0250)	0.0041 (0.8504)
LEV_{it}							1.0000	-0.0143 (<0.0001)	0.0090 (<0.0001)	-0.0006 (<0.0001)
$DLOSS_{it}$								1.0000	0.0270 (0.0595)	-0.0091 (0.4654)
UE_{it}									1.0000	0.0031 (<0.0001)
$DISP_{it}$										1.0000

Table 5 Probit Regression Results for Hypothesis 1

This table reports the results for all hypotheses that fall under H1. These tests identify firm-characteristics that are related to a firm's choice to use IFRS or U.S. GAAP in the United States. The dependent variable is IFRS, which is a binary variable equal to 1 if a firm uses IFRS and 0 if a firm uses U.S. GAAP.

$$IFRS_{it} = \beta_0 + \beta_1 SIZE_{it} + \beta_2 LEV_{it} + \beta_3 GROWTH_{it} + \beta_4 EARNMAN_{it} + \beta_5 HOMEIFRS_{it} + \beta_6 USFIN_{it} + \beta_7 EXCHANGE_{it} + \beta_8 FORSALES_{it} + \beta_9 ENFORCE_{it} + \beta_{10} CLTIME_{it} + \beta_{11} PERIOD_{it} + \varepsilon_{it} \quad \text{Equation 9}$$

Model 1 follows Equation 9 as detailed above. The dependent variable, IFRS, is defined as 1 if a firm uses any form of IFRS, including a version other than that in accordance with IASB. Model 2 adds country and industry fixed effects to Equation 9. Model 3 limits the definition of the dependent variable, IFRS, to only IFRS that is in accordance with the IASB.

Independent Variable	Predicted Sign	Model 1			Marginal effect at the mean	Model 2				Model 3		
		Coefficient		t-statistic (P-value)		Coefficient		t-statistic (P-value)		Coefficient		t-statistic (P-value)
Intercept		-2.9310 ***		-14.33 (<0.0001)		-0.7186		-0.31 (0.7585)		-2.9479 ***		-13.9 (<0.0001)
$SIZE_{it}$	+	0.3386 ***		13.62 (<0.0001)	0.1255	0.1663 ***		3.59 (0.0003)		0.3358 ***		13.19 (<0.0001)
LEV_{it}	-	0.0002		0.12 (0.9057)	0.0001	-0.0041		0.34 (0.5592)		-0.0004		-0.18 (0.8606)
$HOMEIFRS_{it}$	+	1.2543 ***		16.22 (<0.0001)	0.4650	2.3233 ***		9.62 (<0.0001)		1.0569 ***		13.08 (<0.0001)
$CLTIME_{it}$	-	-0.0141 *		-1.82 (0.0687)	-0.0052	-0.0331 ***		-2.92 (0.0035)		-0.0099		-1.25 (0.2098)
$PERIOD_{it}$	+	0.5629 ***		6.62 (<0.0001)	0.2087	1.2544 ***		8.33 (<0.0001)		0.9790 ***		10.22 (<0.0001)
$GROWTH_{it}$	+	-0.0626		-1.32 (0.1876)	-0.0232	-0.0320		-0.93 (0.3510)		-0.0528		-1.13 (0.2597)

Table 5 cont.

<i>EXCHANGE_{it}</i>	+	0.1874 ***	5.12 (<0.0001)	0.0695	0.1666 **	2.56 (0.0104)	0.2342 ***	6.12 (<0.0001)
<i>USFIN_{it}</i>	-	-0.1058	-1.28 (0.2003)	-0.0392	-0.4737 ***	-3.86 (<0.0001)	-0.1532 *	-1.82 (0.0681)
<i>FORSALES_{it}</i>	+	-0.1216 ***	-5.71 (<0.0001)	-0.0451	-0.0349	-0.95 (0.3400)	-0.1382 ***	-6.32 (<0.0001)
<i>EARNMAN_{it}</i>	?	0.0939	0.81 (0.4187)	0.0348	0.1364	1.03 (0.3036)	0.1069	-0.91 (0.3603)
<i>ENFORCE_{it}</i>	+	-0.0116 ***	-3.78 (0.0002)	-0.0043	-0.0335 **	-2.52 (0.0116)	-0.0166 ***	-5.07 (<0.0001)
Industry dummies			No		Yes		No	
Country dummies			No		Yes		No	
N			2401		2401		2305	

Note:

All variables are defined as explained in Table 3.

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 6 OLS Regression Results for Tests of Hypotheses 2a, 2b, and 2c

This table reports the results for Hypotheses 2a, 2b, and 2c. These tests examine the value relevance of accounting information for foreign private issuers, and whether or not value relevance differs depending on a firm's choice to use U.S. GAAP or IFRS. P_{it} , a firm's stock price either 3 or 6 months after the fiscal year end is the dependent variable in these models.

$$P_{it} = \alpha_0 + \alpha_1 E_{it} + \alpha_2 BV_{it} + \alpha_3 OCF_{it} + \alpha_4 IFRS_{it} + \alpha_5 (E_{it} * IFRS_{it}) + \alpha_6 (BV_{it} * IFRS_{it}) + \alpha_7 (OCF_{it} * IFRS_{it}) + \varepsilon_{it} \quad \text{Equation 1}$$

Model 1 uses a firm's stock price 3 months after the fiscal year end as the dependent variable. Model 2 uses a firm's stock price 6 months after the fiscal year end as the dependent variable. Model 3 includes country and industry fixed effects.

Independent Variable	Predicted Sign	Model 1			Model 2			Model 3		
		Coefficient		t-statistic (P-value)	Coefficient		t-statistic (P-value)	Coefficient		t-statistic (P-value)
Intercept	?	7.1846	***	16.62 (<0.0001)	7.1980	***	16.61 (<0.0001)	-8.4033		-1.29 (0.1959)
BV_{it}	+	0.7074	***	18.54 (<0.0001)	0.7081	***	18.54 (<0.0001)	0.8820	***	21.64 (<0.0001)
E_{it}	+	3.8519	***	19.11 (<0.0001)	3.8101	***	18.87 (<0.0001)	3.5435	***	17.99 (<0.0001)
OCF_{it}	+	1.8171	***	12.56 (<0.0001)	1.8113	***	12.51 (<0.0001)	1.7155	***	11.84 (<0.0001)
$IFRS_{it}$?	1.7306	**	2.31 (0.0210)	1.7505	**	2.33 (0.0200)	-1.3499		-1.51 (0.1304)
$BV_{it} * IFRS_{it}$?	-0.1580	***	-2.83 (0.0046)	-0.1608	***	-2.88 (0.0040)	-0.1776	***	-3.09 (0.0020)
$E_{it} * IFRS_{it}$?	1.4999	***	5.01 (<0.0001)	1.5579	***	5.18 (<0.0001)	1.0239	***	3.46 (<0.0001)
$OCF_{it} * IFRS_{it}$?	-1.0797	***	-5.96 (<0.0001)	-1.0772	***	-5.95 (<0.0001)	-0.7752	***	-4.34 (<0.0001)
Industry dummies		No			No			Yes		
Country dummies		No			No			Yes		
N		5397			5226			5397		
Adj R ²		0.5527			0.5470			0.6007		
F-statistic		953.36***			902.36***			70.39***		

Note:

All variables are defined as explained in Table 3.

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 7 OLS Regression Results for Tests of Hypothesis 2 with Additional Controls

This table reports results to test Hypotheses 2a, 2b, and 2c, with the addition of four control variables and their interactions with the accounting variables (BV, E, OCF). These control variables have been found to affect the relationship between accounting information and stock prices in prior research.

$$P_{it} = \beta_0 + \beta_1 E_{it} + \beta_2 BV_{it} + \beta_3 OCF_{it} + \beta_4 IFRS_{it} + \beta_5 INT_{it} + \beta_6 ONE_{it} + \beta_7 LOSS_{it} + \beta_8 SIZE_{it} + \beta_9 (E_{it} * IFRS_{it}) + \beta_{10} (BV_{it} * IFRS_{it}) + \beta_{11} (OCF_{it} * IFRS_{it}) + \beta_{12} (E_{it} * INT_{it}) + \beta_{13} (BV_{it} * INT_{it}) + \beta_{14} (OCF_{it} * INT_{it}) + \beta_{15} (E_{it} * ONE_{it}) + \beta_{16} (BV_{it} * ONE_{it}) + \beta_{17} (OCF_{it} * ONE_{it}) + \beta_{18} (E_{it} * LOSS_{it}) + \beta_{19} (BV_{it} * LOSS_{it}) + \beta_{20} (OCF_{it} * LOSS_{it}) + \beta_{21} (E_{it} * SIZE_{it}) + \beta_{22} (BV_{it} * SIZE_{it}) + \beta_{23} (OCF_{it} * SIZE_{it}) + \varepsilon_{it}$$

Equation 10

Independent Variable	Predicted Sign	Coefficient	t-statistic (P-value)
Intercept	?	-6.0793 ***	-4.83 (<0.0001)
BV_{it}	+	0.2702	2.00 (0.0457)
E_{it}	+	-0.0342 *	-0.05 (0.9606)
OCF_{it}	+	1.1337 **	2.57 (0.0103)
$IFRS_{it}$?	-1.9566 ***	-2.68 (0.0074)
$BV_{it} * IFRS_{it}$?	-0.0731	-1.36 (0.1753)
$E_{it} * IFRS_{it}$?	-0.1022	-0.34 (0.7327)
$OCF_{it} * IFRS_{it}$?	-0.6873 ***	-4.00 (<0.0001)
INT_{it}	?	-0.7090	-0.97 (0.3330)
ONE_{it}	?	-2.5054 ***	-3.89 (<0.0001)
$LOSS_{it}$?	-0.3251	-0.39 (0.6963)
$SIZE_{it}$?	2.2857 ***	14.13 (<0.0001)
$BV_{it} * INT_{it}$	-	0.5679 ***	7.82 (<0.0001)
$E_{it} * INT_{it}$	-	0.8438 ***	2.40 (0.0166)

Table 7 cont.

$OCF_{it} * INT_{it}$	-	-0.2016		-0.90 (0.3688)
$BV_{it} * ONE_{it}$	+	-0.0555	**	-6.05 (<0.0001)
$E_{it} * ONE_{it}$	-	-0.1086	***	-3.75 (0.0002)
$OCF_{it} * ONE_{it}$	+	0.1357	**	4.62 (<0.0001)
$BV_{it} * LOSS_{it}$	+	0.1748	**	2.01 (0.0443)
$E_{it} * LOSS_{it}$	-	-3.7418	***	-8.13 (<0.0001)
$OCF_{it} * LOSS_{it}$	+	0.0581		0.24 (0.8139)
$BV_{it} * SIZE_{it}$	-	0.0080		0.55 (0.5827)
$E_{it} * SIZE_{it}$	+	-6.0793	***	8.60 (<0.0001)
$OCF_{it} * SIZE_{it}$	-	0.2702		-0.45 (0.6527)
<hr/>				
N		5284		
Adj R ²		0.6366		
F-statistic		403.45***		

Note:

All variables are defined as explained in Table 3.

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 8 Incremental Value Relevance Results for Tests of Hypothesis 2

This table reports results for additional tests of Hypotheses 2a, 2b, and 2c. The stock price 3 months after fiscal year end is the dependent variable in all regressions. The sample is split into firms that use IFRS and firms that use U.S. GAAP. OLS regression analysis is conducted for each of the equations shown below. Panel A reports the Adjusted R^2 from each of these regressions and the difference between the R^2 for IFRS and U.S. GAAP firms. Panel B reports incremental R^2 's that are calculated by comparing the R^2 from the equations shown below as listed in the table.

Panel A: R^2 statistics

	U.S. GAAP	IFRS	Difference	Regression Equation	Eq. #
EARN	0.3510	0.5618	0.2108	$P_{it} = a_0 + a_1 E_{it} + \varepsilon_{it}$	(2)
BOOK	0.3771	0.4643	0.0871	$P_{it} = b_0 + b_1 BV_{it} + \varepsilon_{it}$	(3)
CASH	0.3193	0.3345	0.0151	$P_{it} = c_0 + c_1 OCF_{it} + \varepsilon_{it}$	(4)
EARN+BOOK	0.4585	0.6202	0.1617	$P_{it} = d_0 + d_1 E_{it} + d_2 BV_{it} + \varepsilon_{it}$	(5)
EARN+CASH	0.4317	0.5922	0.1605	$P_{it} = e_0 + e_1 E_{it} + e_2 OCF_{it} + \varepsilon_{it}$	(6)
BOOK+CASH	0.4286	0.5094	0.0808	$P_{it} = f_0 + f_1 BV_{it} + f_2 OCF_{it} + \varepsilon_{it}$	(7)
EARN+BOOK+CASH	0.4812	0.6295	0.1483	$P_{it} = g_0 + g_1 E_{it} + g_2 BV_{it} + g_3 OCF_{it} + \varepsilon_{it}$	(8)

Panel B: Incremental R^2

	U.S. GAAP	IFRS	Difference	Incremental R^2 Calculation
EARN/BOOK	0.0814	0.1559	0.0745	$R^2_5 - R^2_3 = R^2_{E/BV}$
BOOK/EARN	0.1076	0.0584	-0.0491	$R^2_5 - R^2_2 = R^2_{BV/E}$
EARN/CASH	0.1123	0.2577	0.1454	$R^2_6 - R^2_3 = R^2_{E/OCF}$
CASH/EARN	0.0807	0.0304	-0.0503	$R^2_6 - R^2_2 = R^2_{OCF/E}$
EARN/BOOK+CASH	0.0526	0.1200	0.0675	$R^2_8 - R^2_7 = R^2_{E/BV+OCF}$
BOOK/EARN+CASH	0.0495	0.0373	-0.0122	$R^2_8 - R^2_6 = R^2_{BV/E+OCF}$
CASH/EARN+BOOK	0.0226	0.0093	-0.0134	$R^2_8 - R^2_5 = R^2_{OCF/E+BV}$

Table 9 Yearly OLS Regression Results for Tests of Hypothesis 2d

This table reports the test results for Hypothesis 2d, how the difference in the value relevance of IFRS and U.S. GAAP has changed over the 11-year sample period. Regressions of Equation 1 are conducted separately for each year. The stock price 3 months after fiscal year end serves as the dependent variable.

$$P_{it} = \alpha_0 + \alpha_1 E_{it} + \alpha_2 BV_{it} + \alpha_3 OCF_{it} + \alpha_4 IFRS_{it} + \alpha_5 (E_{it} * IFRS_{it}) + \alpha_6 (BV_{it} * IFRS_{it}) + \alpha_7 (OCF_{it} * IFRS_{it}) + \varepsilon_{it} \quad \text{Equation 1}$$

Independent Variable	Predicted Sign	2004		2005		2006		2007	
		t-statistic		t-statistic		t-statistic		t-statistic	
		Coefficient	(P-value)	Coefficient	(P-value)	Coefficient	(P-value)	Coefficient	(P-value)
Intercept	?	8.8605 ***	8.01 (<0.0001)	7.2050 ***	5.77 (<0.0001)	6.7197 ***	4.78 (<0.0001)	7.4033 ***	3.82 (0.0002)
BV_{it}	+	0.8150 ***	8.27 (<0.0001)	1.1906 ***	10.14 (<0.0001)	1.0688 ***	7.28 (<0.0001)	0.6993 ***	3.71 (0.0002)
E_{it}	+	2.1921 ***	4.05 (<0.0001)	4.3961 ***	6.71 (<0.0001)	3.7910 ***	4.70 (<0.0001)	3.6850 ***	3.68 (0.0003)
OCF_{it}	+	0.7191 **	2.15 (0.0324)	0.2737	0.67 (0.5048)	2.0442 ***	4.74 (<0.0001)	2.6884 ***	4.59 (<0.0001)
$IFRS_{it}$?	-0.6976	-0.13 (0.8955)	7.3762 **	2.48 (0.0137)	7.7012 **	2.17 (0.0306)	0.1557	0.03 (0.9748)
$BV_{it} * IFRS_{it}$?	0.2086	0.39 (0.6948)	-0.4966 *	-1.94 (0.0531)	-0.3773	-1.27 (0.2037)	0.2756	0.80 (0.4249)
$E_{it} * IFRS_{it}$?	0.9528	0.58 (0.5600)	0.3660	0.38 (0.7041)	1.9506	1.50 (0.1343)	-0.2901	-0.19 (0.8504)
$OCF_{it} * IFRS_{it}$?	-0.9158	-0.96 (0.3396)	0.1413	0.23 (0.8182)	-1.3766 *	-1.94 (0.0529)	-0.9766	-1.10 (0.2717)
N		303		400		416		417	
Adj R ²		0.5840		0.6710		0.6684		0.5163	
F-statistic		61.56***		117.25***		120.51***		64.42***	

Table 9 Cont.

Independent Variable	Predicted Sign	2008		2009		2010		2011	
		t-statistic		t-statistic		t-statistic		t-statistic	
		Coefficient	(P-value)	Coefficient	(P-value)	Coefficient	(P-value)	Coefficient	(P-value)
Intercept	?	1.9800 *	1.80 (0.0719)	7.9265 ***	3.67 (0.0003)	8.0562 ***	6.33 (<0.0001)	6.7991 ***	6.79 (<0.0001)
BV_{it}	+	0.7505 ***	8.47 (<0.0001)	0.1192	0.63 (0.5261)	0.7410 ***	7.59 (<0.0001)	0.6629 ***	7.38 (<0.0001)
E_{it}	+	3.0296 ***	7.25 (<0.0001)	7.7773 ***	6.77 (<0.0001)	3.8046 ***	5.57 (<0.0001)	2.6060 ***	5.97 (<0.0001)
OCF_{it}	+	1.4911 ***	5.10 (<0.0001)	3.7279 ***	5.21 (<0.0001)	0.3269	0.78 (0.4339)	0.9373 **	2.22 (0.0268)
$IFRS_{it}$?	6.6817 ***	2.85 (0.0045)	0.1742	0.04 (0.9679)	-0.2101	-0.08 (0.9328)	0.6732	0.44 (0.6617)
$BV_{it} * IFRS_{it}$?	-0.1781	-1.21 (0.2281)	0.7478 ***	2.67 (0.0079)	-0.2004	-1.18 (0.2395)	-0.3824 ***	-3.05 (0.0024)
$E_{it} * IFRS_{it}$?	0.1339	0.21 (0.8340)	-3.4630 **	-1.98 (0.0479)	1.9526 *	1.90 (0.0580)	3.6360 ***	5.38 (<0.0001)
$OCF_{it} * IFRS_{it}$?	-1.3882 ***	-3.36 (0.0009)	-2.8692 ***	-3.21 (0.0014)	0.6659	1.31 (0.1925)	-0.1677	-0.36 (0.7221)
N		416.0000		433.0000		474.0000		599.0000	
Adj R ²		0.5588		47.87***		0.5831		0.6190	
F-statistic		76.10***		0.4316		95.49***		139.77***	

Table 9 cont.

Independent Variable	Predicted Sign	2012		2013		2014	
		t-statistic		t-statistic		t-statistic	
		Coefficient	(P-value)	Coefficient	(P-value)	Coefficient	(P-value)
Intercept	?	5.7977 ***	4.74 (<0.0001)	10.0924 ***	7.52 (<0.0001)	9.0516 ***	6.92 (<0.0001)
BV_{it}	+	0.7025 ***	6.31 (<0.0001)	0.5005 ***	3.64 (0.0003)	0.1469	1.13 (0.2594)
E_{it}	+	2.1951 ***	4.21 (<0.0001)	1.9459 ***	2.93 (0.0035)	5.0559 ***	6.22 (<0.0001)
OCF_{it}	+	2.1518 ***	3.87 (<0.0001)	3.6209 ***	6.37 (<0.0001)	4.0431 ***	7.03 (<0.0001)
$IFRS_{it}$?	2.8357	1.63 (0.1031)	-1.2512	-0.67 (0.5055)	0.0650	0.04 (0.9713)
$BV_{it} * IFRS_{it}$?	-0.1952	-1.40 (0.1622)	0.0951	0.58 (0.5625)	0.2764	1.75 (0.0813)
$E_{it} * IFRS_{it}$?	3.4379 ***	4.73 (<0.0001)	3.2439 ***	3.69 (0.0002)	1.7080	1.68 (0.0936)
$OCF_{it} * IFRS_{it}$?	-1.6148 ***	-2.65 (0.0082)	-3.0830 ***	-4.84 (<0.0001)	-3.4933 ***	-5.53 (<0.0001)
N		630.0000		648.0000		661.0000	
Adj R ²		0.6109		0.5649		0.6090	
F-statistic		142.07***		121.01***		147.88***	

Note:

All variables are defined as explained in Table 3.

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 10 OLS Regression Results for Tests of Hypothesis 2d

This table reports the test results for Hypothesis 2d, how the difference in the value relevance of IFRS and U.S. GAAP has changed over the 11-year sample period. Stock price 3 months after fiscal year end is the dependent variable.

$$P_{it} = \alpha_0 + \alpha_1 E_{it} + \alpha_2 BV_{it} + \alpha_3 OCF_{it} + \alpha_4 IFRS_{it} + \alpha_5 (E_{it} * IFRS_{it}) + \alpha_6 (BV_{it} * IFRS_{it}) + \alpha_7 (OCF_{it} * IFRS_{it}) + \varepsilon_{it} \quad \text{Equation 1}$$

Model 1 adds a trend variable to Equation 1, which is used to create three-way interaction terms between each of the accounting variables (BV, E, OCF), IFRS, and TIME, which ranges from 1 to 11 for the 11 year sample period. Model 2 uses a binary variable, PERIOD, which is equal to 1 if an observation is after the elimination of the Form 20-F reconciliation for IFRS users in 2007 and 0 otherwise. This variable is used to create three-way interaction terms between each of the accounting variables (BV, E, OCF), IFRS, and PERIOD.

Independent Variable	Predicted Sign	Model 1		Model 2	
		Coefficient	t-statistic (P-value)	Coefficient	t-statistic (P-value)
Intercept	?	7.6770 ***	10.31 (<0.0001)	8.7697 ***	14.39 (<0.0001)
BV_{it}	+	0.7085 ***	18.59 (<0.0001)	0.7150 ***	18.80 (<0.0001)
E_{it}	+	3.8383 ***	19.00 (<0.0001)	3.7560 ***	18.56 (<0.0001)
OCF_{it}	+	1.8163 ***	12.57 (<0.0001)	1.8222 ***	12.66 (<0.0001)
$IFRS_{it}$?	1.8892 **	2.43 (0.0152)	2.0932 ***	2.74 (0.0062)
$BV_{it} * IFRS_{it}$?	0.1924	1.44 (0.1488)	0.1630	1.29 (0.1978)
$E_{it} * IFRS_{it}$?	0.0654	0.11 (0.9155)	0.4698	0.89 (0.3713)
$OCF_{it} * IFRS_{it}$?	-0.8677 **	-2.39 (0.0167)	-0.8607 ***	-2.67 (0.0076)
$TIME_{it}$?	-0.0809	-0.81 (0.4172)		
$BV_{it} * IFRS_{it} * TIME_{it}$	-	-0.0419 ***	-2.81 (0.0050)		
$E_{it} * IFRS_{it} * TIME_{it}$	-	0.1796 **	2.33 (0.0196)		
$OCF_{it} * IFRS_{it} * TIME_{it}$	-	-0.0364	-0.87 (0.3846)		

Table 10 cont.

$PERIOD_{it}$?	-2.4690 ***	-3.68 (0.0002)
$BV_{it} * IFRS_{it} *$ $PERIOD_{it}$	-	-0.3290 ***	-2.64 (0.0084)
$E_{it} * IFRS_{it} *$ $PERIOD_{it}$	-	0.9994 *	1.82 (0.0687)
$OCF_{it} * IFRS_{it} *$ $PERIOD_{it}$	-	-0.3417	-1.10 (0.2726)
<hr/>			
N	5397	5397	
Adj R ²	0.5540	0.5569	
F-statistic	610.43 ***	617.53 ***	
<hr/>			

Note:

All variables are defined as explained in Table 3.

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 11 F-tests of Models to Test Hypothesis 2

This table reports results of several F-tests to test Hypothesis 2 regarding whether or not the value relevance of U.S. GAAP information differs from that of IFRS in the United States. Test 1 determines if the addition of the $IFRS_{it}$ variable and its interaction terms improves the value relevance model. Test 2 examines whether the $IFRS_{it}$ term and interaction terms improve the value relevance model when other controls are included. Test 3 examines whether the controls improve the model when the $IFRS_{it}$ term and its interactions are already included.

	Model	R ²	q	N	k	F-statistic (p-value)
Restricted Model	2	0.5589	3	5284	8	21.13
Unrestricted Model	1	0.5536				(<0.0001)
Restricted Model	4	0.6382	4	5284	24	27.26
Unrestricted Model	3	0.6307				(<0.0001)
Restricted Model	4	0.6382	16	5284	24	72.06
Unrestricted Model	2	0.5589				(<0.0001)

Model:

$$1) P_{it} = \beta_0 + \beta_1 E_{it} + \beta_2 BV_{it} + \beta_3 OCF_{it} + \varepsilon_{it}$$

$$2) P_{it} = \beta_0 + \beta_1 E_{it} + \beta_2 BV_{it} + \beta_3 OCF_{it} + \beta_4 IFRS_{it} + \beta_5 (E_{it} * IFRS_{it}) + \beta_6 (BV_{it} * IFRS_{it}) + \beta_7 (OCF_{it} * IFRS_{it}) + \varepsilon_{it}$$

$$3) P_{it} = \beta_0 + \beta_1 E_{it} + \beta_2 BV_{it} + \beta_3 OCF_{it} + \beta_4 INT_{it} + \beta_5 ONE_{it} + \beta_6 LOSS_{it} + \beta_7 SIZE_{it} + \beta_8 (E_{it} * INT_{it}) + \beta_9 (BV_{it} * INT_{it}) + \beta_{10} (OCF_{it} * INT_{it}) + \beta_{11} (E_{it} * ONE_{it}) + \beta_{12} (BV_{it} * ONE_{it}) + \beta_{13} (OCF_{it} * ONE_{it}) + \beta_{14} (E_{it} * LOSS_{it}) + \beta_{15} (BV_{it} * LOSS_{it}) + \beta_{16} (OCF_{it} * LOSS_{it}) + \beta_{17} (E_{it} * SIZE_{it}) + \beta_{18} (BV_{it} * SIZE_{it}) + \beta_{19} (OCF_{it} * SIZE_{it}) + \varepsilon_{it}$$

$$4) P_{it} = \beta_0 + \beta_1 E_{it} + \beta_2 BV_{it} + \beta_3 OCF_{it} + \beta_4 IFRS_{it} + \beta_5 INT_{it} + \beta_6 ONE_{it} + \beta_7 LOSS_{it} + \beta_8 SIZE_{it} + \beta_9 (E_{it} * IFRS_{it}) + \beta_{10} (BV_{it} * IFRS_{it}) + \beta_{11} (OCF_{it} * IFRS_{it}) + \beta_{12} (E_{it} * INT_{it}) + \beta_{13} (BV_{it} * INT_{it}) + \beta_{14} (OCF_{it} * INT_{it}) + \beta_{15} (E_{it} * ONE_{it}) + \beta_{16} (BV_{it} * ONE_{it}) + \beta_{17} (OCF_{it} * ONE_{it}) + \beta_{18} (E_{it} * LOSS_{it}) + \beta_{19} (BV_{it} * LOSS_{it}) + \beta_{20} (OCF_{it} * LOSS_{it}) + \beta_{21} (E_{it} * SIZE_{it}) + \beta_{22} (BV_{it} * SIZE_{it}) + \beta_{23} (OCF_{it} * SIZE_{it}) + \varepsilon_{it}$$

Note:

All variables are defined as explained in Table 3.

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 12 OLS Regression Results for Tests of Hypothesis 3

This table presents the results for tests of Hypothesis 3. These tests examine the relationship between IFRS, whether a firm uses IFRS or U.S. GAAP, and the abnormal trading volume that surrounds earnings announcements or filings. AVOL is the dependent variable in each model.

$$AVOL_{it} = \beta_0 + \beta_1 IFRS_{it} + \beta_2 TREND_{it} + \beta_3 SIZE_{it} + \beta_4 NUMEST_{it} + \beta_5 REPLAG_{it} + \beta_6 LEV_{it} + \beta_7 DLOSS_{it} + \beta_8 UE_{it} + \beta_9 DISP_{it} + \varepsilon_{it} \quad \text{Equation 11}$$

Model 1 reports the results of Equation 11 as shown above. Model 2 adds country and industry-level fixed effects to Equation 11. Model 3 uses the abnormal trading volume that surrounds a firm's Form 20-F filing as the dependent variable. In addition, REPLAG represents the lag between the fiscal year end and the filing date in Model 3. Model 4 uses a measure of AVOL as the dependent variable that is based on means, rather than medians. Model 5 defines IFRS as 1 only if firms use IFRS in accordance with the IASB, and 0 otherwise.

Independent Variable	Predicted Sign	Model 1		Model 2		Model 3	
		Coefficient	t-statistic (P-value)	Coefficient	t-statistic (P-value)	Coefficient	t-statistic (P-value)
Intercept		0.7758 ***	14.05 (<0.0001)	0.6754 ***	2.78 (0.0054)	0.0379	0.65 (0.5141)
$IFRS_{it}$?	-0.1139 ***	-4.96 (<0.0001)	-0.0399	-1.37 (0.1700)	0.0081	0.33 (0.7413)
$TREND_{it}$	+	0.0042	1.30 (0.1930)	0.0062 *	1.84 (0.0661)	0.0016	0.45 (0.6519)
$SIZE_{it}$?	-0.0310 ***	-5.73 (<0.0001)	-0.0037	-0.48 (0.6320)	0.0068	1.23 (0.2196)
$NUMEST_{it}$	+	0.0007 ***	3.11 (0.0019)	0.0006 **	2.01 (0.0447)	0.0001	0.41 (0.6799)
$REPLAG_{it}$	-	-0.0015 ***	-3.50 (0.0005)	-0.0013 ***	-2.59 (0.0096)	-0.0006 ***	-2.77 (0.0056)
LEV_{it}	?	-0.0018 ***	-2.64 (0.0084)	-0.0014 **	-1.97 (0.0490)	-0.0013 *	-1.80 (0.0727)

Table 12 Cont.

$DLOSS_{it}$	-	-0.1080 ***	-4.54 (<0.0001)	-0.0761 ***	-3.10 (0.0019)	0.0509 **	2.07 (0.0381)
UE_{it}	+	0.0001	0.08 (0.9400)	0.0004	0.27 (0.7836)	0.0016	0.52 (0.6024)
$DISP_{it}$	+	0.0000	0.14 (0.8854)	0.0000	0.32 (0.7460)	-0.0001	-0.83 (0.4067)
Industry dummies		No		Yes		No	
Country dummies		No		Yes		No	
N		3952		3952		3732	
Adj R ²		0.0326		0.0989		0.0035	
F-statistic		15.79***		4.80***		2.46***	

Table 12 cont.

Independent Variable	Predicted Sign	Model 4			Model 5		
		Coefficient		t-statistic (P-value)	Coefficient		t-statistic (P-value)
Intercept		0.4761 ***		8.00 (<0.0001)	0.7796 ***		13.93 (<0.0001)
<i>IFRS_{it}</i>		-0.1356 ***		-5.48 (<0.0001)	-0.1126 ***		-4.73 (<0.0001)
<i>TREND_{it}</i>		0.0079 **		2.28 (0.0225)	0.0037		1.10 (0.2699)
<i>SIZE_{it}</i>		-0.0153 ***		-2.62 (0.0089)	-0.0308 ***		-5.62 (<0.0001)
<i>NUMEST_{it}</i>		0.0018 ***		7.16 (<0.0001)	0.0007 ***		3.03 (0.0025)
<i>REPLAG_{it}</i>		-0.0015 ***		-3.31 (0.0009)	-0.0015 ***		-3.51 (0.0004)
<i>LEV_{it}</i>		-0.0023 ***		-3.02 (0.0026)	-0.0017 **		-2.43 (0.0149)
<i>DLOSS_{it}</i>		-0.1663 ***		-6.50 (<0.0001)	-0.1100 ***		-4.58 (<0.0001)
<i>UE_{it}</i>		0.0002		0.13 (0.8976)	0.0002		0.10 (0.9165)
<i>DISP_{it}</i>		0.0000		0.11 (0.9091)	0.0000		0.14 (0.8872)
Industry dummies			No			No	
Country dummies			No			No	
N				3954			3819
Adj R ²				0.0439			0.0303
F-statistic				21.15***			14.25***

Note:

All variables are defined as explained in Table 3.

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Appendix B

Earnings Management Model

$$TA_{it}/A_{it-1} = \alpha_0 + \alpha_{1it} (1/A_{it-1}) + \alpha_{2it} (\Delta S_{it} - \Delta REC_{it})/A_{it-1} + \alpha_{3it} (PPE_{it}/A_{it-1}) + \varepsilon_{it} \quad \text{Equation 12}$$

where:

TA_{it} = total accruals at year t, calculated as the difference between income before the extraordinary items and cash flow from the operating activities;

A_{it-1} = total assets at year t-1;

ΔS_{it} = change in sales at year t from year t-1;

ΔREC_{it} = change in receivables at year t from year t-1;

PPE_{it} = gross property, plant, and equipment at year end

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