
Kingsley O. Olibe
Department of Accounting
College of Business Administration
Kansas State University
Manhattan, KS 66506-0113
Phone: 785-532-6141
e-mail: olibeko@ksu.edu

Abstract: To improve comparability of financial statements across countries, the US Securities and Exchange Commission (SEC) and International Accounting Standards Board (IASB) are involved in the convergence process for a single, high quality accounting standards. This paper examines and interprets the security market response around IFRS-based earnings announcements of UK cross-listed firms in the US equity markets. How US market participants react to IFRS earnings disclosures is important to regulators (e.g., the SEC and the FASB) in their task in improving comparability of financial reporting. As predicted, I find evidence of significant price and trading responses on day $t = 0$ and $+1$, which suggests that IFRS earnings news help facilitate the price and trading adjustment process. The immediate price reaction over the 3-day announcement window on average is 41.8 percent for IFRS earning news, whereas it is 79 percent for US GAAP earnings news. These suggest that investors recognize only less than 42 percent of the full value implications of IFRS earning disclosures. These suggest that investors recognize only less than 42 percent of the full value implications of IFRS earning disclosures, indicating that US investors do not fully understand the qualitative aspects of IFRS.


Data Availability: The sample firms together with their earnings announcement dates are available from the author. The remaining data can be obtained from sources identified in the paper.

I. INTRODUCTION

International Financial Reporting Standards (IFRS) has altered the complexity of multinational corporations’ (MNCs) financial reporting process. Notwithstanding the complexity of MNCs’ financial reporting process and US standard setters (e.g., Security and Exchange Commission) discussions on the appropriateness of switching to IFRS, there is little evidence on whether US market participants use IFRS-using firms earnings disclosures in making investing and trading decisions. As a result, this paper examines the security market response around IFRS-based annual earnings release of UK cross-listed firms that trade as American Depository Receipts (ADRs), using US GAAP earnings disclosures as a benchmark. The goal of this study is testing whether IFRS earnings news provide significant and timely new information that is unavailable from other sources, that can impact investors’ expectations and move security prices and trading volume. That is, whether US market participants use IFRS earnings news in making investing and trading decisions. In a discussion of Kim and Shi (2012) paper, Chen (2012) point out that most up-to-date studies on IFRS adoption exclude the United States.

I focus on earnings because earnings are key performance measure worldwide. As a summary measure, earnings announcements reveal significant information about firm performance and move stock prices (Beaver 1968). In addition, earnings influence the interaction between managers and investors with respect to capital allocation. Examining the informativeness of IFRS accounting output is justified because of the enormous wealth of US investors in UK companies. The value of US investors’ ownership of UK firms’ equity, “as of June 30, 2004 amounted to US$738 billion, by far the largest amount invested in any country outside the United States (Chan and Seow 1996). In contrast, the value of UK investors equity

1 From a research perspective, it is important to benchmark the performance of an accounting-based performance model before using such model to assess the implications of changes in accounting standards (Holthausen and Watts 2000).
2 I assume the price two days after disclosure is the full information price because existing literature (e.g., Morse 1981) shows prices impound most information by the day of (or after) an earnings releases.
ownership of US securities as of June 30, 2004, amounted to $488 billion, an increase of $98 billion from 2003 (US Department of the Treasury 2005, Federal Reserve Bank of New York, 2005). This growth in cross-border share ownership offers an ideal setting to study the informativeness of IFRS earnings disclosures. Insight into the effects of IFRS-based earnings news on price and volume will improve our understanding of how non-US GAAP earnings information gets reflected into prices and trading volume.  

Such insight is especially important given that investors are interested in financial report that provides information that is useful in making investment and financing decisions. Accounting information can aid investment efficiency by reducing adverse selection, liquidity risk, and information risk (Leuz and Verrecchia 2000; Lambert et al. 2007).

Prior research suggests that the informativeness of IFRS earnings news increased in countries that mandated IFRS adoption relative to those that maintained domestic accounting standards (Landsman et al. 2012). Other studies provided inconsistent results regarding the informativeness and quality of IFRS accounting data. For example, Meulen et al. (2006) find that US GAAP earnings are more efficient in predicting future firm performance than are IFRS earnings. Aisbitt (2006) find no significant differences in equity quality of UK financial and non-financial firms that adopted IFRS mandatorily. Parallel research by Leuz (2003) shows that no significant difference exist between the US GAAP and IFRS in terms of information quality. Leuz and Verrecchia (2001) examined German firms that transitioned from domestic to “international standards and report that cost of capital proxies (bid-ask spread and trading volume) indicate that the use of IFRS and US GAAP reduced the cost of capital.  

---

1 In November 2008, the US Securities and Exchange Commission issued a proposed “roadmap” for a potential transition from US GAAP to IFRS by US issuers. In February 2010, the SEC issued a statement reiterating its commitment to a single set of high quality global standards and for the convergence of IFRS and US GAAP. In May 2011, the SEC staff paper stressed that the SEC has not yet determined whether to incorporate IFRS into the financial reporting system for US issuers (2011 KPMG LLP).

2 Studies by Ball, Robin, and Wu (2000) argue that issuers incentives rather than mandated accounting standards, mostly determine the quality of financial statements.

3 Lang, Lin and Miller (2003) find that cross-listing on US exchanges leads to greater analysts following, and higher quality accounting information.
the information quality of IFRS versus domestic GAAP, they do not investigate whether IFRS based earnings news provide significant and timely new information to investors in the US equity markets.⁶

The present study addresses this issue by using an event-study approach to examine security price and trading volume responses to news media disclosure of IFRS earnings in the US equity markets. I consider news disclosures—rather than SEC Form 20-F reconciliation—for two reasons.⁷ First, unlike 20-F filings where large and diverse sets of other information/data are disclosed, IFRS earnings news are with little or no other “clouding” information. Second, filing dates for SEC filings are difficult to identify precisely (Easton and Zmijewski 1993). In contrast, earnings announcements dates can be dated with precision and accurately (Kumar and Visvathan 2003). Thus, relative to SEC filings, public earnings disclosures have precisely identified event dates.

The analysis includes trading volume metrics because volume and return reactions are orthogonal measure of the market’s response to a public information event (e.g., Bamber and Cheon 1995; Cready and Hurtt 2002). Consistent with this view, Beaver (1968) argues that trading volume response reflects a lack of consensus among investors and speculates that heterogeneity of belief among investors spur much of the trading action in the capital markets. Cready and Hurtt (2002, 893) argue that “trading volume and market return are complementary measures that capture different aspects of investor response to a public disclosure.” If volume and return measures are indeed complementary, then evidence from both metrics provides unique insight on IFRS and how they impact individual investors and, the market as a whole.

Consistent with Bamber et al. (2011), volume analysis provides deeper insight on whether individual traders understand the reality and implications of IFRS earnings disclosures. As in Cready and Mynatt

---

⁶ Karolyi (1998) and Lang, Lins and Miller (2003) document positive average abnormal announcement returns for non-US registrants that issue exchange listed ADRs. These studies and others offer a number of reasons for why cross-listing on US stock exchange adds value. Further, the aim of this paper is to tests the information value of IFRS earnings releases in the US equity markets not whether the disclosures are relatively more informative than US GAAP earnings news.

⁷ Prior to 2007, non-US firms traded in the US were required to provide reconciliations to US GAAP if their financial statements were prepared using any other accounting principles, and subsequent to 2007, non-US firms that used IFRS as promulgated by the IASB were permitted to file financial statements without reconciliation to US GAAP.
(1991), Ball and Kothari (1991), Olibe and Cready (2003) and Olibe (2006), this research employs non-directional daily returns to assess how, on daily basis, investors assimilate information about IFRS in prices and volume. IFRS-using firms’ earnings announcements are hypothesized to stimulate price and trading volume reactions in the US equity markets. I expect this to be the case because accounting earnings capture information about firms’ underlying economic fundamentals and about their earnings management actions. In other words, IFRS earnings should be informative about price and volume, since earnings reflect previous managerial decisions and activities.8

This paper focuses on UK firms that cross-list in US exchanges because “restricting the sample to one-equity market controls for market institutional features” that can otherwise influence price and volume formation (Frost and Pownall 1994). Limiting the sample to one equity market also allows one to provide insights into the valuation of a dual reporting system for foreign registrants in common equity markets. The disadvantage of limiting the sample to one equity market is that it yields a relatively small sample, potentially limiting the strength of my conclusions.

Using absolute and squared value unexpected returns (Beaver 1968; May 1971) and unexpected trading volume estimated via market model regressions (Cready and Mynatt 1991), I provide both Beaver (1968) squared unexpected returns and May (1971) absolute value returns results.9 These tests extend Landsman et al. (2012) and Chen et al. (2012) by examining the information content of IFRS earnings news. To ensure that the results are not driven by temporal volatility in markets, I compare the IFRS earnings informativeness to a group of US GAAP earnings disclosure. The results of IFRS

---

8 ADRs are US negotiable certificates representing underlying shares in a company incorporated outside the US. ADRs can be “sponsored” or unsponsored. Sponsored ADRs involve firms that register themselves with the SEC and thus file financial data in conformity with the United States generally accepted accounting principle. Sponsored ADRs are also often listed on US exchanges and trade like any other stock. The NYSE and ASE will list only sponsored ADRs, while NASDAQ prefers unsponsored ADRs. The foreign firm sponsoring the ADRs permits only one US bank to act as the curator or transfer agent, and does not allow other banks to duplicate the program; moreover, the sponsoring firm bears transaction costs associated with the management of ADRs.

9 Both squared and absolute unexpected returns have been used in other studies as measures of return volatility (e.g., Frankel et al 1999), and return volatility and trading are valid measures of information content (Beaver 1968; Cready and Hurtt 2002; Holthausen and Verrecchia 1990)
analyses reveal significant price response on day 0 and +2 through +3. For the multiday period examined, the market reaction is significant in test days -1-+1 (1.2553, t = 3.65), days -2-+2 (1.5648, t = 2.9662) and days -10-+10 (2.0554, t = 2.39), for absolute value unexpected returns. Similarly, squared unexpected returns measure is also significant on days -1-+1 (5.7329, 1.81), days -2-+2 (5.9366, t = 1.87) and days -10-+10 (6.8084, t = 1.85).

For trading volume results, I find evidence of significant trading response on day t = 0 and day t = +1 for IFRS earnings announcements. The trading volume reaction is also positive and significant in test days -2-+2 (.0825, t = 4.65), days -4-+5 (.5390, t = 4.94) and days -9-+10 (.3122, 4.06) for unscaled unexpected volume. The price results suggest that IFRS earnings releases change the expectation of the market as a whole. In contrast, volume reaction captures disagreement among individual investors regarding the nature of IFRS. Collectively, these results suggest that US investors do not appear to be confused by IFRS/US GAAP differences, and in fact use IFRS earnings information in valuing UK firms. The results suggest also that IFRS earnings can significantly affect price and trading formation in the US equity markets.\(^{10}\)

Turning to the US GAAP analyses, I find significant price responses on days 0 and +1, a result apparent with IFRS earnings disclosures. On the multiday period examined, I find significant price response on days -1-+1 (9.653, t = 3.17), days -2-+2 (5.942, t = 1.98) and days -10-+10 (6.461, t = 2.03). The results are similar to those of prior research that document the market performance following US GAAP earnings news (e.g., Beaver 1968; Morse 1981, among others). I find essential similar results for IFRS and US GAAP earnings disclosures with respect to price response. However, US GAAP volume responses have more significant results and extend longer than IFRS volume response. The results indicate that differences between US GAAP and IFRS firms have minimal, if any, relevance for investors.

\(^{10}\) Olibe and Cready (2003) examined the incremental information content of annual reports and accounts (ARAs) of UK firms.
These findings are potential of interest to the SEC, which must assess the consequences of IFRS adoption in the US, especially given the criticism of IFRS (e.g., Balll 2006). Finally, this study is potentially of interest to firms making disclosure decisions in the wake of IFRS or domestic GAAP. In addition to complementing and extending prior literature, the findings should be important to the IASB, and the FASB, which is currently working on various standards to improve global financial reporting.

The rest of the paper is structured as follows. Section II is background information, prior research, and US GAAP and IFRS differences. Section III is the hypotheses development. Research design and the data source are in Section IV, while Section V presents empirical results. Section VI is the conclusion.

II. BACKGROUND INFORMATION AND RELATED RESEARCH

There are several vital rationalizations to expect global convergence in accounting standards. Most directly, there have been significant efforts to reduce accounting differences and develop consistent regulation worldwide through organizations like International Accounting Standards Board (IASB), International Auditing Practices Committee, and International Organization of Securities Commissions. Countries like the US, Canada, and the UK have worked together and with FASB to develop joint standards, and auditing firms have been active in forming international alliances to encourage consistent and uniform practice across countries. In February 2001, the European Commission (EC) proposed a regulation requiring all European Union (EU) firms listed on EU stock exchanges to prepare their financial statements using International Accounting Standards (IAS) by 2005. KPMG (2000) reported that European firm executives provided many reasons for switching from domestic GAAP to

---

11 The potential benefits of IFRS depends on the general assumption that it provides high quality information to financial statement users and in doing so enhanced comparability of accounting information compared to previously standards. Although, these potential benefits provide a persuasive argument for IFRS adoption, consideration of the costs associated with such transition must be considered for any policy to adopt. As Ball (2006) argues, “the fair value orientation of IFRS” likely add volatility to financial statements including “estimation error and possible managerial manipulation” of accounting information.
IFRS or US GAAP including the possibility of increasing the availability of capital and lowering its cost, quality of the standards and preferences of institutional investors and analysts.\textsuperscript{12}

In 2007, the US SEC began accepting IFRS compliant financial statements from most foreign registrants. The US financial accounting standards are often viewed as stringent, requiring detail disclosures. Considerable attention is given to exceptions and special issues and extensive guidance is provided on specialized industry practices. The IASB (International Accounting Standards Board), on the contrary, is “less voluminous and standards are defined in general terms.” The goal of the IASB and the US Financial Accounting Standards Board (FASB), as well as the Security and Exchange Commission (SEC), is to establish a uniform standard of financial reporting that enhances the ability of investors to assess current performance and predict future cash flows.

Although “convergence with the IFRS is a global trend” (Street 2002; Street and Gray 2002), financial-reporting quality is still determined by factors such as legal systems, management incentives, and corporate governance mechanisms (Leuz 2003; Schipper 2005). In sum, the objective of the IASB and the US FASB is to have a reporting standard that enhances the ability of investors to appraise current performance and forecast future cash flows of the firm. As Jensen and Meckling (1976) point out, disclosures are used to reduce information asymmetry between insiders and outside investors.

\textbf{Related Research}

A large literature exists that provides evidence of variation in accounting standards, accounting practices, properties of accounting earnings, enforcement of accounting rules, and the value relevance of

\textsuperscript{12} IFRS and US GAAP are alternative sets of internationally acceptable financial reporting standards. The objective of both the IFRS and the US GAAP is to provide information that financial statement users can use in making rational investment and trading decisions, i.e., financial information that is useful in estimating intrinsic firm value (International Accounting Standards Committee (IASC); 1997; Financial Standards Accounting Board (1978). Several non-US equity markets already allow foreign registrants to file financial data prepared in accordance with either IFRS or US GAAP (ISAC 2000). The US Securities and Exchange Commission (SEC) allow foreign registrants to file financial statements prepared in accordance with the IFRS without reconciliation to US GAAP (SEC 2007). The effect of IFRS earnings announcements on price has not reached a decisive conclusion, and little evidence on volume response following these announcements exists in the US equity markets.
accounting information around the world (e.g., Ball et al. 2000; Ali and Hwang 2000; Leuz 2003). In the empirical literature on the value relevance of IFRS, there seems to be no agreement about whether IFRS provides better accounting quality than local GAAP—the evidence is inconclusive. Most studies focused on whether the switch from domestic GAAP to IFRS is associated with (1) a change in the characteristics of accounting earnings (e.g., value relevance, timeliness, accrual quality, persistence, predictability) and (2) the value-relevance of IFRS accounting numbers (e.g., earnings and book values) in different countries that have mandatorily adopted IFRS over voluntary adoption.

For example, Landsman et al. (2011) examine whether the information content of earnings announcements increases in countries following mandatory IFRS adoption, as well as the “conditions and mechanisms through which the increase occurs.” They compared unexpected return and unexpected volume of shares traded across 16 different countries that mandated IFRS adoption and relative to 11 other countries that maintained domestic accounting standards. Landsman et al. (2012) show that earnings news in IFRS-using countries is associated with greater market reaction than domestic GAAP-using countries. Landsman et al. (2012) offered three mechanisms through which IFRS adoption increased the informativeness of earnings announcements: (1) a decrease in reporting lag, (2) an increase in analysts following the firm, and (3) an increase in foreign direct investments. While their study is insightful, such aggregate results may obscure meaningful differences within each country’s accounting regulatory environment and the effect of institutional factors on valuation. Moreover, as Chen (2012) point out, most up-to-date studies on IFRS adoption exclude the United States.

Ashbaugh and Olsson (2002) use a sample of 26 firms that report IFRS accounting data to explore the performance of earnings capitalization, equity book value, and residual income using 26 firms that report
IFRS earnings and book values.\textsuperscript{13} They use earnings capitalization, book values, and residual income valuation models to draw inferences on how the valuation properties of cross-listed firms’ IAS and US GAAP earnings and book values differ. In addition, they explore the performance of the accounting-based valuation models using 36 non-US, cross-listed firms that report US GAAP earnings. They find that earnings capitalization model outperforms book value and residual income models when valuing IFRS firms’ shares. With respect to US GAAP analyses, they report that the residual model to be the dominant valuation model for cross-listed US GAAP using firms. They conclude that non-US, cross-listed firms’ US GAAP accounting data have similar valuation inferences to those of US firms. Possible inferences from their findings are: (i) non-US cross-listed firms’ have similar valuation implications to those of US firms, and (ii) differences between US GAAP and non-US GAAP have limited value to investors.

Meulen, Gaeremynck, and Leuven (2006), using German firms that adopted IFRS, examine differences between US GAAP and IFRS earnings as reported by these sample firms. They test two market-based earnings characteristics (i.e., value relevance and timelines issues), including two accounting-based earnings qualities: predictability and accrual quality. They find that US GAAP accounting earnings are not superior to IFRS-based earnings. That is, IFRS earnings are as value relevant and timely as US supplied earnings. They report, however, the superiority of US GAAP earnings in predicting future performance relative to the IFRS.

Ashbaugh and Olsson (2002) use a sample of 55 non-US/non-UK firms that report IAS or US GAAP accounting variables to evaluate properties of cross-listed firms. They use earnings capitalization, book values, and residual income valuation models to draw inferences on how the valuation properties of cross-listed firms’ IAS and US GAAP earnings and book values differ. They report that the earnings

\textsuperscript{13} In contrast to Ashbaugh and Olsson (2002) that employed 26 IFRS using firms, this study uses 57 IFRS using firms to assess the informativeness of IFRS-based earnings announcements in the US equity markets.
capitalization model is the dominant valuation model relative to the book value and residual income models when valuing IFRS firm shares. They also report that the residual income models to be the dominant valuation model for cross-listed firms reporting US GAAP. Possible inferences from their findings are: (i) non-US cross-listed firms’ have similar valuation implications to those of US firms, and (ii) differences between US GAAP and non-US GAAP have limited value to investors.\(^\text{14}\)

Aisbitt (2006) compares the accounting data of financial and non-financial UK firms that mandatorily adopted IFRS for evidence of significant differences in the two-firm group. He reports that the difference in book value of equity is not significant. The result is not surprising, given the similarity of the UK GAAP with the IFRS. Callao et al. (2007) investigate differences in the equity value of Spanish firms that mandatorily adopt the IFRS instead of the Spanish GAAP. The authors report that the differences between the IFRS and the GAAP are significant only for firm equity. Meulen, Gaeremynck, and Willekens (2006) analyze 281 publicly traded German firms that adopted IFRS between 1998 and 2005. They document a significant increase in equity following IFRS adoption. Their results underscore the significant differences between firm equity and comprehensive income of firms that adopted IFRS voluntarily vs. mandatorily.

Ahmed, Neel, and Wang (2009) determine that IFRS adoption improves smoother earnings numbers, larger absolute accruals, and delayed loss recognition with greater pronounced impacts for firms in countries with stronger legal protection. Conversely, Atwood, Drake, Myers, and Myers (2010) find that earnings reported under the IFRS “are no more or less persistent” and “are no more or less related to future cash flows than are earnings reported under the domestic GAAP.” Kim and Shi (2012) examine whether firms adopting the IFRS are associated with a greater number of analysts following.

\(^{14}\)Olibe (2006) examines price and trading volume responses of UK cross-listed firms in the US equity market to the preliminary earnings announcements. Based on a sample of 80 firm-years, for a three year period (1996-1998), Olibe finds prompt volume and price responses to the UK firm’s earnings announcements. While the findings are relevant to market participants and accounting regulators, the study precludes mandatory IFRS adoption in the UK.
They report that firms that voluntarily adopt IFRS attract more analysts than do non-adopting firms and IFRS accounting processes improved the precision of analyst information.

The literature cited above examines whether the switch from domestic GAAP to IFRS is associated with a change in the characteristics of accounting earnings, book value of equity, and the number of analysts following the firm. The results of these studies are mixed; depending on the country of study, significant or insignificant differences are found. A common feature that “emerges from these studies is that there is no “conclusive assessment of the first order effects on capital market valuation and accounting outcomes associated with IFRS” (Pope and McLeay 2011). An important feature that distinguished other literature from this study is that their focus is on IFRS quality and price volatility, whereas, this study focuses on both price and volume responses in the US equity markets. The inclusion of trading metrics is important because as Kandel and Pearson (1995) point out, trading volume is abnormally high even for earnings releases that spur negligible return response.

Unlike Landsman et al. (2011), this paper attempts to improve the measurement precision by using daily data and one equity market. Investigating alternative corporate reporting practices of UK firms should aid policymakers and accounting regulators in addressing the issue to adopt or not to adopt IFRS. An important feature that distinguishes other literature from this study is that their focus is on price volatility (except Landsman et al. 2012), whereas this study focuses on both price and trading volume in evaluating the informativeness of IFRS based earnings news

III. HYPOTHESES DEVELOPMENT

Price Hypotheses

Price response to public information reflects the properties and the abilities of investors to interpret and use that information. If US capital market participants have considerable difficulty interpreting and
using UK IFRS–based financial information, then I expect to observe weak US price responses to announcements of UK IFRS-using firms’ earnings. Conversely, if US investors are able to interpret UK IFRS earnings announcements quickly, then one would expect to observe significant US market responses to UK firms–IFRS using firms’ earnings announcements. This expectation implies that security price will differ around the disclosure periods relative to other periods.

Accounting information such as earnings disclosures can aid investment and trading efficiency by reducing “adverse selection, liquidity risk, and information risk” (Leuz and Verrechia 2000; Lambert et al. 2007). Moreover, better accounting information improves the efficiency with which managers make investment decisions.15 La Porta et al. (2000) argue that mandatory disclosure rules constitute a central feature of financially developed markets because they provide investors with basic information needed to exercise their rights. Ball, Robin and Wu (2000) argue that issuer incentives, not mandated accounting standards, primarily determine the quality of financial information.

Theoretical work suggests that a signal’s precision is vital in belief revision (Kim and Verrecchia 1991a; Morse, Stephan and Stice 1991). In particular, Kim and Verrecchia (1991) examine a two-period rational expectations model whereby “traders are assumed to be diversely informed and differ in the precision of their private prior information.” They find that the price response to the unexpected portion of a public disclosure is an increasing function of its relative importance across the posterior beliefs of traders. They show that the relative importance is positively linked to the precision of the disclosure and negatively associated with the precision of the pre-disclosure information. This finding of Kim and Verrecchia implies that the price response to public announcement is a positive function of the precision of the information. This suggests quality accounting information can aid managers form accurate expectation in identifying “better investment opportunities, thus improving investment efficiency.”

---

15 As McNichols and Stuben (2008, 1571) note, “high-quality information can aid managers to form more accurate expectation and identify better investment opportunities, thus improving investment efficiency.”
Thus, the main research hypothesis is whether US market participants find UK IFRS using firms earnings announcement informative. That is, are US investors capable of processing mandatory IFRS earnings disclosure even though the accounting system differs systematically from the US GAAP. This is a question of relative information content and properties of the earnings information (Biddle, Seow, and Siegel 1995 and Dechow 1994). The hypotheses are presented in the alternate form. The first hypothesis (H1) constitutes a test of price variance. As a first step, this study hypothesizes the presence of significant price responses at IFRS-based earnings disclosures:

**H1**: Ceteris paribus, IFRS earnings announcements by UK firms elicit significant price response around their release dates in the US equity markets

The presence of unusual price changes on these dates suggests the information content of the disclosure (Beaver 1968). Failure to reject hypothesis H1a is consistent with price variance.\(^{16}\)

**Trading Volume Hypothesis**

A conceptual link exists between unexpected earnings and trading volume. This link stems from theory and evidence. Following Kim and Verrecchia (1991a) proposed framework, trading volume in reaction to a public information event depends on the level of “differential precision across investors’ private pre-disclosure information.” According to theory, volume reaction to a public information event can increase when (1) “information is less costly to process” and/or (2) there is disagreement (i.e., information asymmetry) among investors about the properties of public information (Bamber et al. 1997; Karpoff 1986). Karpoff (1986) showed analytically that trading volume is positively related to the heterogeneity of beliefs. In other words, disclosures that decrease consensus will increase trading volume. Based on accounting literature and empirical evidence (e.g., Beaver 1968; Olibe and Cready

---

\(^{16}\) US investors’ use of earnings data has expanded to include earnings disclosed by foreign firms in their home country, disclosed simultaneously in their home country and foreign markets. There are two reasons for the increased interest in foreign firm’s earnings information. First, there has been a surge of trading on global markets by US investors. Second, the US Security and Exchange Commission (SEC), under pressure from New York Stock Exchange (NYSE), has relaxed certain barriers impeding foreign firms’ access to US markets.
2003, among others) I expect significant trading volume response following IFRS earnings disclosure. However, a finding of no trading activity could occur if US investors ignore the IFRS’s using firms’ earnings news and/or US investors are confused about the IFRS accounting process. In other words, if US investors are confused about the IFRS accounting process, one could observe insignificant volume response in the US market either in the immediate or subsequent days of the disclosure.

The second hypothesis (H2) relates to trading activities at IFRS earnings announcement dates. Unexpectedly high trading activity at any of these dates is evidence of information content (Verrecchia 1981 and Cready and Hurtt 2004) and social welfare value, under the assumption of price invariance (Lev and Ohlson 1982). Trading volume is expected to increase due to the information content (surprise) in the announcement (Beaver 1968; Olibe 2006; Bamber 1986, 1987 Olibe and Cready 2003). As Bamber (1987) argues, “More surprising or informative announcements are likely to spawn a wide variety of interpretations…” A decrease (increase) in consensus resulting from earnings announcements is expected to increase (decrease) trading activity (Karpoff 1986). In Beaver’s framework, trading volume reactions reflect a lack of consensus among the market participants and capture changes in portfolio positions that may not be evidenced in price changes.17

I conduct empirical tests of the existence or non-existence of such unexpected trading activity. Hypothesis H2 refers to aggregate trading based on standardized ($UV_S$) and unstandardized ($UV$) unexpected volume measures. Acceptance of one or both of these hypotheses suggest increased trading that is consistent with IFRS and US GAAP earnings data possessing information content. Failure to reject one or both of these hypotheses suggests increased trading that is consistent with IFRS-based

---

17Verrecchia (1981) questions such an interpretation of volume results and demonstrates that information can induce trading even in the presence of consensus interpretation. Hakansson et al. (1984) provide a precise set of necessary conditions for a no-trading response to occur with respect to an information release. Verrecchia (1981) and Hakansson et al. (1984) suggest it is improbable that an information release will satisfy all of these necessary conditions, therefore trading appears better interpreted not as degree of consensus but instead as evidence of information content.
earnings release possessing information content. This study hypothesizes an increase in trading response at IFRS and UK earnings announcement dates:

**H2:** Ceteris paribus, IFRS earnings news of UK firms ADRs, on average, stimulate significant volume reaction in the US equity markets around their release dates.

The third hypothesis is premised on detecting price and volume responses to US GAAP and IFRS earnings news, comparing the mean cumulative abnormal returns (CARs) and the mean unexpected volume of US GAAP earnings to the mean cumulative abnormal returns (CARs), and comparing mean unexpected volume to IFRS earnings announcements. If market valuation differs between IFRS and US GAAP earnings, then one would observe significant differences in the CARs of US GAAP-based and IFRS-based announcements. Similarly, if investors’ responses differ between IFRS and US GAAP earnings announcements, then the mean CARs and mean trading volume of the IFRS and the US GAAP will differ significantly. I test these hypotheses using a simple t-test of mean difference:

**H3:** Ceteris paribus, cumulative abnormal returns for US earnings news, is on average, greater than mean cumulative abnormal returns for IFRS-using firms earnings disclosures.

Hypothesis H3 tests whether US firms’ earnings disclosures stimulate greater price and volume responses than do UK firms’ IFRS earnings news in the US equity markets.

Theory differs about whether the technical differences between the IFRS and the US GAAP should affect investor response. It is well known that the US market is informational efficient, thus, it should “not matter whether the accounting information is US GAAP or IFRS based.” However, if an accounting standard produces confusing accounting numbers due to the technique employed to generate the numbers, the speed and completeness of price and volume reactions are likely reduced, especially when information is disclosed in a less understandable format. This would occur because
equilibrium stock prices reflect a weighted average of the beliefs of investors who attend to different signals, with weights that depend on the size and risk tolerance of each investor group. If US firms’ earnings announcements stimulate greater price and volume responses because information is disclosed in a more explicable format, one would expect the mean US absolute value cumulative abnormal returns (CARUS) and mean standardized unexpected volume (\( \overline{UV} \)) to have a greater response magnitude than the IFRS absolute value cumulative abnormal returns (CARIFRS) and mean unexpected volume (\( \overline{UV} \)IFRS). I focus on the absolute value cumulative abnormal returns because Cready and Hurtt (2002) find that absolute value returns are more powerful than Beaver’s (1968) squared returns in detecting price response to a public information event. I investigate these conjectures by examining whether IFRS-based earnings stimulate significant price and trading volume over short and longer event periods. The longer event period is used to capture the response of the market in its entirety.

V. Research Design

Unexpected Returns Method\(^{18}\)

Beaver (1968) introduced squared returns as a measure of investor response to earnings announcements, whereas May (1971) introduces absolute returns as a measure of market response to interim earnings announcements.\(^{19}\) Research by Rohrbach and Chandra (1989), Cready and Mynatt (1991), and Subramaniam (1995) “indicate that absolute return is more powerful than Beaver's (1968) squared return metric in identifying unconditional price responses.” However, Olibe and Cready (2003) and Olibe (2006) find that Beaver’s (1968) squared return metric is as powerful as May’s (1971) absolute returns in detecting price response to a public disclosure. As in Cready and Mynatt (1991)\(^{18}\)

\(^{18}\) The research design provides certain advantages relative to those conventionally employed in assessing the informativeness of earnings announcements. First, the research does not suffer from scaling factors and cross-sectional dependence in the returns/abnormal returns. Second, I use an event study approach because Callen, Livnat and Segel (2009, 1364) note that “event study analyses provide more direct evidence concerning the information conveyed of earnings and heteroscedasticity concerns, and the issue of timeliness are mitigated.”

\(^{19}\)While short-term event window market reaction can provide some important information about public disclosure, long-term even window may be better in capturing the full and aggregate actions of investors.
and Olibe and Cready (2003), this study employs both Beaver’s (1968) squared return and May’s (1971) absolute return metrics in evaluating price variance at US GAAP and IFRS-based earnings disclosures. Both procedures remove directionality from the returns and permit aggregation of the measure across firms with positive and negative unexpected returns. The market model is estimated for each firm using daily data and is used to form a daily unexpected return (UR).\textsuperscript{20} Squared unexpected return (SUR) is then estimated for each firm on a daily basis following Cready and Mynatt (1991). The expected value of SUR is equal to 1.0 assuming no price variance. The specific absolute-return response model is:

$$A{BR_i} = \left( {\left| {U_{it}} \right| - \text{MEAN}_i A{BR_i}} \right)/\sigma_{it}$$

(1)

where:

- MEAN\(_i\) ABR\(_i\) is the mean absolute value of the residuals over estimation periods (days -200 to -1 relative to the announcement date);\textsuperscript{21}
- \(\sigma_{it}\) is the standard deviation of the absolute values of the residuals for firm \(i\) from the market model estimation period.

To determine whether unexpected return (UR\(_{it}\)) is based on actual market reaction or mere noise, one has to subtract the mean absolute value of the residuals (ABR\(_{it}\)). The use of non-directional return metrics is consistent with Cready and Hurtt (2002) and Ball and Kothari (1991) who show that non-directional return metrics outperform directional returns metrics in detecting significant return responses.

\textsuperscript{20}Ordinary Least Squares (OLS) is used to estimate the parameters of the model. Cready and Mynatt (1991), Brown and Warner (1985) and Jain (1986) support the use of OLS for estimating unexpected returns even in the presence of nonsynchronous trading. The models are estimated over a 200-day period, day -210 to day -11, relative to IFRS and US GAAP earnings announcements. The model is estimated using the CRSP equal weighted market index.

\textsuperscript{21}It is possible for mean absolute values to have a negative sign. For example, if the mean absolute value of the residuals is greater than daily unexpected return, subtracting the mean absolute value of the residuals yields a negative mean unexpected returns (see Cready and Mynatt (1991,302, Table 5).
Trading Response Method

Beaver (1968) introduced the percentage of outstanding shares traded as a measure of market response.\(^\text{22}\) Trading response is measured using volume of shares traded. The specific measure used to measure trading activity is specified as: \(^\text{23}\)

\[
PVi_t = a_i + b_i \ln(V\text{MKT}_t / O\text{SMKT}_t) + e_{it} \tag{2}\]

where:

- \(PV_{it}\) = the natural logarithm of daily trading volume for firm \(i\) in shares \((V)\) divided by number of shares outstanding for firm \(i\), both on day \(t\), times 100 plus .000255;\(^\text{24}\)
- \(V\text{MKT}_t\) = total daily trading volume for all NYSE firms on day \(t\) times 100;
- \(O\text{SMKT}_t\) = total outstanding shares for NYSE firms on day \(t\);\(^\text{25}\)
- \(\alpha_i, \beta_i\) = the estimated intercept and slope terms; and
- \(e_{it}\) = the error term.

The regression parameters are estimated subject to a first-order serial correlation (see e.g., Cready and Myantt 1991; Pinchus 1983; Richardson et al. 1986).\(^\text{26}\) Unexpected volume (UV) is then estimated on daily basis as:

\[
UV_{it} = \left( PV_{it} - \bar{PV}_{it} \right) / \sigma_{vit} \tag{3}\]

---

\(^{22}\) Cready and Hurtt (2002) suggest that when sample size is relatively small or return responses are small, volume-based response metrics are more likely to detect the presence of an investor response than are return-based metrics.\

\(^{23}\) For these UK firms that trade their securities in the form of American Depository Receipts (ADRs), I do not convert the ADRs to the corresponding number of shares since firms typically choose a share/ADR ratio results in a price that is similar to the selling price of other shares within its industry.\

\(^{24}\) The log transformation mitigates the skewness in the volume distribution. Ajinkya and Jain (1989) suggest the use of the logarithmic transformation. To avoid taking the log of zero, I add the constant, .000255 following Cready and Mynatt (1991).\

\(^{25}\) Data on outstanding shares are obtained from the daily CRSP master file which contains all changes in number of shares outstanding, including stock dividends and stock splits. Trading volume is traditionally scaled by outstanding shares (e.g., Beaver 1968; Bamber 1986, 1987; Olibe and Cready 2003).\

\(^{26}\) The autoregression estimation employs Prais-Winsten estimators in approach very similar to the Cochrane-Orcutt procedure.
$UV_{it} =$ the predicted level of $PV_{it}$ from a first-order serial correction regression of $PV_{it}$ on $VMKT$; 
$\sigma_{vit}$, = the standard deviation of the residuals for firm $i$ from the market model, equation (2) and 
expected volume, $PV$ is obtained from the structural portion of equation (2). Cready and 
Ramanan (1995) indicate that market-adjusted volume outperforms simple mean adjusted volume in 
detecting trading responses. To control for serial correlation, an autoregressive procedure is 
employed based on the Prais-Winsten estimation technique. To 

Only the structural portion of the model is used to generate $PV$ values. Thus, trading volume in 
the IFRS and US GAAP periods is measured as the percentage of firm $i$’s shares traded on day $t$ 
($V_{SHRS_{it}}$), cumulated over a 21-event day period ($t = -10$ to $+10$) and for multi-day trading period 
activity. Day 0 is the date of the IFRS and US GAAP earnings announcement dates reported in the 
London Financial Times Index and Nexis/Lexis News Wire Service.

**Data Collection Procedure**

[Table 1 about here]

Firms are identified using (1) Global Researcher-SEC Database, (2) Lexis/Nexis, and (3) 
reference to the annual editions of the NYSE Fact Book. I searched the Business Newswire, the PR 
Newswire archives, and Financial Times Index to identify UK cross-listed firms reporting earnings data. The sample used in this study consists of firms registered in the UK and cross-listed on the 
NYSE/AMEX during 2005–2009 for IFRS earnings data with sponsored ADRs. I use the key word 
“earnings” to identify earnings releases with potential IFRS earnings announcements. This search 
process yielded 70 firm year earnings press releases. I then deleted firms if: (1) the firm returns were

---

27 As in Cready and Hurtt (2004), I do not use the standard deviation of the predicted values here because the calculation of such deviation introduces a great deal of computational complexity.

28 Only the structural portion is used because of the multiday nature of the expected trading reaction. In particular, assuming positive unexpected trading occurs on event day $t$ and the serial correlation is positive, then expected trading from the full specification on day $t+1$ is biased upward. As Cready and Mynatt (1991, 296) point out, “failure to account for the serial correlation introduces the noise level of the unexpected trading measure.”
missing or the firm could not be located; (2) the earnings release dates are unavailable or missing; (3) the number of outstanding shares were fewer than 221 trading days in the announcement periods.

The first sample restriction is dictated by the use of returns data in evaluating the price response on the event dates. Restrictions two and three minimizes the potential confounding influence of AGM trading on measures of earnings trading, pre-and post IFRS earnings release dates. I cross-check UK firms event dates using the London Financial Times Index. The study uses a sample of 354 earnings announcements for US firms and 49 for IFRS earnings announcement between January 1, 2005 and December 31, 2009. Return and volume data are from CRSP. The daily closing returns and the number of shares traded for the sample firms are obtained from daily CRSP tapes.

**Descriptive Statistics**

[Table 2 about here]

Table 2, Panel A contains the descriptive statistics for the US sample firms (2005–2009), while Panel B delineates the descriptive statistics for UK sample firms (2005–2009). The descriptive statistics are on market value of equity at year-end, average daily returns, average daily volume in shares, and average daily percentage volume for both US and UK firms. Table 2, Panel A, indicates that the sample firms are large as the mean market value of equity is $26301 million with a maximum of $222241 million, with a standard deviation of $33547 million, indicating variability in the size of US firms. The number of earnings announcements for US firms shows a mean of 2.2 and a maximum of 4, with a standard deviation of .7022. Table 2 indicates that daily trading volume in shares has a

---

29 Consistent with other studies, a sizable positive serial correlation exists for daily percentage volume. The mean $R^2$ for the percentage volume first-order autoregression equals 0.3042. This is high compared to other studies where this statistic is reported (e.g., 11 percent in Ajinkya and Jain 1989; 16.30 percent for Cready and Mynatt 1991; 23.33 percent for Olibe 2011), reflecting the time period covered in this study.
mean of $1,121,244 and a maximum of $2,384,553 million, with a standard deviation of $2,385,988 million, suggesting greater dispersion in the sample firms trading activity.

Table 2, Panel A, also shows earnings announcement period statistics, such as mean percentage volume for day -1 to 0 and -1 to +1 average trading volume. No evidence of an increase in mean percentage volume exists when extending the day from -1 to 0 to -1 to +1. However, the maximum mean percentage of volume decreases from 7.0950 to 6.5699 on day t = -1 to 0 relative to day t = -1 to +1. The mean daily percentage return decreases when I extend the event period from days -1 to 0, to days -1 to +1 from 0.0507 to 0.0443. Panel B, Table 2, shows that the mean market value of equity is $2836 million with a maximum of $22,246 million, with a standard deviation of $5,708, indicating considerable variability in the size of UK firms that cross-list in the US equity markets.

IV. EMPIRICAL RESULTS

Evidence: IFRS Price Response Results

Table 3 reports statistics from 21 daily event-time regressions. The table reports both daily mean squared and absolute value deflated unexpected returns for days -10 to +10 relative to IFRS earnings release date and three multiday period inclusive. The absolute value price response measure is significantly different from zero on day t = -9, 0, +2 and 3 and both multiday periods examined. The mean price response on day t = 0 (1.2647) is larger than the average of price on any of the ten prior or ten subsequent event days. The squared price response measure is also significantly different from on day t = -4, 0 and +3 and both multiday periods examined. For the squared unexpected returns, the average price response on day t = 0 (5.9019) is larger than the average of price on any of
the ten prior or ten subsequent event days. Thus, hypothesis H1 cannot be rejected. These results are consistent with Landsman et al. (2011), Meulen et al. (2006), and Callao et al. (2007) and provide support for price variance with respect to IFRS using firms’ earnings announcements. There is no clear evidence of significant price response on day \( t = -1 \) and day \( +1 \). Taken together, the daily abnormal returns in columns two and seven and CARs in column six and the last column reveal that IFRS earnings news stimulates significant price response around earnings announcement days. That is, IFRS earnings news conveys new information that affects security prices.

The third and eight columns report the standard deviation of daily mean unexpected return for day \( t = -10 \) through \( +10 \). The standard deviations of abnormal returns increase during the earnings announcement date, suggesting greater information processing by investors (see e.g., Beaver 1968; Cready and Mynatt 1991; Ball and Kothari 1991). The standard deviation of abnormal returns on day \( t = 0 \) is 2.29, which is 1.422 times the 18-day average of .8896 for these firms (excluding day \( +2 \) and \( +3 \), significant days.). This suggests a greater relative amount of information arrival and processing at IFRS-based earnings announcements. Given the relatively large increases noted in standard deviation of unexpected returns on day \( t = 0 \), the inference is that earnings information causes increase in diversifiable risk (see for example Ball and Kothari 1991).

To further measure the impact of IFRS earnings announcements on the stock of firm \( i \), I test for the market’s response on day -1 to day +1 to capture the immediate impact, and day -2 to day +2 to capture the intermediate impact; and day \( t = -10 \) through \( +10 \) to capture the long-term impact. For the

\[ \text{standard deviation of stock returns reported in columns 3 and 8 indicates the extent to which the market is surprised by earnings announcements. The greater the uncertainty of cash flows generated by a firm, i.e., the risk of equity, the greater is the standard deviation of returns. As Kothari, Li, and Short (2009, 1652) point out, the “measure is also an indication of the infrequency of information reaching the market and the degree of information asymmetry among market participants.”} \]

30 The unusual small levels of returns variation in the earnings disclosures period suggest that returns become more stable, which is consistent with a diminished uncertainty level of public disclosures.

31 Standard deviation of stock returns reported in columns 3 and 8 indicates the extent to which the market is surprised by earnings announcements. The greater the uncertainty of cash flows generated by a firm, i.e., the risk of equity, the greater is the standard deviation of returns. As Kothari, Li, and Short (2009, 1652) point out, the “measure is also an indication of the infrequency of information reaching the market and the degree of information asymmetry among market participants.”
multiday periods examine both the absolute and squared price response measures are significant at the conventional level, indicating that US investors use IFRS accounting data in valuing UK firms.

[Figures 1a and 1b about here]

Figure 1 summarizes the distribution of cumulative abnormal returns performance for the window days $t = -10$ to $+10$. To further test the information properties of IFRS earning news in the US equity markets, I focus on the cumulative abnormal returns (CARs) reported in column six and the last column of table 3 and presented in figure 1. They reveal a step increase on days $t = -1$ and 0. There is weak evidence of positive pre-announcement abnormal returns during event days -8 through -1 per absolute value cumulative abnormal returns, but the estimates are statistically insignificant at the conventional level. The daily unexpected returns in columns 2 and 7, and the CARs in column 6 and the last column reveal that these firms earn significant positive abnormal returns prior to and around earnings announcement date. The results in Table 3 and figures 1a and 1b suggest that significant price variance is associated with IFRS using firms’ earnings disclosures.

**IFRS Abnormal Trading Volume**

[Table 4 about here]

Table 4 reports daily and multiday mean unexpected percentage trading volume (UV) for days $t = -10$ through $+10$, relative to UK IFRS using firms’ earnings announcements.\(^{32}\) The multi-day periods examined are wider than those employed in investigating returns because earnings-induced trading is not expected to occur in its entirety immediately upon earnings release (e.g., Morse 1981; Cready and Mynatt 1991; Olibe 2003). Trading response measures exhibit significant mean

\(^{32}\) Only the structural portion of the autoregressive model is employed for these results because of the anticipated multiday nature of the trading response. In results, not tabulated, where the full autoregressive model including the estimated first-order autocorrelation term is used, the results, while slightly different from those reported in table, still lead to acceptance of hypothesis H2.
unexpected volume on day $t = 0$, implying that US market participants find IFRS-based earnings informative. The UV measure is significant (one, five, and 10 percent levels) on day $t = -9, -7, 0, +1, +3$. The scaled UV measure is significant (one, five, and 10 percent levels) on day $t = -7, 0, +1, +3$ and $+6$. For the multi-day periods examined, both scaled and un-scaled UV are significant (one percent) on day $t = -2$ through $+2$, $-4$ through $+5$, and $-9$ through $+10$. These results taken together indicate that US market participants do not appear to be confused about IFRS accounting process, and indeed traded on the information.

**Figure 2 about here**

Figure 2 is a plot of scaled and un-scaled mean values of a volume of shares traded around IFRS earnings announcements across 21 event-day periods. This same information is tabulated in Table 4 for periods $(-10 - +10)$. These descriptive data reveal strong evidence of negative volume on day $t = -10$ through $-6$ for both scaled and un-scaled mean unexpected volume. These descriptive data reveal two important volume effects, both of which are supported by the statistical tests reported in Table 4. First, unexpected volume does not appreciably differ on pre-announcement days (i.e., day $-10$ through $-6$). On day $t = -2$ through $+4$, there is a steep increase in trading activities, and they are predominantly positive. Second, on day $-1$ and post-announcement days, volume tends to spread in the periods following the earnings announcements, volume tend to spread in the predicted directions. Specifically, trading volume is highest on day $t = -1$ and $+4$.

**US GAAP Price Response Results**

[Table 5 about here]

Table 5 reports corresponding estimates for US GAAP-based earnings announcements statistics from 21 daily event-time regressions. Their abnormal returns around earnings announcement days are
as expected; five of the 21 event-day abnormal returns reliably differ from zero at the 5 and 1 percent level, respectively for the absolute price metrics. Squared unexpected returns also reliably differ from zero at the 5 and 1 percent levels. The most significant price changes occurred on day $t = 0$ for both absolute value and squared unexpected returns. Notably, there is evidence of significant price reaction to US GAAP earnings-based disclosures on day $t = -5, 0, +1, +4,$ and $+5$, and multiday periods examined (one, five, and ten percent levels). No evidence of lengthy price response is detected. Day 0 and +1 unexpected returns are abnormally large, which accounts for the increased standard deviation on these days. The standard deviation on day $t = 0$ is 278.1 (202.4) percent for absolute (squared) value unexpected returns. Compared to other days, this implies a greater relative amount of information processing and usage by investors on day $= 0$.

To further measure the impact of US GAAP earnings announcements on the stock of firm $i$, I test for the market’s response on day $-1$ to day $+1$ to capture the immediate impact; day $-2$ to day $+2$ to capture the intermediate impact; and day $t = -10$ through $+10$ to capture the long-term impact. For the multiday period examined, the results indicate that significant price responses accompany US GAAP earnings releases at the 1, 5, and 10 percent levels.

[Figure 3 about here]

To further test the information content of US GAAP earnings releases, I focus on the cumulative abnormal returns (CARs) reported in columns 6 and 11 of table 5. The CARs is plotted in figure 3b. The CAR $\text{values}$ reported in table 5 and graphed in figure 3b suggest that US firms earn 126 percent total abnormal rate of return over the 21-event day interval. The results in Table 5 and figures 3a and 3b jointly suggest that a significant price variance is associated with US GAAP earnings disclosures (see e.g., Beaver 1968; Ball and Kothari 1991), confirming the robustness of
information conveyed by US GAAP earnings releases to the US equity markets. Comparison with the CAR for IFRS in figure 2b, Table 3 reveals larger abnormal return magnitudes around IFRS earnings announcements, inconsistent with H3.

**US GAAP-Abnormal Trading Response Results**

Table 6 also contains the results of deflated and un-deflated measures of trading behavior of traders in the 21 event days surrounding the release date of US firms’ GAAP-based earnings. The multiday period is employed to capture the persistence of earnings-induced trading since prior empirical evidence (e.g., Morse 1981) suggests that a volume reaction persists for up to 7 trading days (i.e., approximately 1.5 weeks). The most significant trading volume response occurred on day \( t = 0 \) for both un-deflated and deflated measures. The non-deflated trading volume measure is significant at the 1% level on day \( t = 0 \) and \(+3\); at the five percent level on day \( t = -7 \) and \(+1\); and at the ten percent level on day \( t = -9 \) for the deflated trading volume measure. This suggests a decrease in consensus among investors, which was initially observed by Beaver (1968) and (Karpoff 1986). Turning to the deflated trading measure, it is significant at the one percent level on days \( t = 0, +1, \) and \(+3 \) or better and significant at the ten percent level on days \( t = -7 \) and \(+6 \). For the multi-day period examined, both scaled and un-scaled UV are significant (one percent) on day \( t = -1 \) through \(+1\), \(-2 \) through \(+2\), \(-4 \) through \(+5\), and \(-10 \) through \(+10\).

[Figure 4 about here]

Figure 4 summarizes the trading behavior around IFRS-based earnings announcements for the day \( t = -10 \) to \(+10 \). Descriptive data tabulated in Table 4, Columns 3 and 6 are graphed in figure 4. These graphs reveal a strong evidence of volume response on day \( t = -10 \) through \(-6 \) for both scaled and un-scaled mean unexpected volume. In the periods following the earnings release, volume tends
to increase in the predicted direction. Plotting the mean behavior of daily trading volume indicates that there is a steep increase on both deflated and un-deflated values of mean unexpected trading around IFRS-based earnings announcements. There appears to be an increase in the mean values of unexpected volume of shares traded around IFRS earnings-based announcements of UK firms, with most of the increase being confined to day $t = 0$ and $+3$ for both scaled and unscaled abnormal trading volume measures. As a final step, I report in a tabular format the technical differences between US GAAP and IFRS (see appendix A).

### VI. Summary and conclusions

Questions dealing with equity values and volume of shares traded as they relate to accounting information are of obvious interest to investors, accounting regulators and policymakers. This study addresses the informative of IFRS earnings disclosures in the US equity markets using US GAAP earning announcements as a benchmark. Specifically, this paper examines the market’s reaction (in price and trading volume) to IFRS-based earnings announcements of UK-listed firms in US equity markets and assesses if US and IFRS accounting principles differences hamper the ability of US investors to assess the information contained in IFRS accounting system outputs. How US market participants react to IFRS-based earnings disclosures is important to accounting regulators (the SEC and the IASB) in their task of improving comparability of financial reporting worldwide.

The results of the analyses are, for the most part, consistent with the price and trading volume hypotheses. First, I find that both disclosures are incrementally informative. I also find that IFRS earnings announcements stimulate significant volume, indicating heterogeneity of belief among US investors regarding IFRS earnings disclosures. I find strong evidence of significant price response on day $t = 0$ and $+3$. And for trading response, I also report evidence of significant trading on day $t = 0$.  

28
and day $t = +1$ for the IFRS earnings announcements. Third, the trading response period for US GAAP earnings releases appears relatively long, extending to $t = +6$ for scaled trading measure, and day $t = 9$ for unscaled trading measures. This suggests a rather lengthy information processing and usage on the part of many investors. Trading response period to IFRS-based earnings announcements appears relatively short, only extending to day +3. The heaviest portion of the response appears to occur in the multiday periods and the more typical day $= 0$.

This paper provides many noteworthy results. First, I provide empirical evidence on whether IFRS-based annual earnings announcements by UK cross-listed firms affect security price and trading volume in the US equity markets, which is of interest to investors and regulators. I report that IFRS earnings releases are capitalized into ADR prices. Nonetheless, I find significant differences in the market’s reaction to IFRS and US GAAP earnings news. Specifically, the immediate price reaction over the 3-day announcement window on average is 41.8 percent for IFRS earning news, whereas it is 79 percent for US GAAP earnings news. These suggest that investors recognize only less than 42 percent of the full value implications of IFRS earning disclosures, indicating that US investors do not fully understand the qualitative aspects of IFRS. This evidence is relevant to US accounting regulators as it casts doubt on the desirability of IFRS to US investors (see for example, Ball 2006).

Second, empirical evidence on how US market participants react to earnings under different accounting standards may be useful to accounting regulators who are engaged in various activities to promote uniform regulations and a “level playing field” with respect to financial reporting requirements and practices. This investigation provides valuable information to US policymakers and standard setters (the SEC, IASB and the FASB) concerning expected relevance of IFRS. Finally, the results shed light on the price and trading volume adjustment process and help explain the efficiency of the market with respect to IFRS earnings news. The tests provide evidence of an increment in the
pricing of IFRS earnings disclosure. More generally, the findings provide support that IFRS’s earnings news have capital market benefits.

Much of the debate in accounting standard setting revolves around the issue of quality and transparency of the standard. That is whether investors can readily decipher the information contained in financial reports produced by the standard. The findings of this study suggest that US market participants do instantaneously and accurately assimilate potentially informative, qualitative aspects of IFRS using firms earnings signal. By inference, these findings indicate that US investors do not appear to be confused by US GAAP/IFRS differences, and in fact use information about IFRS earnings in their valuation of UK firms.

This study is subject to several limitations. First, US investors’ reaction to IFRS-based earnings information around earnings disclosure dates does not necessarily imply that US investors have no difficulty in understanding IFRS earnings. I focused on one equity market. It is not clear whether these results generalize to non-UK firms that cross-list in US markets. Further, the findings may lead to inferences and hypotheses which can be tested by future researchers using larger samples of UK firms. As Cready and Hurtt (2002, 907) point out, “when the sample size is small, they suggest that volume-based response metrics are more likely to detect the presence of an investor response.” An interesting extension is to examine whether investors in the UK and the US interpret earnings news (good and bad) under IFRS similarly. That is, whether the return responses are different in the US and UK markets for the same firms. Finally, an important caveat of this study is that the analysis neither considers the benefits versus costs of US firms adopting IFRS. Rather, as in prior studies on information content, I provide an empirical assessment of theoretical predictions concerning the effect of IFRS earnings news on price and volume.
References


US Department of the Treasury 2005, Federal Reserve Bank of New York, 2005


Table 1

Earnings Announcements Dates Sample Selection Procedure

**Sample for testing IFRS earnings Announcements**

Earnings Announcement Date Sample Selection Method (2005-2009)

| Initial sample of Firm Years Obtained from Global Researcher, Nexius/Lexis | 155 |
| Unable to Locate Earnings Release Dates in Financial Times Index and PR Newswire | 57 |
| Missing or Unable to Locate on CRSP Tape | 22 |
| Fewer than 121 trading Observations meeting Outstanding shares Criterion | 19 |

**Final Sample** | 57

**Sample for testing US GAAP Earnings Announcements**

Earnings Announcement Date Sample Selection Method (2005–2009)

| Initial sample of Firm Years Obtained from Global Researcher, Nexius/Lexis | 494 |
| Announcements date close to another (e.g., 07/07/05 and 07/08/05) | 58 |
| Missing or Unable to Locate on CRSP Tape | 67 |
| Fewer than 221 Trading Observations Satisfy Outstanding Shares Criterion | 15 |
| Possible Outliers | 6 |

**Final Sample** | 354

---

*Observations whose returns around IFRS and US GAAP earnings announcement date fall in the top or bottom 1 percent of the distribution are deleted as possible outliers.*
Table 2
Sample Description

Descriptive Statistics for US Earnings Announcements

<table>
<thead>
<tr>
<th>Panel A: Descriptive Variable (US Firms SAMPLE: (2005-2009))</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of earnings Announcements</td>
<td>2.2159</td>
<td>.7022</td>
<td>1.0000</td>
<td>4.000</td>
</tr>
<tr>
<td>Market value at Year-end (in million)</td>
<td>26301.85</td>
<td>33547.01</td>
<td>4720.49</td>
<td>222241.33</td>
</tr>
</tbody>
</table>

Mean Estimation Period Statistics:

- Daily Trading Volume in Shares: 8926251, 15294321, 29424.71, 135171146
- Average Daily Percentage Volume: 1.2343, .8391, .2561, 4.9852
- Daily Absolute Value Return: 0.0126, 0.0090, 0.0039, 0.0970
- Daily Squared Return: 0.8727, 0.7722, 0.1414, 9.1484

Earnings Release Period Statistics:

Mean Increase in Percentage Volume:
- Day -1 to 0 average volume: 1.3519, 1.1805, 0.1705, 7.0950
- Day -1 to +1 average volume: 1.3409, 1.1193, 0.2030, 6.5699

Mean Increase Percentage Returns:
- Day -1 to 0 average (in % points): -0.0047, 0.0165, -0.0696, 0.0507
- Day -1 to +1 average (in % points): -0.0053, 0.0157, -0.0817, 0.0443

Volume Model:33

- R2: 0.2957, 0.1155, 0.6423, 0.6602
- Serial Correlation Coefficient: -0.4899, 0.1123, -0.7824, -0.1648

---

33 This is the first-order autoregressive model, estimated over days -100 to +100 relative to the U.K. firm’s earnings announcement dates, where the natural log of the percentage of a firm’s outstanding shares is the dependent variable and the logarithm of the percentage of outstanding shares traded for NYSE firms is the independent variable.
Panel B: Descriptive Variable (IFRS
SAMPLE: (2005-2009)

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of earnings Announcements</td>
<td>2.3030</td>
<td>0.9180</td>
<td>1.0000</td>
<td>4.000</td>
</tr>
<tr>
<td>Market value of equity year-end (in million)</td>
<td>2836.47</td>
<td>5708.67</td>
<td>2.6691</td>
<td>22246.68</td>
</tr>
</tbody>
</table>

**Mean Estimation Period Statistics:**

- Daily Trading Volume in Shares: 6688623.97 (3049.71 - 7713328.76)
- Average Daily Percentage Volume: 0.8988 (0.0853 - 5.6527)
- Daily Absolute Value Return: 0.0146 (0.0057 - 0.0677)
- Daily Squared Return: 1.4947 (0.3492 - 7.1309)

**Earnings Announcements Period Statistics:**

- Mean Increase in Percentage Volume:
  - Day -1 to 0 average volume: 1.1267 (0.0485 - 7.7125)
  - Day -1 to +1 average volume: 1.0968 (0.0352 - 6.8416)

- Mean Increase Percentage Returns:
  - Day -1 to 0 average (in % points): 0.0108 (-0.0685 - 0.1057)
  - Day -1 to +1 average (in % points): 0.0051 (-0.0370 - 0.0824)

**Volume Model:**

- R2: 0.2323 (0.0103 - 0.6997)
- Serial Correlation Coefficient: -0.3239 (-0.07623 - 0.0391)

---

34This is the first-order autoregressive model, estimated over days -100 to +100 relative to the UK firm’s earnings announcement dates, where the natural log of the percentage of a firm’s outstanding shares is the dependent variable and the logarithm of the percentage of outstanding shares traded for NYSE firms is the independent variable.
Table 3
Mean Squared Standardized Unexpected Returns and Mean Absolute Value Standardized
Unexpected Returnsa at IFRS Earnings Announcements Date

<table>
<thead>
<tr>
<th>Day(s) Relative to Release Dateb</th>
<th>Absolute Value Unexpected Returns</th>
<th>Squared Unexpected Returns</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Stand. Dev.</td>
</tr>
<tr>
<td>-10</td>
<td>-0.0866</td>
<td>.9857</td>
</tr>
<tr>
<td>-9</td>
<td>.2908</td>
<td>1.2671</td>
</tr>
<tr>
<td>-8</td>
<td>.2459</td>
<td>1.3725</td>
</tr>
<tr>
<td>-7</td>
<td>-0.0760</td>
<td>.9377</td>
</tr>
<tr>
<td>-6</td>
<td>-0.0458</td>
<td>8.196</td>
</tr>
<tr>
<td>-5</td>
<td>-0.0996</td>
<td>8.980</td>
</tr>
<tr>
<td>-4</td>
<td>-0.0405</td>
<td>.7594</td>
</tr>
<tr>
<td>-3</td>
<td>.2163</td>
<td>.9700</td>
</tr>
<tr>
<td>-2</td>
<td>0.0931</td>
<td>1.0232</td>
</tr>
<tr>
<td>-1</td>
<td>0.0098</td>
<td>.8929</td>
</tr>
<tr>
<td>0</td>
<td>1.2647</td>
<td>2.2877</td>
</tr>
<tr>
<td>+1</td>
<td>-0.0192</td>
<td>.8983</td>
</tr>
<tr>
<td>+2</td>
<td>.2163</td>
<td>.9194</td>
</tr>
<tr>
<td>+3</td>
<td>-2.513</td>
<td>.6592</td>
</tr>
<tr>
<td>+4</td>
<td>.0148</td>
<td>.7757</td>
</tr>
<tr>
<td>+5</td>
<td>.1070</td>
<td>.8753</td>
</tr>
<tr>
<td>+6</td>
<td>-0.0991</td>
<td>.9312</td>
</tr>
<tr>
<td>+7</td>
<td>.1506</td>
<td>.9837</td>
</tr>
<tr>
<td>+8</td>
<td>.0365</td>
<td>1.3107</td>
</tr>
<tr>
<td>+9</td>
<td>.2049</td>
<td>1.0073</td>
</tr>
<tr>
<td>+10</td>
<td>.0589</td>
<td>1.0884</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Daily Cumulative Absolute Value Unexpected Returns</th>
<th>Daily Cumulative Squared Value Unexpected Returns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>Stand. Dev.</td>
</tr>
<tr>
<td>1.2553</td>
<td>2.5988</td>
</tr>
<tr>
<td>1.5648</td>
<td>2.9662</td>
</tr>
<tr>
<td>2.0554</td>
<td>6.4988</td>
</tr>
</tbody>
</table>

a Squared standardized unexpected returns are computed to have an expected value of 1.0 in the case of no price response. Absolute value standardized unexpected returns are computed to have an expected value of zero in the case of no price response.

b Day 0 squared return is abnormally large, which accounts for the increased standard deviations on day 0. Excluding this return greatly reduces both the standard deviations and means for day 0 as well as the day −2 to +2 period with no appreciable effect on the reported t’s.
Figure 1

Mean Abnormal Returns around IFRS Earnings Announcements
### Table 4

Mean Unexpected Volume at IFRS Earnings Announcements Dates

<table>
<thead>
<tr>
<th>Day(s) Relative to Release Date&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Number of Releases&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Unscaled&lt;sup&gt;c&lt;/sup&gt;</th>
<th>T</th>
<th>P</th>
<th>Scaled&lt;sup&gt;d&lt;/sup&gt;</th>
<th>T</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>-9</td>
<td>53</td>
<td>-.1540</td>
<td>-1.68</td>
<td>.0998*</td>
<td>-.3615</td>
<td>-1.05</td>
<td>.2999</td>
</tr>
<tr>
<td>-8</td>
<td>55</td>
<td>-.0174</td>
<td>-.19</td>
<td>.8480</td>
<td>.0512</td>
<td>.16</td>
<td>.8703</td>
</tr>
<tr>
<td>-7</td>
<td>55</td>
<td>-.1911</td>
<td>-2.14</td>
<td>.0375**</td>
<td>-.5527</td>
<td>-.73</td>
<td>.0897*</td>
</tr>
<tr>
<td>-6</td>
<td>56</td>
<td>-.0038</td>
<td>-.04</td>
<td>.9688</td>
<td>-.1484</td>
<td>-.44</td>
<td>.6616</td>
</tr>
<tr>
<td>-5</td>
<td>55</td>
<td>.0246</td>
<td>.27</td>
<td>.7871</td>
<td>-.0711</td>
<td>-.25</td>
<td>.8035</td>
</tr>
<tr>
<td>-4</td>
<td>56</td>
<td>-.0127</td>
<td>-.15</td>
<td>.8808</td>
<td>-.0322</td>
<td>-.11</td>
<td>.9138</td>
</tr>
<tr>
<td>-3</td>
<td>57</td>
<td>.0267</td>
<td>.30</td>
<td>.7666</td>
<td>.3133</td>
<td>.98</td>
<td>.3333</td>
</tr>
<tr>
<td>-2</td>
<td>56</td>
<td>-.0192</td>
<td>-.22</td>
<td>.8257</td>
<td>.0335</td>
<td>.11</td>
<td>.9103</td>
</tr>
<tr>
<td>-1</td>
<td>56</td>
<td>.0226</td>
<td>.24</td>
<td>.8133</td>
<td>.3232</td>
<td>1.05</td>
<td>.2998</td>
</tr>
<tr>
<td>0</td>
<td>56</td>
<td>.4546</td>
<td>4.22</td>
<td>.0001***</td>
<td>1.6962</td>
<td>3.81</td>
<td>.0004***</td>
</tr>
<tr>
<td>+1</td>
<td>56</td>
<td>.3208</td>
<td>2.48</td>
<td>.0166**</td>
<td>1.3753</td>
<td>3.29</td>
<td>.0019***</td>
</tr>
<tr>
<td>+2</td>
<td>57</td>
<td>.1475</td>
<td>1.25</td>
<td>.2171</td>
<td>.6027</td>
<td>1.50</td>
<td>.1401</td>
</tr>
<tr>
<td>+3</td>
<td>55</td>
<td>.2871</td>
<td>2.83</td>
<td>.0067***</td>
<td>1.0631</td>
<td>3.00</td>
<td>.0043***</td>
</tr>
<tr>
<td>+4</td>
<td>55</td>
<td>-.0106</td>
<td>-.09</td>
<td>.9300</td>
<td>.2953</td>
<td>.80</td>
<td>.4280</td>
</tr>
<tr>
<td>+5</td>
<td>56</td>
<td>.0998</td>
<td>.91</td>
<td>.3684</td>
<td>.3233</td>
<td>.89</td>
<td>.3770</td>
</tr>
<tr>
<td>+6</td>
<td>55</td>
<td>.1094</td>
<td>1.12</td>
<td>.2699</td>
<td>.7090</td>
<td>1.80</td>
<td>.0779*</td>
</tr>
<tr>
<td>+7</td>
<td>56</td>
<td>.0899</td>
<td>1.08</td>
<td>.2842</td>
<td>.5016</td>
<td>1.43</td>
<td>.1586</td>
</tr>
<tr>
<td>+8</td>
<td>56</td>
<td>-.0618</td>
<td>-.81</td>
<td>.4246</td>
<td>.0385</td>
<td>.13</td>
<td>.8989</td>
</tr>
<tr>
<td>+9</td>
<td>55</td>
<td>-.0131</td>
<td>-.16</td>
<td>.8743</td>
<td>.2230</td>
<td>.80</td>
<td>.4251</td>
</tr>
<tr>
<td>+10</td>
<td>57</td>
<td>-.0510</td>
<td>-.48</td>
<td>.6332</td>
<td>-.2519</td>
<td>-.81</td>
<td>.4243</td>
</tr>
<tr>
<td>-2/+2</td>
<td>57</td>
<td>.8025</td>
<td>4.65</td>
<td>.0001***</td>
<td>.1835</td>
<td>3.69</td>
<td>.0003***</td>
</tr>
<tr>
<td>-4/+5</td>
<td>57</td>
<td>.5390</td>
<td>4.94</td>
<td>.0001***</td>
<td>.1219</td>
<td>3.80</td>
<td>.0002***</td>
</tr>
<tr>
<td>-9/+10</td>
<td>57</td>
<td>.3122</td>
<td>4.06</td>
<td>.0001***</td>
<td>.0533</td>
<td>2.44</td>
<td>.0149***</td>
</tr>
</tbody>
</table>

* Significant at the ten percent level (one-tailed cross-sectional t-test).

** Significant at the five percent level (one-tailed cross-sectional t-test).

*** Significant at the ten percent level (one-tailed cross-sectional t-test).

N is not equal due to missing trading data for the sample firms.

c These are residuals from the structural portion of a first-order autoregressive model on market volume.

d These are scaled residuals from the structural portion of a first-order autoregressive model on market volume.
Figure 2

Volume of Shares Traded: IFRS
Table 5
Mean Absolute Value Unexpected Returns and Mean Squared Value
Unexpected Returns\(^{\text{a}}\) at US Earnings Announcement Dates

<table>
<thead>
<tr>
<th>Earnings release Date(^{\text{b}})</th>
<th>Absolute Value Unexpected Returns</th>
<th>Squared Unexpected Returns</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Stand. Dev.</td>
</tr>
<tr>
<td>-10</td>
<td>-.151</td>
<td>0.693</td>
</tr>
<tr>
<td>-9</td>
<td>-.005</td>
<td>0.736</td>
</tr>
<tr>
<td>-8</td>
<td>-.055</td>
<td>0.979</td>
</tr>
<tr>
<td>-7</td>
<td>-.146</td>
<td>0.852</td>
</tr>
<tr>
<td>-6</td>
<td>-.085</td>
<td>1.241</td>
</tr>
<tr>
<td>-5</td>
<td>-.224</td>
<td>0.711</td>
</tr>
<tr>
<td>-4</td>
<td>-.031</td>
<td>0.835</td>
</tr>
<tr>
<td>-3</td>
<td>-.145</td>
<td>0.809</td>
</tr>
<tr>
<td>-2(^{\text{c}})</td>
<td>.186</td>
<td>0.912</td>
</tr>
<tr>
<td>-1</td>
<td>.083</td>
<td>1.137</td>
</tr>
<tr>
<td>0</td>
<td>1.943</td>
<td>2.781</td>
</tr>
<tr>
<td>+1</td>
<td>.335</td>
<td>1.167</td>
</tr>
<tr>
<td>+2</td>
<td>-.015</td>
<td>0.816</td>
</tr>
<tr>
<td>+3</td>
<td>.185</td>
<td>1.107</td>
</tr>
<tr>
<td>+4</td>
<td>-.268</td>
<td>0.630</td>
</tr>
<tr>
<td>+5</td>
<td>-.205</td>
<td>0.661</td>
</tr>
<tr>
<td>+6</td>
<td>-.081</td>
<td>0.878</td>
</tr>
<tr>
<td>+7</td>
<td>.200</td>
<td>0.883</td>
</tr>
<tr>
<td>+8</td>
<td>-.044</td>
<td>0.712</td>
</tr>
<tr>
<td>+9</td>
<td>-.086</td>
<td>0.697</td>
</tr>
<tr>
<td>+10</td>
<td>-.037</td>
<td>1.752</td>
</tr>
</tbody>
</table>

\(^{\text{a}}\) Squared standardized unexpected returns are computed to have an expected value of 1.0 in the case of no price response. Absolute value standardized unexpected returns are computed to have an expected value of zero in the case of no price response.

\(^{\text{c}}\) One day 0 squared return is abnormally large, which accounts for the increased standard deviations on day 0.
Figure 3
Table 6
Mean Unexpected Volume at US GAAP Earnings Announcements Dates

<table>
<thead>
<tr>
<th>Day(s) Relative to restatement</th>
<th>Number of Releases</th>
<th>Mean Actual Less Expected Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Unscaled.(^c) &amp; T &amp; P &amp; Scaled.(^d) &amp; T &amp; P</td>
</tr>
<tr>
<td>-10</td>
<td>195</td>
<td>-.0519 &amp; -1.73 &amp; .0848* &amp; -.5639 &amp; -2.46 &amp; .0146**</td>
</tr>
<tr>
<td>-9</td>
<td>195</td>
<td>-.0458 &amp; -1.72 &amp; .0872* &amp; -.4206 &amp; -2.00 &amp; .0465**</td>
</tr>
<tr>
<td>-8</td>
<td>195</td>
<td>.0470 &amp; -1.73 &amp; .0843*** &amp; -.3606 &amp; 1.83 &amp; .0688**</td>
</tr>
<tr>
<td>-7</td>
<td>195</td>
<td>-.0347 &amp; -1.25 &amp; .2138 &amp; -.3138 &amp; 1.43 &amp; .1554</td>
</tr>
<tr>
<td>-6</td>
<td>195</td>
<td>-.0530 &amp; -2.05 &amp; .0412*** &amp; -.4815 &amp; -2.31 &amp; .0217**</td>
</tr>
<tr>
<td>-5</td>
<td>195</td>
<td>.0046 &amp; .15 &amp; .8821 &amp; .0659 &amp; .25 &amp; .8028</td>
</tr>
<tr>
<td>-4</td>
<td>195</td>
<td>-.0135 &amp; -.45 &amp; .6498 &amp; -.1389 &amp; -.58 &amp; .5644</td>
</tr>
<tr>
<td>-3</td>
<td>195</td>
<td>.0015 &amp; .05 &amp; .9625 &amp; .0391 &amp; .16 &amp; .9625</td>
</tr>
<tr>
<td>-2</td>
<td>195</td>
<td>.0824 &amp; 2.67 &amp; .0083*** &amp; 6.241 &amp; 2.53 &amp; .0122**</td>
</tr>
<tr>
<td>-1</td>
<td>195</td>
<td>.1020 &amp; 3.23 &amp; .0014*** &amp; .7799 &amp; 3.14 &amp; .0020***</td>
</tr>
<tr>
<td>0</td>
<td>195</td>
<td>.1040 &amp; 2.88 &amp; .0044*** &amp; .8059 &amp; 2.61 &amp; .0096***</td>
</tr>
<tr>
<td>+1</td>
<td>195</td>
<td>.1135 &amp; 3.51 &amp; .0006*** &amp; .8393 &amp; 3.17 &amp; .0018***</td>
</tr>
<tr>
<td>+2</td>
<td>195</td>
<td>.1567 &amp; 4.88 &amp; .0001*** &amp; 1.1799 &amp; 4.61 &amp; .0001***</td>
</tr>
<tr>
<td>+3</td>
<td>195</td>
<td>.1640 &amp; 4.77 &amp; .0001*** &amp; 1.2650 &amp; 4.67 &amp; .0001***</td>
</tr>
<tr>
<td>+4</td>
<td>195</td>
<td>.2562 &amp; 4.73 &amp; .0001*** &amp; 1.1842 &amp; 4.55 &amp; .0001***</td>
</tr>
<tr>
<td>+5</td>
<td>195</td>
<td>.1257 &amp; 4.07 &amp; .0001*** &amp; .9517 &amp; 3.83 &amp; .0002***</td>
</tr>
<tr>
<td>+6</td>
<td>195</td>
<td>.1045 &amp; 2.85 &amp; .0049*** &amp; 8.326 &amp; 3.02 &amp; .0029***</td>
</tr>
<tr>
<td>+7</td>
<td>195</td>
<td>.0943 &amp; 2.35 &amp; .0200** &amp; .7015 &amp; 2.12 &amp; .0351**</td>
</tr>
<tr>
<td>+8</td>
<td>195</td>
<td>.0641 &amp; 1.39 &amp; .1676 &amp; .3330 &amp; 0.93 &amp; .3527</td>
</tr>
<tr>
<td>+9</td>
<td>195</td>
<td>.0787 &amp; 1.92 &amp; .0558* &amp; .5381 &amp; 1.61 &amp; .1083†</td>
</tr>
<tr>
<td>+10</td>
<td>195</td>
<td>-.0062 &amp; -.15 &amp; .8834 &amp; -.0527 &amp; -.15 &amp; .8791</td>
</tr>
<tr>
<td>-1,+1</td>
<td>195</td>
<td>.1065 &amp; 5.10 &amp; .0001*** &amp; .8084 &amp; 5.10 &amp; .0001***</td>
</tr>
<tr>
<td>-2,+2</td>
<td>195</td>
<td>.1117 &amp; 7.66 &amp; .0001*** &amp; .8458 &amp; 7.12 &amp; .0001***</td>
</tr>
<tr>
<td>-4,+5</td>
<td>195</td>
<td>.09928 &amp; 9.66 &amp; .0001*** &amp; .7530 &amp; 9.10 &amp; .0001***</td>
</tr>
<tr>
<td>-10,+10</td>
<td>195</td>
<td>.0523 &amp; 7.07 &amp; .0001*** &amp; .3718 &amp; 6.28 &amp; .0001***</td>
</tr>
</tbody>
</table>

† Marginally significant at the ten percent level (one-tailed cross-sectional t-test).

** Significant at the five percent level (one-tailed cross-sectional t-test).

*** Significant at the one percent level (one-tailed cross-sectional t-test).

c These are residuals from the structural portion of a first-order autoregressive model on market volume.

d These are standardized residuals from the structural portion of a first-order autoregressive model on market volume.
Figure 4
Mean Abnormal Trading Volume around US GAAP Earnings Announcements
## Appendix A: Significant Differences between US GAAP and IFRS

<table>
<thead>
<tr>
<th>Accounting Topic</th>
<th>US GAAP</th>
<th>IFRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Nature of standards</td>
<td>Rules-based with significantly more implementation guidance</td>
<td>Principle-based</td>
</tr>
<tr>
<td>2. Fixed Assets (property, plant, and equipment)</td>
<td>Prohibited</td>
<td>Permits revaluation of assets to fair value.</td>
</tr>
<tr>
<td>Revaluation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Extraordinary items on income statement</td>
<td>Reported in the income statement as special reported items.</td>
<td>Prohibited</td>
</tr>
<tr>
<td>4. Consolidation of subsidiaries</td>
<td>Based on voting interest. Ownership interest of more than 50% of a subsidiary voting right.</td>
<td>Based on control. Under the IFRS, control implies the authority to govern the subsidiary’s financial and operating policies.</td>
</tr>
<tr>
<td>5. Development costs</td>
<td>Development costs are expensed under the US GAAP</td>
<td>Capitalized when certain conditions are met and subsequently amortized</td>
</tr>
<tr>
<td>6. Inventory Costing</td>
<td>LIFO inventory valuation is acceptable. No restoration of write-downs</td>
<td>Prohibits the use of LIFO</td>
</tr>
<tr>
<td>7. Goodwill</td>
<td>Capitalize and subject to impairment test</td>
<td>Capitalized and subject to impairment test</td>
</tr>
<tr>
<td>8. Debt</td>
<td>Debt due within one year is classified as current debt. Gains or losses on extinguishment of debt are not extraordinary items</td>
<td>Convertible debt under IFRS is divided into its liability and equity elements. Under the US GAAP, the entire issue price is accounted as a liability.</td>
</tr>
<tr>
<td>9. Business combinations</td>
<td>The FASB has eliminated this method of accounting.</td>
<td>Purchase of interest</td>
</tr>
<tr>
<td>10. Revenue Recognition</td>
<td>Revenue is recognized at “point of sale.” US GAAP has explicit rules for the recognition of software revenue and real estate.</td>
<td>The IFRS has one prescribed method, IAS 18, which is more general and applies to all industries</td>
</tr>
<tr>
<td>11. Depreciation charges</td>
<td>Based on historical costs. Prohibits component approach.</td>
<td>The IFRS takes a component approach. Each component of asset is depreciated separately if an asset have differing patterns of benefit.</td>
</tr>
</tbody>
</table>
a Squared standardized unexpected returns are computed to have an expected value of 1.0 in the case of no price response. Absolute value standardized unexpected returns are computed to have an expected value of zero in the case of no price response.
b The report date is the earlier of the SEC, or Disclosure, Inc., stamp date.
c Day 0 squared return is abnormally large, which accounts for the increased standard deviations on day 0. Excluding this return greatly reduces both the standard deviations and means for day 0 as well as the day –2 to +2 period with no appreciable effect on the reported $t$’s.