DOES THE EXTENT OF COMPLIANCE WITH INTERNATIONAL

ACCOUNTING STANDARDS AFFECT

INFORMATION ASYMMETRY?

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PREFACE

The intent of this study is to provide evidence regarding the benefits of complying with International Accounting Standards (IASs). Companies expend considerable resources on financial reporting. These resources may or may not be recouped through benefits such as lower costs of capital. Using three proxies for information asymmetry, which has been shown to impact a firm's cost of capital, this study shows that the extent of compliance with IAS apparently does not impact these proxies. The results of this study place in question the motives for a firm to incur additional financial reporting costs in an attempt to comply with IAS.

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LIST OF SYMBOLS (OR NOMENCLATURE)

AIMR	=	Association for Investment Management Research
Big 5 + 2	=	'Big 5' (now Big 4) Audit Firms plus Grant Thorton and BDO Seidman
CAPM	=	Capital Asset Pricing Model
CIFAR	=	Center for International Financial Analysis Research
COLOB	=	Consolidated Open Limit Order Book (Sweden)
FER	=	Foundation for Accounting and Reporting Recommendations (Swiss)
GAAP	=	Generally Accepted Accounting Principles
I/B/E/S	=	Institutional Brokers Estimate System
IAS	=	International Accounting Standard(s) (a.k.a. IFRS)
IASB	=	International Accounting Standards Board (formerly the IASC)
IASC	=	International Accounting Standards Committee (became the IASB)
IFRS	=	International Financial Reporting Standard(s) (a.k.a. "IAS")
IOSCO	=	International Organization of Securities Commissions
IPO	=	Initial Price Offering
LOB	=	Limit Order Book
Reg FD	=	SEC's Regulation Fair Disclosure
SAX	=	Stockholm Automated Exchange
SEC	=	Securities and Exchange Commission (U.S.)
SSE	=	Stockholm Stock Exchange
SWX	=	Swiss Stock Exchange (Electronic)
WFE (FIBV)	=	World Federation of Stock Exchanges (previously FIBV)

CHAPTER I

INTRODUCTION

Companies spend considerable resources on financial reporting. These resources may or may not be recouped through cost savings (e.g., lower costs of capital). Using three proxies for information asymmetry, a construct which theoretically influences a firm's cost of capital, this study examines the value of providing financial information more directly tailored to the needs of capital market participants. Specifically, this study uses firms from France, Sweden, and Switzerland that have moved away from domestic financial accounting standards and toward some level of compliance with International Accounting Standards (IAS)[1]. This sample is examined to ascertain whether the extent of compliance with IAS can be associated with reduced information asymmetry, as measured by lower bid-ask spreads, lessened dispersion of financial analyst forecasts, and lower idiosyncratic (firm-specific) risk.

For firms in many countries, the adoption of IAS represents a significant change in the orientation of their financial reporting system. Whereas IAS exemplify standards that focus on the decision-making needs of capital market participants—particularly investors and creditors—the domestic generally accepted accounting principles (GAAP) of the companies switching to IAS are often heavily influenced by tax legislation and/or

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[1] These standards are promulgated by the International Accounting Standards Board (IASB hereafter), which was previously known as the International Accounting Standards Committee (IASC). The IASB now refers to its standards as IFRS (International Financial Reporting Standards).

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governmental macroeconomic policy considerations. Consequently, the change to IAS ordinarily results in financial reports that contain greater transparency relative to domestic GAAP reports. Financial reports prepared under IAS are more suited to the needs of capital market participants because these numbers and notes are generated using a set of accounting method choices that are more restrictive than are those under domestic GAAP (Ashbaugh and Pincus 2001). Additionally, IASB's conceptual framework is patterned after the written frameworks in Australia, Canada, and the United States—all of which refer to investors and creditors (rather than tax authorities or governmental agencies) as primary users of financial statements (Cairns, 2001).

There are several motives for studying companies domiciled in France, Sweden, and Switzerland. First, many companies from these countries were claiming to have adopted IAS by the late 1990s. On November 1, 1998, the IASC listed 460 total firms as complying with IAS and more than 27 percent of the total were French, Swedish, or Swiss firms (128 of 460). Second, capital market information necessary to test the proposed hypotheses is more prevalent than it would be from a number of other countries where IAS adoption is more recent (e.g., Kuwait, Slovenia, Malta, Croatia). Finally, the move from the domestic GAAP of these three countries to International Accounting Standards represents more than just a trivial change in reporting systems. As a contrast, Canadian GAAP and IAS are so closely aligned that capital market effects of companies from Canada switching from domestic GAAP to IAS are likely minimal.

Financial statements prepared according to IAS are intended to provide transparent, comparable information to capital market participants and other external users making a variety of economic decisions (IASC 1989). The financial reporting of countries such as

France, Sweden, and Switzerland, conversely, has historically either paralleled tax accounting and/or has been designed to demonstrate conformance with a national economic plan (Gernon and Meek, 2001). Dumontier and Raffournier (1998) report that, for example, Swiss accounting is characterized by "low disclosure requirements, few and permissive accounting standards, and a high degree of tolerance for income smoothing" (p. 217). Ashbaugh and Pincus (2001) also provide empirical confirmation that the French, Swedish, and Swiss accounting measurement and disclosure requirements differ substantially from IAS during the period of this study.

Nobes (2000) is among a group of academics who have expressed the urgent need for a single global financial reporting mechanism.[2] Nobes's opinion is consistent with the view that the reduction of financial reporting diversity will allow investors to more easily compare firms. Gernon and Meek (2001) present not only Nobes's perspective, but also the contradictory view that the results from making business decisions—as reflected in financial statements—should not be disassociated with the accounting standards under which the original business decisions were made. Mueller and Walker (1976) illustrate this "same context" view by asserting that managers make business decisions with at least some understanding as to how these decisions will eventually, based on a particular set of accounting principles, be reported in financial statements. Mueller and Walker state, "When business decisions are made under these conditions, they ought to be reported only in terms of the same conditions" (p. 70).

Because this study's sample firms are moving away from reporting in the context under which business decisions had traditionally been made, the results of this study

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[2] Jacob Kraayenhof may have first espoused this view in a plenary address to the 1959 AICPA annual meeting participants (San Francisco, CA.).

address the "comparability" versus "same context" argument summarized above. This study also represents an initial investigation into whether firms that have moved toward compliance with what is currently the most popular worldwide financial reporting model have in fact obtained quantifiable benefits. One could argue that if a relationship between greater compliance with IAS and lesser information asymmetry cannot be obtained for the sample firms in this study, it is unlikely that results would be obtained from other parts of the world with similar financial reporting environments. Conversely, it is also possible one could find an even stronger relationship between compliance with accounting standards and information asymmetry in other countries where the monitoring of public firms is less developed (and thus financial reports play a relatively greater role in keeping stakeholders informed).

Background

An inverse relationship between disclosure quality and cost of equity capital is provided by both economic theory and anecdotal evidence. However, empirical work in this area suffers from a significant methodological drawback—cost of capital cannot be observed directly and information quality is subjectively measured. Many authors have, nonetheless, effectively argued that certain variables represent good proxies for these constructs. Information risk (a.k.a. information asymmetry), as one of the theorized components of cost of capital, is also not directly observable. Although the extent of information risk that is associated with any single firm cannot be empirically measured, there are at least three useful surrogates that are used as indicators of the magnitude of firm-level information asymmetry: (1) the bid-ask spread relating to the trading of a

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firm's equity securities, (2) the dispersion in analysts' forecasts of a firm's earnings per share, and (3) the firm-specific idiosyncratic risk. These measures are widely recognized in the accounting and finance literature as proxies for information asymmetry (e.g., Healy and Palepu, 2001; Callahan et al. 1997; Welker, 1995; Amihud and Mendelson, 1986, 1989; Venkatesh and Chiang, 1986).

Though there are many investigations incorporating the use of these three information asymmetry proxies, there is little research exploring the implications of moving toward compliance with IAS. Only Leuz (2003), Ashbaugh and Pincus (2001), and Ball et al. (2003) have empirically examined the benefits or implications of using IAS.[3] However, these authors use either a substantially different sample set than is employed in this study and/or they apply a different methodology to assess the effects of adopting IAS.

There has also been a specific call for research into the benefits of adopting IAS. Mr. Gerrit H de Marez Oyens, Secretary General of the World Federation of Stock Exchanges (FIBV), encouraged research on this topic in a 1998 speech to the American Accounting Association members.[4] He challenged academics to "quantify the savings of using IAS," and to "show that IAS benefits investors by lowering costs of capital or lowering transaction fee costs." Mr. De Marez Oyens mentioned that research results of this nature would help remove much of the political haze that surrounds the debate regarding the worthiness of IAS as well as convincing firms that the burden of changing reporting systems is worthwhile. Choi and Levich (1991) also suggest that an avenue for

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[3] Leuz and Verrecchia (2001) examine the benefits of using *either* IAS or U.S. GAAP versus German GAAP. See Chapter 2 for a discussion of this and other papers referenced in this section.

[4] This speech was given as part of a panel discussion at the American Accounting Association's 1998 Annual Meeting in New Orleans, Louisiana. Mr. de Marez Oyens was primarily addressing the concerns of the International Organization of Securities Commissions (IOSCO)—and specifically the U.S. Securities and Exchange Commission (SEC)—regarding the worthiness of IAS.

research is investigating whether firms that provide additional accounting information actually derive incremental benefits, such as lower costs of capital and/or lower transaction costs. Therefore, the purpose of this paper is to assess whether firms have derived benefits by choosing to comply to some extent with IAS. The "benefits" are defined here as reductions in the information asymmetry between firm insiders and various capital market participants. This study will provide evidence that addresses Mr. de Marez Oyens's question regarding possible benefits associated with the use of International Accounting Standards.

As will be discussed in detail in later sections, measuring compliance with IAS is problematic. Companies have frequently noted in annual reports that they are in full compliance with IAS, despite obvious exceptions to IAS guidelines. The IASB has tried to mitigate this possibility by requiring companies to report any material departure from IAS and to not report that they are in compliance with IAS unless they in fact do fully comply (IAS #1). However, most of the claimed adoptions noted in this and other studies occurred prior to this new IAS requirement becoming effective (for financial statements covering a period beginning on or after July 1, 1998), and auditors have not been helpful in the quest to discern whether a company is complying fully with IAS both before and after the implementation date of IAS #1 (Street and Gray, 2000a).

The problems with determining whether there has been an actual adoption of IAS and when it has occurred have been significant deterrents in assessing the benefits of IAS adoption. The published literature only provides limited evidence of the quantitative benefits of IAS adoption. There is some research—though the methodology and nature of the research question differs substantially from those in this study—contradicting the

notion that a firm benefits by adopting IAS. For instance, Bhattacharya et al. (2003) suggest that the increased use of International Accounting Standards has done little to impact the quality of earnings as a measure of economic performance. Specifically, they find that the use of IAS was insignificant in explaining the level of earnings "opacity."[5]

The Problem

Alford et al. (1993) suggest that differences in countries' accounting standards can affect the informativeness of financial reporting for capital market participants. While remembering Nobes's (2000) and others' pleas for a single global financial reporting model, the question as to what single set of accounting standards might best address the needs of capital market users remains unanswered. Several authors have even suggested that standard setters compete in an environment where there is an incentive to find accounting rules that most directly meet the needs of individuals affected by those rules (Dye and Sunder, 2001; Schmidt, 2000).

International Accounting Standards have been a popular global accounting standard choice for some time. The IASB website reported in November of 1998 that 831 companies worldwide were referring to their use of IAS when preparing annual financial reports (IASC 1998b). However, the IASC did not distinguish among the companies that only *mentioned* IAS in their reports, the companies that reported full compliance with IAS standards when in fact there are material deviations from IAS, and the companies that were actually in full compliance with the latest IAS guidelines.

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[5] Bhattacharya et al. (2003) use three measures (earnings aggressiveness, loss avoidance behavior, and earnings smoothing) to indicate how closely a firm's earnings mimic its true, but unobservable, economic performance. Earnings opacity, the opposite of earnings transparency, is thus an aggregate measure of the degree to which earnings lack informativeness.

Until a short time ago, most academics in the international accounting community treated compliance with IAS as essentially a dichotomous variable—meaning that a firm in question was either fully complying with IAS or it was using some other GAAP. Companies alleging to be in full compliance were taken at face value. Moreover, it was often "Big Five" auditing firms providing credibility to these companies by signing off on the usage of IAS in their annual reports. However, Street, Gray and Bryant (1999), Cairns (1999a), and Street and Gray (2000a, 2000b), have all presented examples of significant non-compliance among companies purporting to use IAS.

The IASC must have recognized that there was a problem with noncompliance as early as 1998. As mentioned previously, revised IAS #1, entitled "Presentation of Financial Statements," became effective in July of 1998 and requires that:

> "An enterprise whose financial statements comply with International
> Accounting Standards should disclose that fact. Financial statements should not
> be described as complying with International Accounting Standards unless they
> comply with all the requirements of each applicable Standard and each applicable
> Interpretation of the Standing Interpretations Committee" (IASC website).

However, Street and Gray (2000a) found that at least one firm (Valeo, France) mentions the use of IAS, but acknowledges violating IAS #1 because not all IASC standards are "applied in their entirety" (Valeo 1999 Annual Report). In short, it appears Valeo is admitting to exceptions to IAS despite IAS #1 specifically requiring that only fully complying firms mention their use of IAS. It is also disturbing that Valeo's auditor, PriceWaterhouseCoopers, does not provide these exceptions in the audit report.

Indications that IAS compliance is truly not a dichotomous variable suggest that any examination of IAS usage should involve the *degree* of IAS compliance—possibly over several years. Additionally, the study of the degree of compliance is less ambiguous if it

is carried out during a period when the underlying accounting standards are kept relatively constant. With this in mind, this study looks at French, Swedish, and Swiss financial statements for the years 1996-1998. The sample size is considerably larger during these years than it would be if an alternative time frame were used (many firms did not become IAS "adopters" until the mid-1990s). Also, the period prior to 1996 was one of transition for the IASB and its standards. In 1993, for instance, 10 revised IASs with 1995 implementation dates were issued (IASB website) whereas the 1996-1998 period saw comparatively few IAS implemented.

Purpose of the Study

The purpose of this study is to assess the degree to which movement toward an IAS-compliant financial statement presentation affects three variables that serve as proxies for information asymmetry. The possibility exists that varying the compliance with IAS will not be shown to impact all three variables in the hypothesized direction. For instance, it is unclear how accounting policy changes—as the adoption of IAS implies—affect the ability of analysts to predict earnings accurately (e.g., Brown, 1983; Elliott and Philbrick, 1990). The movement toward fully complying with IAS could actually reduce analysts' abilities to accurately forecast earnings. If the adoption of IAS restricts the measurement choices managers have available to them relative to their previous set of choices (which IAS often does), the restricted set might require firms to report a more volatile earnings series. The inability to smooth earnings may result in the analysts having more difficulty assessing the future earnings levels, in spite of a collection of financial reports that serves to increase the transparency of the firm. Prior accounting and finance literature also

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documents a multitude of other causes for change in the three information asymmetry

proxies that are unrelated to the financial report. While controlling for as many of these

alternative sources as the data allows, it is still possible that the hypothesized

relationships do not exist for this sample of firms. The implications of various results are

discussed in the "Significance of the Study" section in the next few pages.

Evaluating 'Adoption' of International Accounting Standards

A number of published papers used a dichotomous assessment of compliance with

IAS (Ashbaugh and Pincus, 2001; Murphy, 2000; Taylor and Jones, 1999; El-Gazzar,

Finn and Jacob, 1999; Dumontier and Raffournier, 1998). Companies were deemed to be

either fully compliant adopters or non-IAS users. These papers often employed an event-

study methodology and either claims made in annual reports or an IASB (IASC at the

time) website list to confirm that a company had in fact adopted IAS. In short, these

authors relied on the assertions of biased parties to assess the period during which IAS

may have first been used.[6]

In one of the early attempts to get at de facto compliance with IAS, Tower et al.

(1999), using firms from six countries in the Asia-Pacific region, provide evidence as to

the degree of compliance with IAS. They find that among a number of variables studied,

the home country of the reporting company most heavily influences the degree of

compliance. These authors also find that other variables such as firm size, leverage,

profit level, and industry have very little if any explanatory power. Others who have

examined IAS compliance include Cairns (1999a, 1999b, 1999c), Street et al. (1999),

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[6] In fairness, several of these authors mentioned their suspicions regarding the true nature of the IAS
   'adoptions.'

Street and Gray (2000a, 2000b), and Taplin et al. (2002). A secondary purpose of this study is to expand on existing IAS compliance research by focusing on compliance exclusively in three countries that historically do not have reputations for catering to the needs of capital market providers.

Objectives of the Study

Thus, the major objectives of this study are to:

1) Determine whether companies benefit (by way of reductions in the proxies for information asymmetry) by complying to a greater degree with International Accounting Standards; and to

2) Measure the degree of compliance with IAS by companies domiciled in these three European countries while also examining the firm characteristics associated with greater or lesser compliance.

Significance of the Study

A benefit of this study is that companies may be able to *a priori* predict whether they could receive financial benefits by complying with IAS. Finding a statistically reliable association between greater IAS compliance and smaller levels in the magnitude of all three finance variables would provide convincing evidence concerning these benefits. Of course, finding non-confirmatory or even contradictory results would also suggest that complying with more onerous financial reporting standards is a potentially unwise endeavor for firms with similar characteristics to those examined in this study.

As mentioned earlier, several authors (e.g., Dye and Sunder, 2001; Schmidt, 2000) have suggested that standard-setters compete to have firms adopt their measurement and disclosure procedures. The methodology presented in this paper provides one alternative enabling firms to assess whether a particular standard-setting group—whether it be the IASB, the FASB, or some other organization—might be providing guidelines that result in superior information as viewed by market participants. It can be argued that the legitimacy of financial accounting policies depends on the degree to which those policies create information that best meets the needs of users.[7] Given this gauge for legitimacy/usefulness, one way to assess which accounting rules are best meeting the needs of users would seem to be an evaluation of whether the asymmetry between company 'insiders'—who presumably have better information about firm prospects—and external users of financial reports is actually minimized or reduced. Leuz (2003) emphasizes this point by noting that the debate on the quality of IAS (most frequently compared to U.S. GAAP) has always focused on the standards themselves, rather than on the economic effects of applying said standards. Leuz (2003) and Ball (2001) both argue that the focal point of this debate should probably be the market forces and institutional factors that help determine what accounting standard choices are made.

The methodology described in this study could also be applied as part of a ex-post cost/benefit analysis each time firms change their reporting systems. Given an adequate supply of market data, a firm would be able to either confirm or reject the notion that an

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[7] See Holthausen and Watts (2001) for a discussion on whether value relevance is an appropriate foundation in which to address standard-setting questions. Also see Collins et al. (1997), Land and Lang (2002), and Barth et al. (2001) for discussions on the merits of measuring value relevance by examining book value-earnings associations.

alteration in their financial presentation reduces information asymmetry and thus benefits the firm by reducing its costs.

Finally, most of what we know about the behavior of bid-ask spreads, analyst forecast dispersion, and idiosyncratic risk stems from research on U.S. firms in U.S. markets. This study adds to the scant French, Swedish, and Swiss literature regarding how varied financial presentation affects these three variables.

Definition of Terms

IAS Adoption

The phrase 'IAS adoption' is used throughout this study to denote that a firm is claiming to have some degree of compliance with IAS. This degree of compliance may range anywhere from firms merely claiming IAS compliance (but with evidence that there are significant deviations in compliance) to full compliance with IAS.

Information Asymmetry

Information asymmetry is a condition whereby managers (insiders) possess greater (private) information about the firm and its operations than do those outside the firm (e.g., investors, creditors, market makers, analysts). Because the domestic GAAP reporting systems of some countries (e.g., France, Sweden, Switzerland) are not historically tailored to capital market participants, the informational divide between management and these participants is likely nontrivial. Information asymmetry is a problem for a firm to the extent that it creates perceived "information risk" (Callahan et al., 1997; Easley et al., 2002). Information risk is yet another form of risk for which

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market participants likely demand compensation[8], thus increasing a firm's cost of capital (Easley and O'Hara, 2001). Accordingly, a reduction in information asymmetry lowers information risk, which in turn may lower a firm's cost of capital. Information asymmetry and associated information risk is, therefore, one component of the overall cost of capital.

Scope and Limitations

Basis for Hypotheses

Much of the literature that is discussed here and in Chapter II is based on studies conducted on U.S. firms in U.S. markets (e.g., Botosan, 1997; Duru and Reeb, 2002; Healy et al., 1999). To the degree that the institutional factors differ between the U.S. and the sample countries—relative to both companies and capital markets—the applicability of this literature is limited. However, in the event that there is no country-specific literature to draw upon, hypotheses will be constructed with the results from U.S.-based studies serving as guidance.

When Transparency is Costly

Some companies choosing to adopt IAS—and the increased transparency and capital market orientation that accompanies it—may actually be exposing themselves to higher costs of capital and negative capital market effects. This comes about when a company

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[8] Amihud and Mendelson (1986, 1989), Brennan and Subrahmanyam (1996), and Pastor and Stambaugh (2001) all find, using varying proxies for information asymmetry, that there is a positive association between information risk and equity returns. These results are not surprising, given that Klein and Bawa (1976) reported that investors must be compensated for bearing the risk of estimating a firm's return distribution parameters, and poor information inhibits the ability to estimate.

provides greater transparency, but this transparency simply informs capital market participants that their previous assessments of firm risk are understated. According to Leo O'Neill, Standard and Poor's president and chief ratings officer, IASs support risk-based pricing by enhancing a company's financial discipline and improving the comparability between companies. O'Neill states, "risk varies, and the framework and tools for the constant evaluation of risk is at the heart of an effective financial market," (as quoted in Accountancy Age, April 1, 1999). The fact remains, however, that while a company may provide greater transparency because it perceives that it is less risky than the market assessment, this firm's greater transparency may cause capital market participants to reach the opposite conclusion.

Self-Selection

Given that the movement toward IAS was not mandated for any of the sample companies, this study is essentially about the benefits of voluntary financial reporting, Accordingly, it is quite possible that companies adopting IAS (or more fully complying) do so as a response to a realized or anticipated (positive) shift in the firm's operating environment. For instance, if a company's management recognized that their firm would likely outperform relative to whatever benchmark it might be compared to, there would exist an incentive to "tell the world" (i.e., become more transparent). In response to this possibility, every attempt is made in this study to control for changes in dependent variables caused by something other than greater transparency through compliance with IAS. Though it is not the intention of this study to investigate the motives for moving

toward compliance with IAS, the firm characteristics associated with greater compliance are explored.

Limited Sample

This study involves companies from only France, Sweden and Switzerland. These countries were chosen because researchers have shown that the gap between the domestic accounting presentations and the IAS presentation is greater for these countries than it is for most others. Also, the market microstructure similarities among these countries allows for assuming away certain complicating factors that would otherwise be present (e.g., market microstructure differences impacting bid-ask spreads).

The end result is that if companies from France, Sweden, and Switzerland cannot be shown to derive benefits from greater compliance with IAS, it is unlikely that IAS adopters from other countries with similar market environments could make that argument. In that sense, this study represents an initial examination of the benefits of the use of IAS. However, because each and every country represents a unique market setting, the ability to generalize any results (or non-results) of this study will be limited to companies from France, Sweden, and Switzerland with characteristics similar to the firms examined in this study. Restricting the analysis to a few countries enhances the ability to discern the impact of the "country of domicile" on dependent variables, but also limits generalization of any results.

Imperfect Measure of Compliance

Despite attempts made in this study to mitigate the possibility, there remains the concern that the IASB has no enforcement mechanism to insure that companies abide by its standards and that appearances regarding compliance may be deceiving. Specifically, the nondisclosure of certain items (e.g., geographic segment numbers) could be indicative of either noncompliance or lack of applicability (Tower et al., 1999). While noting that firms may intentionally violate IAS and go unpunished, the methodology applied in this study—most notably the use of a thorough examination of the annual report and claims made by the auditor—alleviates some of this nondisclosure concern.

Logical and Conceptual Assumptions

There is an obvious danger that the incremental annual report information—specifically the difference between lesser and greater compliance with IAS—could be usurped by other avenues of reporting. Ashbaugh and Pincus (2001) find a significant increase in the number of news reports about non-U.S. firms adopting IAS in the year following adoption. Although the increased frequency with which a firm's name appears in the news does not necessarily indicate that there has been a change in the overall disclosure strategy of that firm, it does leave open that possibility. Healy and Palepu (2001) report that the decision to better inform market participants as part of an overall disclosure strategy usually results in increases in several avenues of reporting. Though proxies are used to control for non-financial statement information, the results in this study must be interpreted with caution because some of any reduction in information asymmetry could be the result of uncontrolled sources. The scope of this study also

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precludes an analysis of any non-financial statement information and its impact on information asymmetry (e.g., a comparison of IAS presentation versus other means of conveying financial information).

Outline of Work

The remainder of the study is organized into the following sections: Chapter II reviews the literature and discusses the dependent and independent variables used in this study. Chapter III reports the hypotheses and details the methodology used to test the hypotheses. Chapter IV reports the results and their implications. Chapter V summarizes the findings and discusses the limitations and conclusions of the study. Finally, recommendations for future research are proposed.

CHAPTER II

PRIOR RESEARCH

The literature pertinent to this study is arranged into five areas, one for each of the four primary variables of interest, followed by a discussion of the interaction among the three proxies for information asymmetry. Specifically, this chapter reviews prior literature devoted to: 1) companies' compliance with International Accounting Standards (IAS) and the motivation to do so, 2) the bid-ask spread, 3) analyst forecast dispersion, 4) idiosyncratic risk, and 5) interaction among or common effects upon the latter three constructs.

Compliance with IAS and the Motivation to Comply

The sample firms in this study have signaled a desire to provide greater information to financial statement users by either moving from domestic GAAP to IAS or simply by using IAS from the inception of the firm. Grossman (1981), Milgrom (1981), and Verrecchia (1983) provide early discussions of possible motives behind providing greater public information. There are also some more recent discussions of how the dissemination of information impacts a firm's cost of capital and/or information asymmetry (e.g., Leuz, 2003; Easley et al., 2002; Easley and O'Hara, 2001; Heflin et al., 2001; Bailey et al., 2000; Leuz and Verrecchia, 2001; Botosan, 1997; and Lang and Lundholm, 1996). The consensus among these authors is that information asymmetries

are costly to firms and that increasing the quantity and quality of financial information reduces these asymmetries. For instance, Leuz (2003) not only summarizes the literature detailing why information asymmetry is costly to firms, but he also argues that the proxies for information asymmetry should reflect the level and the precision of financial disclosure. Leuz finds that for firms forced to choose between the use of IAS or U.S. GAAP (specifically, firms trading in Germany's "New Market"), the bid-ask spreads and analyst forecast dispersion do not statistically differ between the two groups. Leuz states that the results suggest IAS are of relatively similar quality to U.S. GAAP, thus lending credibility to the pervasive assertion within this study and elsewhere that a financial presentation in conformity with IAS is of high quality and informative to financial statement users.

Botosan (1997) provides what may be the best known empirical assessment dealing with the quantifiable benefits of greater disclosure. She uses a version of the residual income model to implicitly measure a firm's cost of equity capital and finds that those firms—particularly the smaller firms—with higher-quality disclosures benefit from relatively lower costs of capital.[9] Like many of the investigations involving the benefits of increased disclosure quality, Botosan's study employs only U.S. listed firms. Sengupta (1998) and Botosan and Plumlee (2002) also provide evidence that greater levels of disclosure are associated with lower costs of capital for U.S. firms. Finally,

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[9] The residual income model depends, in part, on long-range forecasts of earnings and book value when using the model to empirically derive a firm's cost of capital. Because the availability and reliability of long-range forecasts for non-U.S. firms are sporadic and questionable, respectively, it makes the use of this particular model to measure cost of capital in this study somewhat suspect.

Francis et al. (2003) is one international study that documents a lower cost of capital for firms having higher average levels of accounting disclosure.[10]

The studies involving IAS usage or compliance as means of providing greater information are in short supply. When IAS compliance is addressed in prior literature, it is occasionally the primary variable of interest, and it is sometimes just part of a broader research question. Regardless of the role played by IAS compliance in these studies, it is has been evaluated both as a dichotomous variable (full compliance with IAS or not) and as a continuous variable (extent of compliance is assessed). The discussion below describes: 1) the literature pertaining to IASC's standards and the firms that adopt them, particularly as it relates to the countries in this study; 2) the literature using a dichotomous measure to evaluate compliance with IAS; 3) the first indications of noncompliance; 4) how researchers have dealt with measuring compliance given the findings of noncompliance; and 5) the limitations of using IAS compliance as a variable in an empirical study of this nature.

The IASC and IAS Adopters

A large number of IAS adopters (per the IASC's website, 1999) are from Europe, but Canada and the Middle East are also well represented. Cairns (1999a) reports that the accounting requirements in continental Europe have historically been perceived as being different from and more flexible than IASs. However, he also notes that it has often been possible for continental European and Nordic companies to choose options within their

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[10] Francis et al. (2003) use the Easton (2004) approach to estimate a firm's cost of capital. However, this method also depends on long-horizon analysts' forecasts, which have been shown to possess extremely questionable accuracy (e.g., Brown et al., 1987a, 1987b; O'Brien and Bhushan, 1990; Brown, 1993; Capstaff et al., 2001; Duru and Reeb, 2002). Francis et al. (2003) also use the Rajan and Zingales (1998) metric to assess a firm's dependence on external financing. Specifically, this metric is (capital expenditures minus cash flow from operations/capital expenditures).

domestic accounting standards and IAS such that the firm complies with both domestic

GAAP and IASs. Cairns states that the French and Nordic companies have been

practicing this approach for "many years" (p. 8) and that Swiss companies have been

doing so since the late 1980s. The reduction in the flexibility (due in part to the IASC's

Comparability/Improvements project[11]) once available with IAS has served to make this

"dual compliance" more difficult to achieve. At the same time, the national standard

setting bodies in France, Sweden and Switzerland (among others) are making it easier to

comply with both sets of standards by increasing the conformance of their national

accounting requirements with IASs (Cairns, 1999a). Cairns also points out that some

companies, particularly Swedish firms, have dropped their reference to the use of IAS

after their countries joined the European Union (EU). Since EU member stock exchanges

allowed the use of domestic GAAP financial statements to gain access, some of the

motivation for claiming to comply with IAS no longer existed.[12]

During the period of study, all three exchanges involved in this study (Paris,

Stockholm, and Zurich) allow the use of IAS for listing purposes. Firms traded in Paris

that are domiciled elsewhere in the European Union may instead use their national

accounting standards. Stockholm-listed firms may use either IAS or Swedish GAAP (per

the Annual Accounts Act of 1995). For Zurich-listed firms, compliance with IAS

inherently means that these firms have met the Swiss Foundation for Accounting and

Reporting standards (ARR/FER), which are required of all listed companies (IASC

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[11] In hopes of gaining IOSCO's endorsement, the IASC revised ten IASs so that they allow for fewer
choices. The project began in 1987 and was completed in 1993 (with the revised IASs effective for
1995 financial statements).

[12] Note that as of January 14, 2003, the European Union is requiring all firms listed on a regulated market
to prepare their consolidated financial statements in accordance with International Accounting
Standards, beginning with their fiscal 2005 statements. Comparative IAS information is required for
the fiscal 2004 reports prepared under standards other than IAS (Regulation No 1606/2002 of the
European Parliament and of the Council).

website, "IAS around the World"). As Ashbaugh and Pincus (2001) illustrate, the national accounting standards of these three countries tend to be less restrictive and less suitable for capital market participants (e.g., financial analysts) than IAS.

IAS Compliance as Dichotomous Measure

The use of "IAS compliance" as a variable in studies has evolved considerably in the last four or five years. Until recently, researchers assumed that a firm's attestations regarding its use of IAS in the financial statements were sufficient to presume that the firm was fully complying with IASC standards. Hence, the assessment of IAS compliance in these earlier studies became a dichotomous measure (i.e., IAS adopter versus non-adopter). Some of these authors warn of the tenuous nature of the firms' "degrees" of compliance, while others do not. These examinations often apply an event-study methodology to assess the effects of, or reasons for, initially adopting IAS.

Several authors use the dichotomous measure to assess IAS compliance/usage (e.g., Murphy, 2000; Taylor and Jones, 1999; El-Gazzar et al., 1999; Dumontier and Raffournier, 1998; and Ashbaugh and Pincus, 2001). Dumontier and Raffournier (1998), for instance, find that among Swiss companies certain firm characteristics make it more likely that the firm is reporting under IAS. The authors find that, among other things, firm size increases the likelihood that a Swiss company is using IAS. The authors place a Swiss firm in the "IAS group" if it has declared that its financial statements conform to IAS. Those companies referring to IAS, yet admitting that there are exceptions to the IAS disclosure requirements, are classified as being in the IAS group. Dumontier and Raffournier justify the placement of these non-conforming firms into the IAS group by

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stating that, "[these] companies which referred to IAS but with some disclosure exceptions were nevertheless classified in the IAS group because it was apparent that most Swiss firms which declare compliance with IAS do not, in fact, satisfy the entire set of disclosure requirements of the IASC" (p. 227).

Ashbaugh and Pincus (2001) also assess IAS compliance with a dichotomous measure. Using non-U.S. firms that "adopted" IAS during the 1990-93 period, Ashbaugh and Pincus investigate the impact of countries' accounting measurement and disclosure standards (relative to IAS) on the ability of analysts to accurately forecast earnings, including whether the adoption of IAS improves this ability. The authors posit that the analyst's task is easier if a country's accounting standards are more like IAS or if a firm adopts IAS. Ashbaugh and Pincus compare domestic measurement and disclosure practices to IAS using a self-constructed index that numerically depicts the differences between thirteen countries' domestic GAAPs and IAS. The authors determine that the French, Swedish, and Swiss domestic requirements differ substantially from IAS.[13]

Ashbaugh and Pincus (2001) ultimately conclude that the adoption of IAS improves the analyst's ability to forecast earnings, as it secures a reduction in the absolute value of analysts' earnings forecast errors. However, the evaluation of the IAS adoption "event" in Ashbaugh and Pincus (2001) is based simply on lists of adopters obtained from the IASC's website in 1993. Although the authors examine many of their sample firms' annual reports to confirm the year of adoption, the research cited in the following section

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[13] Ashbaugh and Pincus (2001) report that only Finland and Norway have a greater degree of dissimilarity with IAS than do France, Sweden, and Switzerland. They also report that Swiss firms, due to the unrestrictive nature of Swiss GAAP, are able to apply IAS without violating Swiss GAAP. The authors also note that French firms are allowed to present domestic GAAP parent-only financial statements, and Swedish firms typically use footnote reconciliations to comply with IAS measurement requirements.

demonstrates that neither the IASC list nor companies' annual report claims should be used as confirmation of firms' compliance with IAS.

Indications of Noncompliance

Street and Gray (2000a, b), Street and Bryant (2000), Tower et al. (1999), Street et al. (1999), and Cairns (1999a) provide the initial examples of significant non-compliance among companies purporting to use IAS. Street et al. (1999) look specifically at compliance with the ten IASs issued as part of the IASC's Comparability Project. The authors inspect the 1996 annual reports of 49 large companies that claim to comply (or admit only limited exceptions) with IAS in their accounting policy notes. They find that noncompliance is particularly common when the sample companies present: 1) extraordinary items; 2) the revaluation of property, plant, and equipment; 3) pension disclosures; 4) the valuation of inventories; 5) the restatement of foreign entities for companies operating in hyperinflationary economies; and, 6) the amortization (or lack thereof) of goodwill. Street et al.'s evaluation of compliance improves upon simply using a company's claims. Street et al. use a survey instrument that was based on the text in the ten revised IASs. This instrument allows the researchers to compare the required IAS measurement and disclosure practices to those used by the sample firms.[14]

Street and Bryant (2000) show that companies claiming to observe IAS that are U.S. listed or have filings in the U.S. comply with IASC-required disclosures to a greater degree than those companies without U.S. listings or filings. These authors' results are

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[14] Noncompliance with accounting standards is apparently not limited to IAS noncompliance. Bradshaw and Miller (2002) provide recent documentation of non-U.S. firms' compliance with U.S. GAAP. Using Worldscope's coding of a firm's accounting method choices, they find significant noncompliance with U.S. GAAP prescriptions.

based on an examination of the 1998 reports of 82 companies referring to their use of IAS in the accounting policy notes. Street and Bryant note that their findings are consistent with prior research indicating that listing status and the overall level of disclosure (or at least the disclosure requirements) are correlated (e.g., Dumontier and Raffournier, 1998; Adhikari and Tondkar, 1992; Saudagaran and Biddle, 1992; Cooke, 1989a).[15]

Street and Gray (2000b) expand the sample of companies used in Street and Bryant (2000). Street and Gray use the financial statements of 279 companies appearing on the 1999 IASC list of "Companies Referring to their Use of IAS" and find that there is significant noncompliance with IAS requirements. Street and Gray find that, among other things, compliance tends to be greatest for companies domiciled in China and to be most problematic for companies domiciled in France.

The indications of significant noncompliance have troubled Cairns (1999a) in particular. He has suggested regulatory authorities should take disciplinary action against those audit firms that ignore obvious noncompliance with IAS—and especially when these firms issue an unqualified opinion or reference IAS in a misleading manner. He also asks the IASB to reconsider its policy of requiring no mention of IAS unless in conjunction with full compliance. Cairns indicates that it would be better to know that a company has complied with, for instance, all IAS but one or two, rather than to not know anything about how the financial statements might compare to those prepared under IAS.

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[15] Street and Bryant (2000) also point out that Cerf (1961) and Buzby (1975) found the association between listing status and extent of disclosure to be insignificant.

<u>Measuring</u> <u>the</u> <u>Degree</u> <u>of</u> <u>Compliance</u> <u>with</u> <u>IAS</u>

It may have been some of these early findings of noncompliance that motivated

researchers to move away from assuming compliance when a firm simply stated that its

financial statements were in conformance with IAS (i.e., the dichotomous approach).

Within the last few years, researchers have begun incorporating more sophisticated

methods for measuring the degree of IAS compliance.

In several articles (e.g., Cairns, 1999d), Cairns refers to three general categories of

companies' financial statement presentations that claim compliance with IAS even

though they do not fully comply. First, there are those companies that disclose

compliance with IAS but with certain specified exceptions in the accounting policy

statement.[16] The second category also encompasses companies who claim to comply

with exceptions, but the exceptions are disclosed somewhere deep within the notes to the

financial statements rather than in the accounting policy statement. The third category is

the most worrisome to Cairns and others relying on financial statements purportedly

compiled under IAS requirements. It includes companies that claim compliance with

IAS without exceptions, but where even a cursory examination of the financial statements

reveals substantive non-compliance issues.

Cairns (1999a)[17] offers evidence that many companies were using what he deems

"IAS Lite" (i.e., less that full compliance), and he provides a more detailed measurement

scale for assessing the degree of compliance with IAS. Cairns places firms mentioning

IAS in their 1998 financial statements into eleven categories:

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[16] Cairns (1999d) specifically mentions four companies that are part of the sample population in this study:
Renault, Valeo, Lafarge, and Oerlikon-Buehrle.
[17] As past Secretary-General of the IASC, David Cairns provides a unique and well-informed perspective
on companies' compliance with IAS.

1) Full IAS compliance
2) Full IAS compliance with exceptions specified in the accounting policies
3) Full IAS compliance with exceptions specified in the notes to the financial
        statements but outside the accounting policies
4) Full IAS compliance claimed but material omissions or exceptions evident
        from the financial statements
5) Accounting policies comply with IASs or are based on IASs or IAS principles
6) Accounting policies comply with IASs or are based on IASs or the principles in
        IASs but with specified exceptions from full compliance
7) IASs used only when there are no equivalent domestic standards
8) IASs used only for selected items or when permitted by domestic requirements
9) Reconciliation from domestic GAAP to IASs
10) Summary IAS financial statements (restatement of domestic financial
        statements
11) Unquantified description of differences from IAS treatments
        (Cairns 1999a, p. 10).

Cairns finds that there is significant noncompliance among his sample firms. He

categorizes 71 of the 125 sample companies in something other than category #1 (full

compliance). Cairns also documents a number of the ways in which firms do not comply

with the current IAS requirements (p.203):

1) the non-disclosure of cost of goods sold and other income statement expenses;
2) the inclusion of extraordinary items in the income statement which do not
    meet the criteria to be included as such;
3) the amortization of goodwill as a reduction of gross profit, rather than as an
    expense to determine gross profit;
4) the amortization of goodwill over more than 20 years;
5) writing off goodwill directly to equity (disallowed for post-1994 goodwill);
6) the inclusion or deduction of too many items from cash and cash equivalents
    on the Statement of Cash Flows (e.g., including equity investments and
    deducting bank loans);
7) the use of LIFO for inventories in one location, while a different cost-flow
    method is used for apparently similar inventories in another location;
8) the omission of required disclosures for segments, particularly the segment
    result (profit or loss);
9) the use of very broad industry and geographic segment delineations.

As previously indicated, Cairns also finds that some auditors are either claiming the

company to be in compliance with IAS when there are obvious deviations from full

compliance, or the auditors avoid expressing an opinion on the compliance with IAS even

when IAS usage (often with exceptions noted) is mentioned within the financial

statements.

Tower et al. (1999) endeavor to provide an even more precise measure of IAS

compliance by examining it as a continuous variable. The authors use firms from six

countries in the Asia-Pacific region to offer evidence on the degree of compliance with

IAS, as measured by a percentage of compliance. Tower et al. code each of 512

"compliance points" within a total of twenty-six IASs (applicable to 1997 fiscal year-

ends) according to the following options:

1) No compliance with the relevant IAS issue;
2) Compliance with the relevant IAS issue;
3) Compliance with IAS benchmark on a particular issue;
4) Compliance with IAS allowable alternative on a particular issue;
5) Compliance with both the IAS benchmark and allowable alternative;
6) Compliance not disclosed and not readily discernable; and
7) Non-applicable issue.

The authors report two problems with this type of coding. First, a number of items are

clearly not applicable to some reporting firms (e.g., IAS 11 on Construction Contracts),

and 2) there is considerable non-disclosure with regard to many of the IAS rules. Tower

et al. address the latter concern by measuring IAS compliance in two ways: 1) with non-

disclosure indicating "non-applicability" of that particular accounting issue and 2) with

non-disclosure indicating "non-compliance" with IAS guidelines. The authors find that

there is a considerable disparity between the results from each of the two measures of

IAS compliance.[18]

Tower et al. (1999) also examine the determinants of IAS compliance by regressing

the level of compliance on a number of firm characteristics. They find that among the

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[18] Tower et al. report that the mean compliance for the first measure of IAS compliance (assumed non-applicability) was 90.68 percent, whereas the mean compliance for the second measure of IAS compliance (assumed non-compliance) was much lower at 42.2 percent.

variables studied, the home country of the reporting company is the characteristic that most heavily influences the degree of compliance. Tower et al. also discover that a troubling amount of non-compliance exists if non-disclosure of an item is in effect assumed to be non-compliance. Given that this lack of disclosure could be indicative of either non-compliance or the non-applicability of that particular standard, an assessment of this type can be extremely subjective (e.g., deciding whether a firm with primarily local operations has provided sufficient geographic segment results).

Audit Report as Confirmation or Dissent

A financial statement user's expectation regarding the extent of compliance with IAS is likely affected by the nature of the audit opinion provided. The assertions made by the company in the financial statements can essentially be further confirmed or somewhat disavowed by its auditor in the audit report. Cairns (1999a) discusses the extent to which auditors have provided confirmation of firms' use of IAS. He formulates seven approaches that an auditor may use to express their opinion as to the firm's degree of compliance with IAS (p. 188):

> 1) True and fair view in accordance with IASs
> 2) True and fair view and comply with IASs
> 3) True and fair view – no accounting framework
> 4) Presented fairly in accordance with IASs
> 5) Presented fairly *and* comply with IASs
> 6) Presented fairly – no accounting framework
> 7) Comply with IASs – no reference to true and fair view or presented fairly
>   (Cairns 1999a, p. 188).

Cairns considers the firm's contentions about IAS usage as an issue that is separate from the auditor's opinion. In other words, he does not integrate the assessment of the firm's IAS compliance with the auditor's contentions. However, in an empirical assessment of

the effects of IAS compliance, it would seem logical to take the auditor's statement into consideration as playing either a confirmatory or a contradictory role. Consequently, this study will analyze not just a firm's presentation, but also its auditor's statements in order to assess the relative effects of compliance. The review of the extent to which the auditor corroborates the statements made by the firm is somewhat different from Cairn's categories above, yet is inspired by Cairn's approach.

In summary, the prominent deficiency with most of the previous literature involving IAS compliance is that researchers deal with IAS compliance as if it were a dichotomous variable. The conclusions reached in these studies are placed in doubt given the evidence on noncompliance in Cairns (1999a), Tower et al. (1999), Street and Bryant (2000), and others. While these subsequent authors expose the degree of noncompliance, and even provide various means to assess degrees of compliance, they do not attempt to provide an in-depth assessment of the economic impact of either complying or not complying with IAS.

Limitations of IAS Compliance as Measure of Information Quality

The use of the annual report as a measure of the quality of a firm's information environment ignores the fact that there are other sources of information, particularly to financial analysts (e.g., conference calls, face-to-face meetings). The degree to which these other sources of information provide incremental information, or at least are not correlated with IAS compliance and the information it produces, may result in faulty inferences. The effects of adopting (and abiding by) a new set of accounting standards will continue to be difficult to measure if variables used to proxy for improvements in an information environment are also affected by things other than the annual report—and

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those other effects cannot be "quarantined" from the annual report effect. In short, attributing reductions in the information asymmetry proxies used in this study (detailed below) to higher levels of IAS compliance may be unfounded if the reductions occurred due to information obtained through other sources.[19] To address this possibility, some U.S. studies have used AIMR (Association for Investment Management Research) rankings as a proxy for a firm's overall disclosure quality (e.g., Welker, 1995). However, the rankings are based on only U.S. firms and similar current assessments of firms' disclosure quality are not readily available for large numbers of firms in non-U.S. markets. Thus, alternate measures will be used in this study to control for the amount of information a firm provides via sources other than the annual report.

Finally, the instruments used to address IAS compliance in Street et al. (1999), Tower et al. (1999), Taplin et al. (2002), and the one detailed in Chapter III of this study at least partially ignore what may be valuable evidence for users as they assess the credibility of firms' financial presentations. A number of authors contend that the degree of enforcement of accounting standards may be as important as the standards themselves (e.g., Hope, 2003; O'Brien, 1998; and Sunder, 1997). The instrument used in this study and some of the authors previously mentioned, however, do provide some anecdotal evidence on accounting enforcement.[20] For instance, the lack of enforcement is apparent when a sample firm's auditor opines that the firm complies fully with IAS, yet the firm's financial statements indicate that deviations from full compliance are present.

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[19] Alternatively, if these other sources are "assigned" to firms randomly and are independent of IAS compliance, controlling for the influence of these sources is not necessary.

[20] Again, Cairns (1999a) addresses compliance and enforcement (with respect to auditor issues, primarily), but does so primarily as separate topics.

Information asymmetry, as it is used in the context of this study, is a condition whereby managers (insiders) possess greater information about the firm and its operations than do those external to the firm (e.g., investors, market makers, analysts). Because the domestic GAAP reporting systems of some countries are not tailored to capital market participants, information asymmetry between management and these participants may be at relatively higher levels in those countries. Information asymmetry is a problem for a firm to the extent that it creates perceived "information risk" (Callahan et al. 1997). Information risk is a form of risk for which market participants may demand compensation, thus increasing a firm's cost of capital. Accordingly, a reduction in information asymmetry lowers information risk, which in turn may lower a firm's cost of capital.

Verrecchia (2001) addresses the rewards inherent in an examination involving information asymmetry when he states:

> "But another potential research activity that I hope will result from this document is empirical work that forges a link between disclosure and its economic consequences. While I am interested in all such links, let me suggest again that the one with the greatest potential may be the link between disclosure and information asymmetry reduction" (p. 174).

Verrecchia also expresses an awareness of the difficulty of this type of research, noting,

> "…for all my enthusiasm for the information asymmetry component of the cost of capital as a starting point for a comprehensive theory, I acknowledge the difficulty of ferreting it out in real market settings" (p. 174).

Hau (2001) reiterates similar sentiments, pointing out that

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[21] Except where noted, the studies reviewed in Chapter II deal with U.S. firms. The implications and limitations of using literature developed primarily in the U.S. capital market domain is discussed in a later section.

"Information and its assumed asymmetric distribution has become an important aspect of financial market theory. Yet even though information heterogeneity of agents is now a common assumption in microstructure models, direct evidence for the scope of such asymmetry is hard to provide" (p. 1959).

Although information asymmetry is not directly observable, there are at least three useful surrogates that may be used as indicators of the magnitude of firm-level information asymmetry: (1) the bid-ask spread relating to the trading of a firm's securities, (2) the dispersion in analysts' forecasts of a firm's earnings per share, and (3) firm-specific idiosyncratic risk.

Much of the discussion of information asymmetry and its proxies is found in the finance literature. Often, there is a distinction made in this literature between "insiders" and "informed traders." Insiders are normally defined as corporate officers with fiduciary responsibilities to shareholders, whereas informed traders are those hoping to profit from information not held by the "uninformed traders" (Madhavan, 2000). Again, for the purposes of this study, information asymmetry is presumed to exist between informed and uniformed capital market participants (also know as "liquidity" or "noise" traders in a market). Theoretically, this asymmetry should be reduced when quality information is available to a broader base of investors, thus reducing the population of uninformed traders.

Clarke and Shastri (2001) suggest that the proxies for information asymmetry fall into four broad categories: 1) measures based on analysts' forecasts, 2) investment opportunity set measures, 3) stock return measures, and 4) market microstructure measures. This study uses a measure from three of these four categories. The bid-ask spread, analyst forecast dispersion, and idiosyncratic risk represent all but the investment

opportunity set category. The following pages describe these three proxies and illustrate

how they are being used in both the accounting and finance literature.

The <u>Bid-ask</u> <u>Spread</u>

The bid-ask spread is set by the dealer(s) in a firm's stock and is a cost of transacting

in the market. The dealer (i.e., specialist or market maker) provides liquidity to the

market by standing ready to buy at the "bid" price and standing ready to sell at the "ask"

price (Demsetz 1968). The bid price is below the current market price for the stock

whereas the ask price, which includes a "premium for immediate selling" (Callahan et al.

1997, p. 51), is above the current market price. Therefore, the bid-ask spread

compensates the dealer for his or her willingness to act as the provider of liquidity and as

a securities "clearinghouse".

Though the entire spread has been used as a proxy for divergence of opinion (e.g.,

Leuz, 2003; Garfinkel, 2003), a number of researchers (e.g., Amihud and Mendelson

1980; Copeland and Galai 1983; Glosten and Harris 1988; Krinsky and Lee 1996)

propose that the quoted bid-ask spread can be decomposed into three cost components.

The basis for this decomposition is the theoretical notion that a dealer faces (1) order

processing costs, (2) inventory holding costs, and (3) adverse selection costs. The order

processing component is a fee charged by market makers for standing ready to match buy

and sell orders (Demsetz, 1968 and Tinic, 1972). The market maker's remuneration for

performing the paperwork necessary to consummate the transaction is also included in

this component. The inventory holding component (modeled in Stoll, 1978 and Ho and

Stoll, 1981) compensates market makers for holding less than fully diversified portfolios.

As suppliers of immediacy, market makers are frequently obligated to hold an inventory of shares. The price risk and the opportunity cost of the funds dedicated to the inventory give rise to this holding cost (Venkatesh and Chiang 1986). Finally, the adverse selection component is a dealer's compensation for taking on the risk of dealing with traders who may possess superior information. Copeland and Galai (1983) and Glosten and Milgrom (1985) show that the greater the risk of trading with a party who holds private knowledge about the firm, the wider the spread should be.

The adverse selection component of the bid-ask spread reflects the degree of "information asymmetry risk" (Callahan et al. 1997, p. 50) as perceived by the dealer. The risk is that the dealer will be locked into carrying excess inventories (at rapidly declining prices) in the event that there are many successive buy transactions, or that the dealers will face a shortage when they are asked to rapidly sell as prices rise. In summary, one facet of the bid-ask spread seems to represent an unambiguous proxy for information asymmetry and, holding everything else constant, a higher degree of information asymmetry leads to a larger total bid-ask spread.

The Bid-Ask Spread and Market Microstructure

Before discussing the bid-ask spread further, it may be useful to describe the characteristics of the markets and the varying effects differing microstructures may have on the spread.[22] On quote-driven markets, investors trade based on dealers' posted prices to either buy (bid) or sell (ask) a stock and offers to buy or sell from other investors. Examples of quote-driven systems include the NASDAQ and London's SEAQ. Thus, in quote-driven markets the dealers often provide the liquidity when the

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[22] For a comprehensive review of the literature on stock market microstructure, see Biais et al. (2002).

quantity of bids or asks from investors is insufficient to meet demand (Handa et al., 1998).[23] Conversely, within order-driven markets traders use quotes in the (typically electronic) order book as investors themselves provide liquidity to the market. Examples of the order-driven environment include all the markets used in this study (i.e., Paris Bourse's CAC system, Stockholm's Automated Exchange (SAX), and Switzerland's SWX market). In reality, most exchanges are not pure forms of either the quote-driven or order-driven models, but hybrids involving varying degrees of dealer participation and electronic trading (Leuz, 2003; Gajewski and Gresse, 2003; Chung et al., 1999).[24]

While execution costs and the components of trading costs have been researched extensively, the bulk of this research has been done in the context of a specialist or dealer market (quote-driven) rather than in an automated (order-driven) electronic limit order book.[25] However, Brockman and Chung (1999a) and Handa et al. (1998) point out that the bid-ask spread in the order-driven environment is similar to the quote-driven market spread in that both represent the expected compensation for the costs of supplying immediate liquidity. Brockman and Chung (1999a) note that the effective bid-ask spread in an order-driven market is the difference between the price of the lowest sell (offer) limit order and the price of the highest buy (bid) limit order.[26] Handa et al. (1998) echo

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[23] O'Hara (1995) and Madhavan (2000), among others, also provide excellent summaries of varying microstructure designs and trading mechanisms, along with how these market characteristics affect the formation of price.

[24] Chung et al. (1999) report that specialists participated in 20 percent of the trades on the NYSE per the NYSE's 1992 Fact Book. The NYSE verifies that the percentage of specialist participation rose to 29.7% in 2002 [NYSE Fact Book, 2002].

[25] A "limit order" is a request to either buy or sell with the condition that a price ceiling (for a bid to buy) or a price floor (for an ask to sell) is specified. The request to trade is not executed if the price is above ceiling or below floor.

[26] There are several metrics used in the literature to evaluate the magnitude of the bid-ask spread, including quoted, effective, and percentage spreads. The *quoted* spread is the raw difference between the bid and ask prices. The *effective* spread, typically used when there is concern about trades being executed within the spread, is two times the difference between the execution price and the most recent

Brockman and Chung's sentiments and note that the bid-ask spread is a "natural

property" (p. 48) of an order-driven market, a property that persists even in the presence

of a large number of limit order traders. Handa et al. further justify the study of the bid-

ask spread in an order-driven market by using 1995 Paris Bourse data to show that as the

authors' proxy for divergence of opinion among limit order traders becomes greater, the

market's bid-ask spread becomes wider.

It is clear that the extent to which markets differ, specifically with regard to the

transparency of the trading process, will help determine the levels of the bid-ask spreads.

In fact, some authors have argued that the trading process can itself provide information

to market participants. O'Hara (1995) states that, "the information available in the

trading process can affect the strategies of market participants" (p. 252). However, there

seems to be some disagreement as to the direction of this effect when dealing with

electronic (quote-driven) markets. For instance, Pagano and Röell's (1996) model

illustrates that greater transparency within the trading mechanism will lower the costs of

uninformed traders. McInish et al. (1998) empirically confirm the Pagano and Röell

analytics by showing that a change requiring market makers on the quote-driven

NASDAQ to display investors' limit orders reduces the spread. However, Madhavan

(1996) argues that an increased transparency regarding order flow should lead to larger

bid-ask spreads as the dealer's ability to share risk with outside investors is reduced.

Heidle and Huang (2002) also explore whether structural differences between markets

explain differences in the degree that informed traders are exposed, thus allowing for

differential bid-ask spreads. Heidle and Huang find that informed traders are more

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midpoint of the bid and ask prices. The *percentage* or *relative* spread is either the quoted or effective
spread divided by the midpoint of the bid and ask prices (Chung et al., 2003).

difficult to distinguish in a competing dealer market, suggesting that one would expect to find relatively larger adverse selection components of the spread on the NASDAQ.[27] Along these lines, Van Ness et al. (2002) and Affleck-Graves et al. (1994) discover important differences in the individual components of the bid-ask spread when comparing NYSE and NASDAQ firms. Wang (1999) also finds that electronic traders face a larger adverse selection component, but a smaller order processing component of the spread than the floor traders.[28] Wang concludes that the floor traders (in an open outcry system) are better able to identify adverse selection risks than are the electronic screen traders.

In summary, the literature on market microstructure indicates that the structural differences in the two basic microstructure types do not necessarily preclude generalizing some of the bid-ask spread conclusions from the quote-driven environment to that of an order-driven market, though it also does not assure analogous results. Other market characteristics such as the trading process may also affect how prices are formed, thus impacting how the bid-ask spread is created and the levels it subsequently takes. The basic premise behind this literature as it pertains to this study is that there is a need to control for any differences in microstructures or trading processes among the French, Swedish, and Swiss market. The characteristics of these three exchanges and related country-specific literature are discussed further in Appendix 1.

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[27] These authors use the Easley et al. (1996) model to assess the probability of informed trade.
[28] Wang uses the Sydney Futures Exchange in his examination. This market uses an open outcry auction for daytime trading and then switches to a screen-based automated order execution system for overnight trading.

Some researchers have questioned the validity of various models to decompose the bid-ask spread. Neal and Wheatley (1998) use the Glosten and Harris (1988) and the George et al. (1991) decomposition models to show that estimates of the adverse selection component of the bid-ask spread were large and significant even for U.S. closed-end funds[29]. Neal and Wheatley argue that the unique transparency associated with closed-end funds (which use weekly mark-to-market accounting) should cause little concern regarding the fund's current liquidation value, an otherwise very important potential source of information asymmetry (Glosten and Milgrom, 1985). Hanousek and Podpiera (2000) use a variation of the Huang and Stoll (1997) decomposition model and also find somewhat anomalous results when estimating the adverse selection component of the spread. They discover that even in an emerging market, the adverse selection component may make up a relatively small portion (14% in this case) of the total bid-ask spread. These authors use data from the Czech Republic, a market known to be historically fraught with insider trading (an attribute arising form the lack of proper regulation and enforcement, according to Hanousek and Podpiera). The authors suggest their results indicate that the relative importance of the adverse selection component may be low across markets.

Hanousek and Podpiera (2000) also point out that the approach to decompose the spread advocated by Roll (1984), Stoll (1989), and George et al. (1991), among others, assumes market efficiency. This assumption allows for the only source of serial covariance between prices and quotes to be the bid-ask spread "friction" and the factors

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[29] A closed-end fund is a publicly traded investment company. Shares from these funds traded on both the New York Stock Exchange (NYSE) and the American Stock Exchange (AMEX).

associated with it (e.g., adverse selection). The authors state that the assumption of market efficiency may not be appropriate for even the developed markets.

Neal and Wheatley (1998) note that point estimates of the adverse selection component of the spread span an uncomfortably broad range, from 6% in Jones and Lipson (1995) to 84% in Jegadeesh and Subrahmanyam (1993). Other authors who estimate the adverse selection component include: Venkatesh and Chiang (1986), George et al. (1991), Foster and Viswanathan (1991), Lee et al. (1993), Jennings (1994), Alford and Jones (1998), Madhavan et al. (1997), and Van Ness et al. (2001). Van Ness et al. (2001) use five different models[30] of adverse selection and compare the results gleaned from these models to other proxies for asymmetric information (e.g., analyst forecast error and dispersion, trading volume, percentage of stock held by insiders, market-to-book, etc.). The authors find the adverse selection component of the bid-ask spread, though correlated with various measures of volatility, to be unrelated to the measures of asymmetric information. Van Ness et al. conclude that the adverse selection component might be picking up some other trading cost in addition to asymmetric information, and that the decomposition models may not be providing any benefits beyond simply using the entire spread. The Van Ness et al. results supplement the Neal and Wheatley (1998) findings in that both studies use well-recognized decomposition models to derive adverse selection components, which were then shown to be unrelated to other accepted measures of information asymmetry.

The interest in a stock, particularly with regard to the trading activity in that stock, may also affect bid-ask spread levels. Easley et al. (1996) speculate that frequency of

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[30] Van Ness et al. (2001) provide a valuable summary of the five commonly used models to decompose the spread.

trade may be highly correlated with the spread. Their results show that infrequently-traded stocks on the London Stock Exchange had an 11.8 percent bid-ask spread, whereas the spread averaged only 1 percent for the most actively traded stocks. Easley et al. attribute their results to the fact that the probability of trading with an informed trader is lower for high volume stocks than it is for medium- or low-volume stocks. Given the number of times trading volume or "liquidity" are mentioned in the bid-ask spread literature, and the findings of several authors (e.g., Easley et al., 1996; Brockman and Chung, 1999b), it is apparent that there are strong ties between bid-ask spreads and the liquidity of a firm's stock.

The literature described above brings into question the appropriateness of decomposing the bid-ask spread. In fact, Leuz (2003) argues that the structural features of an electronic exchange mitigate any limitation of not using the decomposed spread, creating a scenario in which the entire quoted spread represents both the effective spread faced by market participants and a good proxy for information asymmetry. The literature also illustrates the importance of controlling for trading activity when examining the bid-ask spread. Consequently, this study uses trading volume as a control in models investigating the relationship between the percentage spread and compliance with IAS. The percentage bid-ask spread metric is based on the quoted spread and is used in lieu of decomposing the quoted spread.

Limitations of Using Bid-Ask Spread

Although the adverse selection component of the bid-ask spread certainly appears to be less than a perfect proxy for information asymmetry, it is more commonly used in the

literature than is the entire quoted spread. However, the dataset used in this study consists of price data consisting of daily closing prices and limited market depth (daily) information. Consequently, estimation of the information asymmetry component using one of these decomposition models is impractical and the analysis is limited to the effects on quoted spread (using the percentage spread metric). Since Stoll (1989) and others suggest that the bid-ask spread is composed of three components, using the overall spread increases the danger of both Type I (incorrectly rejecting the null hypothesis) and Type II error (incorrectly failing to reject the null). Changes in the overall spread, though Leuz (2003) sees this risk as being low, may occur because of changes in the order processing or inventory holding components, even though these changes may be attributed to changes in a firm's information environment (Type I error). A lack of change in the spread could also be observed even when the information asymmetry component is shifting (Type II error). This could arise if changes in one or both of the other two components served to offset the changes in the information asymmetry component. Regardless, the assessment of changes in bid-ask spreads is built upon the premise that the inventory holding and order processing components are held constant (if not low), or that any reduction in the total spread is at least correlated with, if not directly attributable to, reduction in the information asymmetry component.

Though finer data are almost always preferred, the use of intraday data in this case seems unwarranted in view of the doubts expressed in the literature above and due to the fact that the measure of the primary independent variable (IAS compliance) is an annual assessment. The best case scenario would obviously be one in which intraday or even daily measures of the information asymmetry component were aggregated into an annual

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measure and then compared to results from using the entire spread. Again, however, data availability limits the analysis to the total quoted spread.

Analyst Forecast Accuracy and Dispersion

Research involving properties of analysts' earnings forecasts (i.e., studies dealing primarily with accuracy, dispersion, or bias) is extensive. After a brief description of the financial analyst's task, the following sections discuss this research, specifically as it relates to forecast dispersion and its use as a proxy for information asymmetry. The various ways to measure forecast dispersion and the multitude of factors that have been shown to affect dispersion are then reviewed. The discussion involving analyst forecast dispersion concludes with the limitations of using this proxy.

The Analyst's Task

Financial analysts are among the primary users of financial accounting information, and researchers have been investigating the nature of this association for many years (Schipper, 1991). The typical analyst's forecast report includes buy or sell recommendations, a description of a firm's position with respect to its competitors, and a discussion of the prospects the firm's industry as a whole (Bhushan, 1989b). Though secondary to the task of writing these reports, analysts often provide short-term earnings forecasts and long-term growth forecasts. Analysts also perform investigative tasks to improve their ability to forecast earnings per share, with the ultimate goal of making better stock recommendations. In addition to gathering information from other analysts, they study market research, trade press, and various statistics that convey information

about the firm and its industry, including an analysis of the firm's financial statements. As part of the overall investigation, analysts may also interview customers, suppliers, and company management (Schipper, 1991). Other researchers have also established that the annual report is a crucial part of analysts' information set both in the U.S. and abroad (e.g., Vergoossen, 1993; Epstein and Palepu, 1999).

Blackwell and Dubins (1962) were the first to demonstrate that opinions tend to converge as the amount of information about an uncertainty increases. The logic behind the use of dispersion of analysts' forecasts to proxy for the quality of a firm's information environments follows from the Blackwell and Dubins findings. If a firm generates financial information of high quality, it will enable an analyst to more accurately predict earnings, thus reaching conclusions similar to that of his or her colleagues. Conversely, firms providing information that is vague or of insufficient quantity create varied interpretations of that information, causing high dispersion among analysts' forecasts of earnings (Ciccone, 2001).

Dispersion and/or Accuracy as a Proxy for Market Uncertainty

Investors' differing beliefs about a firm's future earnings and stock returns are unobservable. Thus, the dispersion of analysts' forecasts of earnings per share is commonly used in accounting and finance literature as a surrogate for these differing beliefs and/or market uncertainty (e.g., Comiskey et al., 1987; Ziebart, 1990; Ajinkya et al., 1991; Morse et al., 1991; Stickel, 1989; Lobo, 1992; Imhoff and Lobo, 1992; Atiase and Bamber, 1994; Barron and Stuerke, 1998; and Krishnaswami and Subramaniam, 1999).

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La Porta (1996), Barry and Brown (1985), and Ajinkya and Gift (1985), among others, advise that the divergence of analysts' opinions is indeed an appropriate surrogate for earnings uncertainty. Brown et al. (1987b), Brown and Rozeff (1978), and Fried and Givoly (1982) are among those who have empirically confirmed that analysts' forecasts are better surrogates of investors' expectations than either naïve or mechanical models. Brown et al. (1987b) suggest their results "demonstrate the preeminence of security analysts' forecasts as the best single proxy for market earnings expectations" (p. 65). Daley et al. (1988) and Ajinkya and Gift (1985) also find that earnings forecasts are effective indicators of the market's uncertainty with respect to future earnings announcements. Daley et al. (1988) document a positive association between the variance in analysts' forecasts and (1) the magnitude of the forecast error, and (2) the average variance of the return to maturity as implied by the prices of options maturing after earnings announcement dates. Ajinkya and Gift use a similar methodology to indicate that implied standard deviation in returns reflects contemporaneous dispersion in analysts' forecasts—beyond information that can be gleaned from an historical time series of returns.[31] In a summary of the earnings expectation research, Williams (1995) confirms that analysts' forecasts better approximate actual earnings and are more closely associated with security price movements than statistical models of future earnings.

Several authors (i.e., Litzenberger and Rao, 1972; Bowen, 1981; and Givoly and Lakonishok, 1984) go so far as to suggest that analysts' forecast dispersion could be defined as an *ex ante* surrogate for the overall firm risk. Givoly and Lakonishok mention that, unlike beta or other risk surrogates estimated from past time-series, the advantage of

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[31] Ajinkya and Gift (1985) use the Black-Scholes option pricing model and simultaneous levels of option and stock prices to derive the implied standard deviation in returns.

analysts' forecast dispersion is that it is an *ex ante*, rather than an *ex post* measure of risk. Athanassakos and Kalimipalli (2003) empirically confirm the notion that the dispersion of analysts' forecasts is an *ex ante* risk measure in at least one setting. These authors find that a sample of U.S. firms from 1981-1996 exhibits a strong positive correlation between forecast dispersion and future price volatility. Several other empirical studies find that there is also a relationship between the dispersion of analysts' forecasts and alternative proxies for firm risk. Givoly and Lakonishok (1983) observe that dispersion is related to systematic risk (beta), total risk (standard deviation of returns), and earnings growth variability. In earlier studies, Malkiel (1982) and Malkiel and Cragg (1980) find that the dispersion of forecasts appears to be more highly correlated with expected return than even with the CAPM beta, and Malkiel concludes that the best single risk proxy is not beta, but the dispersion of analysts' forecasts. Malkiel and Cragg likewise stress that dispersion measures could be construed not only as indicators of systematic risk, but also as indicators of overall firm risk.

Increases or decreases in the dispersion of analysts' forecasts over time are inconsequential unless a linkage between divergence in expectations and increased costs for the firm can be established. Handa and Linn (1993), Coles et al. (1995), Cho and Harter (1995), and L'Her and Suret (1996) conclude that the estimation risk associated with divergence in agents' expectations must, in fact, be compensated. These results are in line with the previously discussed studies in which heterogeneity of expectations is expressly viewed as an *ex ante* risk measure (e.g., Cragg and Malkiel, 1982; Barry and Brown, 1985; and Varian, 1989) or as a measure of incomplete information (Merton, 1987). Thus, a large degree of unpredictability of earnings arguably carries with it the

perception that there is a greater level of risk. If one accepts the notion that greater risk

requires higher returns (i.e., assuming a prevalence of risk-averse investors), then firms

whose earnings and prices are less predictable over time incur a demand for higher

returns, and *ceteris paribus*, these firms are subject to a higher cost of capital.

Additional empirical evidence shows that analyst forecast dispersion may indeed have

some very useful informational characteristics. Dische (2002) is among an increasing

number of researchers who find that the dispersion in consensus forecasts may be

incrementally informative for the prediction of future stock returns. Dische shows that

for German stocks in the 1987-2000 period, a portfolio consisting of low forecast

dispersion stocks outperforms a portfolio consisting of high dispersion stocks.

Specifically, he discovers that an investment strategy applied to the low dispersion stocks

outperforms the low dispersion stocks by an incredible 95 basis points per month.[32]

Dische thus lends credibility to the assertion (made by Givoly and Lakonishok [1984],

among others) that forecast dispersion can in fact be seen as an ex ante measure of firm

risk, at least for the German market. Evidence suggests the Dische results may also

extend to U.S. markets. Ang and Ciccone (2001) sort portfolios on the degree of forecast

dispersion, Fama and MacBeth (1973) perform cross-sectional regressions, and Fama and

French (1993) use factor models to each show that U.S. firms with lower forecast

dispersion or error enjoy greater stock returns.

Though less popular than the use of forecast dispersion, a related metric, forecast error

(often measured as the absolute value of the difference between the forecasted and the

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[32] Dische's (2002) primary motive was actually to investigate whether a portfolio involving going long
(purchasing) in stocks with upward analysts' revisions would outperform a portfolio involving going
short (selling) in stocks with downward analysts' revisions. He then applies this same strategy to both
high dispersion and low dispersion groupings.

actual earnings deflated by stock price[33]), is often utilized as an indicator of investor or market uncertainty regarding firm performance. Elton et al. (1984), Christie (1987), and Atiase and Bamber (1994) are among those suggesting that analyst forecast error does provide, in addition to forecast dispersion, a useful proxy for information asymmetry. There are many studies that consider the determinants of analysts' forecast accuracy (e.g., Brown et al., 1987b; Kross et al., 1990; Lang and Lundholm, 1996; Wiedman, 1996; Clement, 1999). Although past empirical studies generally find analysts to be systematically optimistic in their earnings forecasts (e.g., O'Brien, 1988; Abarbanell, 1991), some recent research has documented the presences of pessimistic analyst forecasts of quarterly earnings (Brown, 2001 and Matsumoto, 2002).

Measuring Dispersion

Researchers have measured analysts' forecast dispersion in several ways. Within the accounting literature, the most commonly used dispersion metrics are: (1) variance of the forecasts (e.g., Morse et al., 1991; Daley et al., 1988); (2) standard deviation (SD) of the forecasts (e.g., Lang and Lundholm, 1996); and the most common one, (3) the coefficient of variation (CV), which is the standard deviation divided by a mean (or median) EPS forecast for a specific time period (e.g., Ajinkya et al., 1991; Comiskey et al., 1987; Elliott and Philbrick, 1990; Ziebart, 1990; Imhoff and Lobo, 1992; Healy et al., 1996; Das and Saudagaran, 1998).

Buchenroth and Jennings (1987) found that their results were sensitive to the specification of the dispersion measure (SD vs. CV) and the deflator (mean vs. median EPS forecast). Because any standard deviation measure is sensitive to the size of the

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[33] See, for example, Duru and Reeb (2002).

underlying population, the strategy in this study is to use the coefficient of variation (with median as the deflator, while use of the mean serves as a sensitivity test) as the measure of analysts' dispersion.   Accordingly, the dispersion measure is defined as:

$$\text{Dispersion for firm } i \, (cv) = \left[\sum_{i=1}^{n} (E_{a,i} - \overline{\overline{E}}_i)^2 / n_i - 1 \right]^{1/2} \div \overline{\overline{E}}_i \qquad \textbf{Equation 1}$$

$where:$ $E_{a,i}$ = EPS forecast estimate from analyst a for company i

$\overline{\overline{E}}_i$ = median (and mean) of all $E_{a,i}$

n_i = number of forecasts for firm i

Smaller values for the coefficient of variation are indicative of higher levels of agreement among analysts regarding future earnings. Individual (monthly) measures using the formula above will be taken for periods following each of three actual earnings announcements from fiscal years 1996-1998.

Lobo (1992) uses a minimum of five forecasters to form the dispersion measure at any one point in time. However, the number of analysts following some of the sample firms tends to be lower than the typical U.S. firm, so the minimum forecasters in this study will be set at three.   The analysis will be repeated using a minimum requirement of five forecasters to determine the sensitivity of the results. Also, the time frame from which forecasts are taken is an important consideration. For instance, Capstaff et al. (2001) use a forecast horizon that goes from 20 months before fiscal year-end to 3 months after fiscal year-end as part of a classic event study. The post-fiscal year-end period allows the authors to pick up the lag in European firm's announcements of the actual EPS numbers. However, the fundamental hypothesis in this study is that analysts are able to be more precise with their forecasts due to better quality financial information. For instance, the analysts would be using the 1996 fiscal year report to assist in forming their estimates for

fiscal 1997. Thus, the last consensus forecast prior to the actual earnings announcement and one six months prior will both be paired with the prior year's financial information (i.e., IAS compliance) in the analysis.

<u>Determinants</u> <u>of</u> <u>Forecast</u> <u>Accuracy</u> <u>and/or</u> <u>Dispersion</u>

Though contrary to the seemingly more rational notion that greater information will decrease analysts' forecast dispersion, Lang and Lundholm (1996) and Eng and Teo (2000) do offer a circumstance in which information actually increases the dispersion of analysts' forecasts. In this situation, the forecasters are each using unique models to derive their forecasts, and the introduction of greater information causes each of the estimates from these various models to increasingly diverge. Given this case holds at least occasionally, one could also envision a scenario in which analysts' forecast dispersion increases while the consensus (mean) forecast becomes more accurate. Research into whether an improved information set assists analysts with their forecast task has produced mixed results, though the consensus is that dispersion normally decreases with improved information. Lang and Lundholm (1996) find that the quality of annual report disclosure among U.S. firms (based on a component of the overall AIMR rankings) is negatively related to forecast dispersion, but not significantly related to forecast accuracy. Adrem (1999) studies Swedish firms and also finds a significant inverse relationship between a more active, informative disclosure strategy and analysts' forecast dispersion. Adrem discovers a statistically insignificant association between disclosure and forecast accuracy for the same Swedish firms. Conversely, both Basu et al. (1998) and Chang et al. (2000) use country-level disclosure levels to illustrate that

these there is a positive relationship between forecast accuracy and these disclosure levels.[34] However, Chang et al. fail to find a significant association between disclosure and forecast dispersion.

While examining the impact of IAS adoption on analysts' forecast accuracy, Ashbaugh and Pincus (2001) discover that there is a significant increase in the number of news reports about non-U.S. firms in the year following IAS adoption. Consequently, these authors control for changes in the number of news reports, market capitalization, and analyst following in their assessment. Ashbaugh and Pincus ultimately find that the adoption of IAS results in a statistically significant reduction in analysts' forecast errors. As mentioned earlier, they also discover that analysts' forecast accuracy is adversely affected by the extent of the difference between a country's domestic accounting standards and IAS.

Hope (2003) provides one of the rare cross-country examinations of the characteristics of financial analysts' forecasts, and possibly the only research to date empirically addressing the effects of accounting standards enforcement. He uses the following proxy variables to assess the degree of enforcement of accounting standards: country-level audit spending, insider trading laws, judicial efficiency, legal tradition, shareholder protection, auditor type (firm-level), and stock exchange listings (firm-level).[35] Hope examines the degree to which analyst forecast accuracy is dependent upon both the amount of firms' financial accounting disclosure and the degree of enforcement of accounting regulations.

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[34] Basu et al. (1998) examine forecast accuracy using a sample of seven countries, including France and Switzerland. Chang et al. (2000) use a sample of 37 countries and a well-known disclosure measure (Center for International Financial Analysis and Research [CIFAR] country averages from 1990) to proxy for annual report disclosure levels. Hope (2003) notes that the limitation of using country-level disclosure scores is that the within-country variation can be as significant as the between-country differences.

[35] See Hope (2003) for a detailed description of each of these variables.

Hope finds that both firm-level disclosures and strong enforcement of accounting standards are positively related to forecast accuracy. He also finds that the firm-level disclosures have a greater effect on analyst forecast accuracy when the number of analysts following is relatively low.[36]

Both Capstaff et al. (2001) and Higgins (1998) use country-level disclosure rankings developed by Saudagaran and Biddle (1992)[37] to examine the relationship between country-level disclosure and analyst forecast accuracy. The Capstaff et al. results indicate that the mean country-level accuracy matches up with the disclosure ranking of the five European countries in their study for which a Saudagaran and Biddle disclosure index is provided (six European countries in the Capstaff et al. study were not ranked by Saudagaran and Biddle). Capstaff et al. also find the forecasts with the strongest optimistic bias are from the analysts of Swiss firms, and that the overall accuracy of forecasts deteriorates significantly as the forecast horizon lengthens. Higgins (1998) also assesses the ability of financial analysts to accurately forecast the earnings of firms from seven countries (United States, Japan, and five European companies—including France and Switzerland) and finds a positive relationship between a countries' level of disclosure and the accuracy of the forecasts.

Forecast horizon, and specifically, the proximity of the forecast to the actual earnings announcement apparently also plays an important role in determining the accuracy and/or dispersion of analysts' forecasts. A number of authors document that the nearer a

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[36] Hope (2003) does not address the rationale for firms' levels of disclosure, nor is it the intention of this study to do so. For extensive reviews of the literature on empirical findings related to financial disclosure in the global arena, see Saudagaran and Meek (1997) and Marston and Shrives (1996).

[37] Saudagaran and Biddle (1992) surveyed 142 participants of the international security listing process (e.g., investment bankers, stock exchange officials, public accountants, etc.) and asked these individuals to rank countries based on both voluntary and mandated disclosures. Among the seven countries involved in the survey, France ranked 4th and Switzerland ranked 7th.

forecast is to the earnings announcement date, the more accurate the forecast becomes (e.g., Brown, 1991, Das and Saudagaran, 1998; Capstaff et al., 2001; Richardson et al., 2001). Richardson et al. (2001), for instance, find that analysts make optimistic forecasts at the beginning of each year and then 'walk down' their estimates to a level that the firm can meet (or exceed) by the end of the year. Regardless whether early forecasts are either optimistic or pessimistic, the increased accuracy as the earnings announcement approaches would seem to be an intuitive consequence since the analyst would undoubtedly have better information about a firm's earnings prospects as the announcement draws near.

As noted earlier, Capstaff et al. (2001) also indicate that the forecast horizon is important in generating more accurate forecasts. These authors find that for eleven European countries, short horizon forecasts (four months or less from announcement) explained more than 50 percent of the variation in actual earnings per share. Forecasts that are made twelve months from the announcement, conversely, explained only three percent of the variation in actual earnings. A number of other authors using U.S. data (e.g., Brown et al., 1987a, 1987b; O'Brien and Bhushan, 1990; Brown, 1993; Duru and Reeb, 2002) concur with Capstaff et al. and find that longer forecast horizons are associated with less forecast accuracy (and likely greater dispersion).

The extent of earnings management may also impact the financial analyst's ability to forecast earnings, particularly in multinational settings. Leuz et al. (2003) find that among 31 countries, Switzerland ranks seventh in the degree to which earnings are managed, while France and Sweden rank among countries seeing relatively less earnings management (ranking 21st and 25th, respectively). Leuz et al. also conclude that reported

earnings in the U.S. are managed relatively less than earnings from other countries. Brown and Higgins (2002) note that earnings surprises (difference between actual and forecasted earnings) can be managed to be more upbeat by either providing financial analysts downward guidance (a less optimistic message) or by managing reported earnings upward. With this notion in mind, Brown and Higgins (2001) also assess the management of earnings, but by examining the earnings surprises in thirteen countries.[38] Brown and Higgins find relatively low earnings management in France, Sweden, and Switzerland, particularly when compared with U.S. earnings surprises, contradicting the Leuz et al. (2003) findings. They also discover that the management of earnings surprises has increased over time globally, whereas Bhattacharya et al. (2003), Fulkerson et al. (2002), and Land and Lang (2002) find that the global management of reported earnings has decreased over time.

In summary, researchers have shown that for a variety of settings a large number of factors impact analyst forecast dispersion and/or accuracy. These factors include: the properties of earnings, the extent of earnings management, the level of enforcement of accounting standards, the number of analysts following a firm, and the forecast horizon. The extent to which these factors are controlled for in this study will be limited only by the availability of data on those factors. Whether the findings on analyst forecast dispersion discussed above, including those regarding confounding factors, are also common in non-U.S. markets is also an empirical question that is largely unanswered. Finally, if the results associating lesser forecast dispersion with higher stock returns and/or lower earnings variability can be relied upon, then one could assume that any

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[38] Brown and Higgins (2002) and Matsumoto (2002) also examine earnings management, but by looking at the difference between the consensus analyst forecast of earnings and the expected forecast of earnings based on prior changes in earnings.

factor serving to reduce forecast dispersion would naturally be viewed in a very positive light.

Limitations of the Use of Analysts' Forecasts

Various researchers note that there are some limitations of using financial analysts' forecasts as proxies for investors' expectations and information asymmetry (e.g., Schipper, 1991; Imhoff and Lobo, 1992; Abarbanell et al., 1995; Barron, 1995; Williams, 1995; Barron et al., 1997; and Bamber et al., 1997). For example, Abarbanell et al. (1995) explain that analysts' forecasts are imperfect measures for at least three reasons: (1) analysts depend on common sources of information that are not likely available to the individual investor; (2) individuals use analysts' forecasts to form expectations, but these expectations are also a function of the relative importance of other sources of private information; and, (3) empirical models using expectations (e.g., valuation models) are generally formulated using expected prices rather than expected earnings. Because analysts' forecast dispersion does not capture all of the elements inherent in investors' expectations, measurement error may be elevated.

Schipper (1991) and Givoly and Lakonishok (1984) also mention that the analyst's overall decision process incorporates a loss function that is unlikely to mimic the loss function of an individual investor. The analyst's loss function affects the way he or she views the task of estimating earnings in a way that may differ from how an individual investor would view the same task. Schipper states that the nature of the analyst's loss function may not be captured by the typical measures used for evaluating earnings forecasts.

The ability of analysts to assess earnings levels is also unlikely to be based on the annual report alone. In fact, Frankel and Lee (1998) and Dechow et al. (1999) use analysts' forecasts as proxies for all non-accounting information that the analyst may have at their disposal. Beaver (2002) also lists some possible nonfinancial measures that may impact the properties (i.e., accuracy and dispersion) of analysts' forecasts (e.g., market share, population within licensed areas, penetration ratios, etc.). As was discussed earlier, this study essentially assumes that the annual report is either the analyst's sole source of information about the firm or the other sources have random and independent effects on the dependent variables. If both these assumptions are untrue, it leaves open the possibility that any observed changes in forecast dispersion (or any of the other variables at least partially dependent upon the quality of information) occurred as a result of changes in omitted variable (i.e., other information sources).

Also, failure to reject null hypotheses may result if there is insufficient variation across firms in any of the dependent variables. For instance, Ajinkya et al. (1991) find there is little intertemporal variation (i.e., there are elevated levels of autocorrelation) in their measure of forecast dispersion. Additionally, there may be insufficient variability in other variables within this study (i.e., bid-ask spreads across firms), as documented by Callahan et al. (1997), who find that more than 75% of all trades on the New York Stock Exchange (NYSE) occur at 1/8 or 1/4 spreads.

Financial analysts' forecast dispersion does likely measure the disagreement among individual market participants with error. However, many researchers have also endorsed the use of (or used) financial analysts' forecasts as proxies for unobservable investor beliefs. Also, research has also shown that forecast dispersion itself may have

informational qualities (e.g., predictor of uncharacteristically high returns), justifying its study even if it may not be a perfect proxy for investor uncertainty or information asymmetry.

Idiosyncratic Risk

Amihud and Mendelson (1989) and Goyal and Santa-Clara (2003) are among those who suggest "idiosyncratic risk" may be used as a measure of information asymmetry.[39] Roll and Ross (1984) posit that the actual return on any asset (i.e., stock, bond, or portfolio) may be separated into three components: (1) the expected return on the asset; (2) the asset's sensitivity to a change in a systematic factor, given by the actual return on the systematic factor; and (3) the return on the unsystematic (idiosyncratic or firm-specific) factors. Thus, idiosyncratic risk is the likelihood of a price change in a security resulting from circumstances that are unique to that particular firm, as opposed to those circumstances that affect the overall market (i.e., systematic risk). Benston and Hagerman (1974), Richards (1999), and Xu and Malkiel (2003) are among those who estimate idiosyncratic (unsystematic) risk using the market model. This model is the applied form of the CAPM, which can be expressed as:

$$E(R_s) = R_f + \beta \left[E(R_m) - R_f \right] \qquad \textbf{Equation 1}$$

where $E(R_s) = Expected\ return\ on\ a\ stock$
  $R_f = a\ risk\ \text{-}\ free\ return$
  $E(R_m) = Expected\ return\ on\ the\ overall\ market$
  $\beta = the\ stock's\ beta\ (systematic\ risk - the\ sensitivity\ to\ overall\ market\ movements)$

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[39] This form of risk is also referred to in the literature as unsystematic risk, residual risk, asset-specific risk, and firm-specific risk.

Consequently, the return for firm i at time period t is given by:

$$r_{i,t} = \alpha_i + \beta_i r_{m,t} + \varepsilon_{i,t} \qquad\qquad \textbf{Equation 2}$$

where $R_{i,t}$ is the return for an individual asset and $R_{m,t}$ is the market return at time t and

$where:$ $\quad r_{i,t} = \ln\left[(P_{i,t} + D_{i,t})/P_{i,t-1}\right]$

$\qquad\qquad r_{m,t} = \ln\left[M_t/M_{t-1}\right]$

$\qquad\qquad \alpha_i = E(r_{i,t}) - \beta_i E(r_{m,t})$ *(the normal unsystematic return for stock i)*

$\qquad\qquad \beta_i = \mathrm{cov}(r_{i,t}, r_{m,t})/\sigma^2(r_{m,t})$ *(the systematic risk of stock i)*

$\qquad\qquad \varepsilon_{i,t} = $ *a disturbance term (random error) term that is serially independent*

$\qquad\qquad\qquad$ *and contemporaneously independent of* $r_{m,t}$

$\quad and \qquad P_{i,t} = $ *price of ith asset at time t*

$\qquad\qquad D_{i,t} = $ *dividend paid on the ith asset during period t*

$\qquad\qquad P_{i,t-1} = $ *price of ith asset at t − 1 adjusted for capital changes during period t*

$\qquad\qquad M_t = $ *a general market index or portfolio at time t*

The assumption inherent in the market model (which is based on CAPM expected return theory) is that the rate of return on the market portfolio (**$r_{m,t}$**) captures the effect of all variables that impact the return on the entire population of assets. The disturbance term (**$\varepsilon_{i,t}$**) is presumed to capture variables that only ("idiosyncratically") affect the returns for asset (or firm) **i**. Benston and Hagerman (1974) find that for a sample of over-the-counter (U.S.) stocks, their estimates of idiosyncratic risk are associated with one of the other proxies used in this study, bid-ask spreads. Baer (1993) uses a somewhat more sophisticated model of systematic risk than the Sharpe (1964), Linter (1965), Black (1972) version above—one incorporating five macroeconomic factors—and finds "very little difference" (p. 48) between clusters based on this model and clusters based on the market model.

<u>Modeling</u> <u>Expected</u> <u>Returns</u>

Much of Richards's (1999) paper is a discussion of alternative ways to measure a

firm's return, hence its idiosyncratic risk. In one approach, he reports that the asset-

specific (idiosyncratic) component of an asset's return could be calculated by subtracting

the equally-weighted average return using all the assets in a specific class (e.g., a certain

industry within a particular country) from the asset's return. The equation for this

definition of idiosyncratic risk would be:

$$\hat{r}_{it}^{idio1} = r_{it} - \overline{r_{it}} \qquad\qquad \textbf{Equation 3}$$

where $\hat{r}_{it}^{idio1}$ = *the idiosyncratic component of asset i return at time t*
        r_{it} = *the return on asset i at time t*
and $\overline{r_{it}}$ = *the equally – weighted average return from an asset class*

<u>Limitations</u> <u>of</u> <u>Using</u> <u>Idiosyncratic</u> <u>Risk</u>

The primary deficiency in using idiosyncratic risk as a proxy for information

asymmetry is that this firm-specific risk is derived from a subjective asset pricing model,

regardless of which model is used to obtain the proxy. Thus, the measures of levels of

and changes in idiosyncratic risk and are only as robust as the pricing model used to

obtain them. There is significant disagreement in the finance community regarding the

appropriate pricing model to use in modeling expected (U.S.) stock returns (see Fama and

French [1993], Chan and Lakonishok [1993], Kothari et al. [1995], and Daniel and

Titman [1997] for discussions), much less in the more diverse global arena (see Koedijk

et al., 2002, for a summary). The theoretical and empirical support for the use of

idiosyncratic risk as a proxy for information asymmetry is also not as prevalent as it is for

the other two proxies used in this study. Despite having relatively less support than the

bid-ask spread and analyst forecast dispersion, it is likely that idiosyncratic risk would be

the consensus choice as the third proxy for information asymmetry.

Proxy Interaction and Potentially Confounding or Omitted Variables

The characteristics of the proxies for information asymmetry make it likely that there

is some interaction among these proxies, due in part to the bid-ask spread, forecast

dispersion, and idiosyncratic risk having some common explanatory variables. For

instance, Chung et al. (1995) document a positive relationship between the number of

analysts following a firm and bid-ask spreads. Chung et al. posit that analysts are

attracted to firms with higher levels of information asymmetry due to the increasing value

of private information about those firms. The authors thus suggest that market makers

may assess the degree of information asymmetry associated with a stock by observing

how many analysts are following that stock, and then setting the level of the bid-ask

spread accordingly. The authors also list a number of other factors that may affect either

the spread or the number of analysts following a firm. These factors and the literature

supporting their inclusion in Chung et al.'s model include: price volatility affecting bid-

ask spreads [(Tinic and West, 1972), (Benston and Hagerman, 1974), (Stoll, 1978),

(Copeland and Galai, 1983), and (McInish and Wood, 1992)]; price volatility affecting

financial analyst following [(Bhushan, 1989a, b), Moyer et al., 1989)]; trading volume

affecting the spread (McInish and Wood, 1992), firm size affecting the spread (Chung et

al., 1995); and firm size affecting analyst following [(Bhushan, 1989a, b), (Moyer et al.,

1989), and (Brennan and Hughes, 1991)]. Attempts will be made in this study to control for each of the variables shown to affect the information asymmetry proxies.

Affleck-Graves et al. (2002) find that NASDAQ firms with less predictable earnings (based on relatively less analyst forecast accuracy and relatively greater dispersion), have total bid-ask spreads that are higher than firms with more predicable earnings. These results suggest there is incentive on the part of firms to manage their earnings, while providing further evidence of an empirical relationship between the proxies for information asymmetry. In a related study, Ciccone (2001) theorizes that the ability of the analyst to accurately forecast earnings numbers may be correlated with the riskiness of the firm. Specifically, analysts' predictions of more risky firms may be less accurate and more widely dispersed because those firms have more volatile earnings (e.g., Capstaff et al., 2001), and not due to greater levels of information asymmetry. More volatility in earnings may also, as Van Ness et al. (2001) find, be correlated with the adverse selection component of bid-ask spreads. Taken together, the Affleck-Graves et al. (2002), the Ciccone (2001), and the Van Ness et al. (2001) results seem to indicate that one should expect some relationship between forecast dispersion and the bid-ask spread that is possibly unconnected to information asymmetry changes—if earnings volatility is indeed a driver of each.

Firm size, a variable used as a proxy for a multitude of characteristics within the accounting and finance literature, may also impact the hypothesized relationships in this study. For example, Atiase (1986) argues that large firms are less likely to see high degrees of information asymmetry due in part to an increased analyst following. However, as Dunn and Nathan (2000) and Duru and Reeb (2002), among others,

illustrate, there tend to be a greater number of analysts following large firms than small firms. Based on the results and arguments in Chung et al., (1995), Atiase (1986), Dunn and Nathan (2000), and Duru and Reeb (2002), the overall conclusion would be that large firms attract analysts, causing market makers to generate a larger bid-ask spread. But intuitively, one would expect large firms to be associated with relatively lower levels of information asymmetry, and several authors have found firm size and the extent of disclosure in annual reports to be positively related (e.g., Buzby, 1975; Cooke, 1989a; Meek et al., 1995; Raffournier, 1995; Wallace and Naser, 1995; Ashbaugh, 2001).

Some of the "interaction" described may not in reality be interaction, but simply two or more variables that are held up as proxies for the same construct measuring what they are purported to measure (e.g., Ciccone, 2001). If, for instance, the levels of forecast dispersion and idiosyncratic risk are appropriate measures of information asymmetry, one would expect an event that genuinely reduces information asymmetry to affect both measures.

This section has provided evidence that these proxies for information asymmetry may be affected by factors above and beyond changes in the informedness of capital market participants. The discussion also illustrates that isolating and measuring the nature of the relationships involving these variables has been and will continue to be considerably more problematic than the typical cause-effect relationship. This difficulty arises due to the extent and complexity of interactions between the proxies for information asymmetry and external factors, and among the proxies themselves (e.g., a market maker observes high dispersion in analysts' forecasts, assumes that it is an indication of greater degrees of information asymmetry, and thus increases the bid-ask spread).

Summary of the Information Asymmetry Proxy Literature

The bid-ask spread and analysts' forecast dispersion have strong support as proxies for the unobservable beliefs of capital market participants. However, several authors question the appropriateness of various bid-ask spread decomposition models given anomalous results, and even these results are primarily gleaned from quote-driven trading structures, rather than the order-driven markets used in this study. Analysts' forecast dispersion too comes with some measurement difficulties, particularly with regard to the massive number of potentially confounding variables that have been shown to impact the extent of dispersion.

Whereas the bid-ask spread and analysts' forecast dispersion have widespread endorsement as proxies for information asymmetry, idiosyncratic risk has somewhat less support. This may be due to the fact that idiosyncratic risk is derived from expected return models which have varied levels of support. Again, however, the selection of proxies in the current study is based upon the prevalence of these proxies in the prior accounting and finance literature in which information asymmetry is explored. Each of these three proxies is uniquely problematic. Nonetheless, there appears to be no better way to assess whether a firm has reduced the information asymmetry between its own managers and those external to the firm—and hence reduced its cost of capital—than the collective use of these proxies.

Contribution of this Study

It is difficult to identify and quantify any firm benefits when the decision is made to change a firm's financial reporting system. Although firms presumably conduct lengthy

analyses regarding any proposed change to their current reporting system, primarily anecdotal evidence indicates it is also likely that present and future costs are much easier to catalogue and predict than are the future benefits. There are few examples of empirical work that attempt to quantify benefits of firm disclosure in the U.S. or elsewhere. The number of non-U.S. studies examining changes in information asymmetry is scarce, and this researcher finds no study that addresses potential changes in information asymmetry using the multitude of proxies found in this study. Due to the number of factors that have been shown to affect the information asymmetry proxies, it is doubtful that the results of this study will provide unassailable evidence regarding the benefits of complying with International Accounting Standards. However, it will provide a valuable foundation from which other studies of the benefits of financial presentation, including those dealing with the adoption of and/or compliance with a set of accounting standards, can be carried out. The fact that a company may be able to *a priori* predict whether it may receive quantifiable financial benefits by moving toward compliance with IAS is a worthy objective of this study. Finding a statistically reliable association between IAS adoption/compliance and reductions in the magnitude of all three finance variables would provide evidence of the benefits companies could receive from moving toward full IAS compliance.

The three proxies for information asymmetry detailed above are well received in the accounting and finance literature. Likewise, they bring triangulation to the research question posed here, since they are derived from three relatively independent sources that are all external to the firm. Financial analysts produce earnings forecasts, market makers (or limit order traders) establish bid-ask spreads, and the collective behavior of the

market as a whole determines idiosyncratic risk. Therefore, consistency among the three proxies brings an added level of robustness to any result. A lack of consistency among the results would obviously provide less assurance that greater compliance with IAS generates greater benefits—at least in terms of how the benefits have been operationalized in this study. A positive byproduct of this study is that it will also provide some insight into how the levels of these theoretically supported measures for information asymmetry relate to one another in the French, Swedish, and Swiss markets. Regardless of the geographic setting, no previous study has combined what are the three most popular proxies for information asymmetry into one analysis.

CHAPTER III

METHODOLOGY

The fundamental question addressed in this study is whether firms from France, Sweden, and Switzerland derive information asymmetry benefits from relatively greater compliance with International Accounting Standards. The benefits are operationalized as lower levels of three proxies for information asymmetry: the bid-ask spread, analyst forecast dispersion, and idiosyncratic (or firm-specific) risk. To determine whether relatively higher levels of compliance are associated with relatively lower levels of the information asymmetry proxies, multiple regression in the form of ordinary least squares analysis (OLS) is used. One of the three information asymmetry proxies will serve as the dependent variable in each of three fundamental regression models. The principal independent variable in all of these models is the extent of firm-level IAS compliance.

Additional independent variables are used to control for firm-related characteristics that the literature shows may affect information asymmetry proxies. Independent variables are also added to assess country or interactive (with IAS compliance) effects on the dependent variables. Finally, correlation analyses will be performed to evaluate univariate relationships, in part to consider the degree to which the collinearity of independent variables is a problem in the regressions.

The following sections in Chapter III describe: 1) the time period for the study and the selection of the sample firms, 2) the measurement of IAS compliance and how the audit

opinion impacts perceptions of compliance, 3) the measurement of bid-ask spreads, 4) the measurement of forecast dispersion, 5) the measurement of idiosyncratic risk, 6) the justification for and measurement of selected control variables, and 7) a discussion of the primary and secondary hypotheses along with the models used to test them.

Time-Period and Sample Selection

The three-year period from 1996 to 1998 is used to evaluate the effect of IAS compliance on the information asymmetry proxies. 1996 is chosen as a start date in part because the IASC's Comparability/Improvements Project was ending. One of the objectives of the Comparability Project was to reduce the number of allowed alternatives under IAS. Since fewer accounting choices were now available, it is likely easier to distinguish between the use of IAS and domestic GAAP, hence the extent of IAS compliance. The 1996-1998 period also partially coincides with two well-known compliance studies discussed earlier (Street et al. [1999], who analyze 1996 fiscal period reports and Cairns [1999a], who reviews fiscal 1998 reports).

At November 1998, the IASC's webpage listed 128 firms from France, Sweden, and Switzerland using IAS. Nineteen of these firms are omitted from the study because the firm was either not publicly listed, it substantially changed structure via merger or acquisition, or it was an affiliated firm or subsidiary of another sample firm. Fifteen firms are omitted because they did not have at least two English annual reports available during the three fiscal years 1996-1998. Ten of the firms are removed because there were no claims in either the accounting policy statement or the audit report that IAS was being used. Two firms are omitted because of claims that U.S. GAAP was being used in

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conjunction with IAS. Finally, nine firms are added when evidence of their IAS

compliance claims became apparent through a variety of other sources (e.g., Global

Vantage, Auer [1998], Dumontier and Raffournier [1998]). The resulting sample consists

of 91 firms and 247 firm-year observations of IAS compliance. However, due to missing

observations in the dependent variable data, there are considerably fewer than 247

observations in each of the analyses comparing compliance to the bid-ask spread, analyst

forecast dispersion, and idiosyncratic risk. The final sample also includes both financial

firms and firms with fiscal year-ends other than December 31. Ten companies in the

sample have a fiscal year-end that does not match the calendar year and six are financial

firms.

	128	French, Swedish, Swiss firms listed on IASC website
	(19)	Non-listed, structure change, affiliated firms
	(15)	Firms without at least two years of English annual reports
	(10)	Firms not claiming compliance in either audit report or policy statement
	(2)	Firms using U.S. GAAP in addition to IAS
	9	IAS "Claimants" not listed on IASC website
=	91	Study firms scored for IAS compliance
x	2.72	Average number of reports per firm
=	247	Total annual reports evaluated for IAS compliance

Nearly all of the firms' annual reports are downloaded from the Primark/Thomson

website. Primark/Thomson provides online access to images of reports from firms

worldwide. A few reports missing from the Primark/Thomson database are downloaded

from sample firms' websites.

Compliance with International Accounting Standards

The instrument appearing in Appendix 2 is used to assess the extent of a firm's

compliance with IAS. It is in part the result of information from Cairns (1999a), Tower

et al. (1999), and others (e.g., Ashbaugh and Pincus, 1998; Street and Gray, 2000a) who

have analyzed firms' compliance with International Accounting Standards. Cairns's

categorical assessment and Tower et al.'s 512-point evaluation are likely the two most

comprehensive instruments that have been used to assess IAS compliance. However,

applying either of these "instruments" is problematic. As noted previously, Cairns

(1999a) places firms into eleven categories:

1) Full IAS compliance
2) Full IAS compliance with exceptions specified in the accounting policies
3) Full IAS compliance with exceptions specified in the notes to the financial
    statements but outside the accounting policies
4) Full IAS compliance claimed but material omissions or exceptions evident
    from the financial statements
5) Accounting policies comply with IASs or are based on IASs or IAS principles
6) Accounting policies comply with IASs or are based on IASs or the principles in
    IASs but with specified exceptions from full compliance
7) IASs used only when there are no equivalent domestic standards
8) IASs used only for selected items or when permitted by domestic requirements
9) Reconciliation from domestic GAAP to IASs
10) Summary IAS financial statements (restatement of domestic financial
    statements
11) Unquantified description of differences from IAS treatments
    (Cairns 1999a, p. 10).

There are several difficulties with Cairns's approach for an empirical analysis. First, the

guidelines for placing a firm into a particular category seem less precise and more

subjective than what is normally required for rigorous empirical analysis. Cairns is not

abundantly clear about what evidence is needed to place a firm into a specific category

and he admits that some firms are very close to being reclassified into another category,

hinting that the categorization may require considerable judgment. Second, the

categories are not rank-ordered from most compliant to least compliant and Cairns does

not always provide an indication as to what categorical placement is preferred over

another. Even if a researcher could use these categories to form a reliable rank-ordering, the coefficients on the resulting class variables would be less meaningful than they would be if the classes had more clearly defined ordinal properties.

An instrument similar to the one in Tower et al. (1999) appears to be preferable to Cairns's in that it measures compliance with more precision. These authors use seven "levels" of compliance within each of 512 specific IAS requirements. The placement of a firm into one of these seven categories is less subjective than the Cairns (1999a) approach, but analyzing 512 items is a time-consuming process. These authors find that over 60 percent of the data points addressed in their instrument are scored as "not disclosed", suggesting that their instrument may actually be too detailed. The authors find it difficult to ascertain whether a firm does not provide a required disclosures due to noncompliance or because the requirement is not applicable to that firm (e.g., no discontinued operations presented because the firm did not have operations meeting the criteria). The Tower et al. instrument is primarily a structured search for IAS-required disclosures, whereas the Cairns (1999a) manuscript deals more with the misclassification of events or the misrepresentation of some aspect of performance.

The instrument in Appendix 2 removes some of the subjectivity found in Cairns's (1999a) method and it can be applied more efficiently than the Tower et al. (1999) instrument. The 46 questions were developed by considering all the prior research on IAS compliance. This research, including Cairns (1999a), Tower et al. (1999), Ashbaugh and Pincus (1998), and Street and Gray (2000a), helped to identify not just contentious issues, but also those IAS requirements that were most often ignored by firms. The choice of the questions is also based on using those contentious issues that can be

evaluated with the most objectivity. Finally, industry-specific standards and/or guidelines that apply to only a small subset of firms, such as IAS #11 (Construction), IAS #15 (Changing Prices), IAS #20 (Government Grants), IAS #26 (Accounting and Reporting by Retirement Benefit Plans), IAS #29 (Hyperinflationary Economies), IAS #30 (Banks & Financial Institution disclosures), etc., are omitted from the analysis.

The instrument in Appendix 2 is applied to a total of 247 annual reports (from 91 firms). A score of '3' is given to a firm on each of 46 questions if it is in full compliance with IAS. A score of '2' is given when it is not readily apparent that a firm is complying or the firm does not make it entirely clear that the question/standard does not apply to it. A score of '1' is given when the firm is obviously not complying with a particular standard.

All of the questions found in the instrument pertain to IAS requirements during the period of study except for questions #42 and #43. These questions deal with the requirement to present basic and fully diluted earnings per share, including the weighted average shares outstanding used in the calculation. Since this requirement (IAS #33) is effective only for fiscal periods beginning on or after January 1, 1998, the denominator representing the total possible compliance score is greater (by six "points") for those firms' reports that cover a period starting after IAS #33 becomes effective.

Some of the evaluations are subjective. For instance, the requirement to present minority interest is unimportant if the firm fully owns all of its subsidiaries (or it uses the rarely applied pooling of interest approach). However, if the presentation does not make it clear that there is 100% ownership, the failure to provide minority interest figures results in a '2', or possibly even a '3' if there are indications elsewhere of interests

representing between 50% and 100% ownership of a firm (thus creating minority interest). As another example, question #41 addresses whether a firm presents financial asset and liability information so that the amount, timing, and likelihood of future cash flows can be assessed. This question has several layers of subjectivity. First, does the firm have enough financial assets and liabilities to cause concern about the ability or inability of these assets and liabilities to create or use cash? Second, if the firm does have a material amount of these assets or liabilities, is the disclosure adequate? Essentially, if there are any questions as to the adequacy of disclosure, the firm receives a '2' on this issue—or any other issue of this type.

The question that possibly requires the most judgment is question #19, "Does the entity adequately break down its operations into segments necessary to evaluate do product line and geographic analysis?" This scoring is based on comparing the segment disclosure to other parts of the annual report. For instance, if a firm describes various geographic locations in which it is operating or it has managers whose titles suggest their responsibilities cover a particular region or product line, then the expectation is that segment results are presented the same way. If discussion in the annual report suggests there are at least four or five geographic areas and/or four or five distinct product lines, but the firm only provides results on two areas or product lines, then the firm receives a score of at most a '2' on that particular question.

Questions #23 and #24 relate to the classification and presentation of leases. If a firm states that it has no leased assets, then it receives a score of '3'. If it is unclear whether the firm had leased assets (e.g., there is no statement to the effect that it does not have leased assets, or there are suggestions elsewhere in the annual report that there are lease

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obligations), failure to provide the information required in questions #23 and #24 results in a score of '1'. Several questions are at least in part conditional on the "answer" to the previous question (e.g., #36 is dependent on #35), but principally the questions address unique issues and are independent of answers to other questions.

Some judgment is also involved when evaluating the "spirit" of the IAS requirements. For instance, the requirements to expense R&D and to capitalize some development costs imply that the amounts expensed are distinguishable from other operating expenses. If a firm proclaims that it is expensing R&D, but the amount is "hidden" within depreciation, salaries, etc., the result is a score of '2'.

The IASC does not intend to have all required items within the "audited" section of the financial statements. For instance, the "discussion of the segments requirement" (Questions #20 and #21) would be met by very few firms if it is required to be within the "audited" pages. However, the focus of the compliance questions is on the "audited pages" of a firm's financial report. Though it is sometimes unclear where these audited pages start and stop, the IASC specifically excludes management's discussion of specific operations from its definition of "financial statements" (IASC 1997). Hence, an adjustment is made to a firm's compliance score if certain presentations are made only in the management discussion area of the report. Specifically, if one of the required quantitative segment disclosures (questions #15, #16, #17) is provided outside the context of the audited pages of the annual report, a .5 penalty is assessed on that particular item after a determination of the adequacy of the disclosure is made. The exception to this scoring is the requirement to describe the geographic and product line segments

(questions #20 and #21). There is no penalty assessed if this discussion is presented

outside the audited pages.

The compliance scores are also completed with respect to the materiality of specific

amounts. If it is unclear as to which compliance category an item should be placed, the

materiality of that item relative to amounts within the same statement is taken into

consideration. For instance, if goodwill amortization is presented as a percentage of total

operating expenses in the notes (rather than the face of the income statement), but it

represents, say, only .2% of the total expenses, the firm is deemed to be in full

compliance with the requirement to amortize goodwill (question #11).

Two percentage compliance scores are calculated. One score equally weights each of

the 46 questions in Appendix 2. The second compliance score weights each question

based on its perceived importance to a financial statement user. Two accounting

academics well-versed in financial statement analysis and one finance academic who is

also a practicing financial analyst were asked to categorize the questions as A) most

important, B) moderately important, or C) least important from the perspective of a

financial statement user attempting to assess firm value. The consensus weighting is

reflected in Appendix 2 by denoting the "most important" questions with an 'A',

moderately important questions with a 'B', and least important questions with a 'C'. The

weights were applied by multiplying the 'A' category question scores by 2, the 'B' scores

by 1.5, and the 'C' scores by 1.0. For both the raw and weighted measures, the sum of

the individual question scores is divided by the total possible score to achieve a

percentage compliance score. Because there is virtually no difference between the

eventual unweighted and the weighted percentage compliance scores (Pearson correlation = .9928), the weighted scores are used in analyses discussed in Chapter IV.

Audit Opinion as Moderating Effect

The type of audit opinion provided can impact a user's confidence in a set of financial statements. Users who see an audit report as contradicting management claims likely view the financial statements in an entirely different light—likely with less credibility— than they would if management and auditor assertions are in agreement. In the context of this study, an audit firm may attest to a client's compliance with IAS or it may indicate something quite different. These auditor assertions serve to either corroborate or refute what management has declared within the accounting policy section of the annual report.

As a result, the scoring approach described in Appendix 3 is used to classify auditors' opinions as either 1) confirming management's contention that the firm is complying with IAS, or 2) non-confirming.[40] The first category of firms is those in which both the accounting policy statement and the audit report confirm IAS compliance (referring to Appendix 3, a score of '1' or '3' in both the accounting policy and audit report evaluations) with no exceptions noted (a score of 'A' in assessment B2). The second category of firms includes all those not satisfying the criteria for the first category. There are no instances among the sample firms of an auditor asserting IAS compliance without management making similar claims.

A "dummy" variable is created in which the firms in the first group (referred to as "auditor-confirmation" firms) are assigned a value of '1' and all other firms are assigned

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[40] The scoring mechanism shown in Appendix 3 is part of a larger instrument used to assess the type of audit opinion in the sample firms' annual reports. This instrument is based on the approach Cairns (1999a) uses to classify his sample firms' auditor attestations.

a value of '0'. The resulting dichotomous variable is used to test whether the auditor's

confirmation (or lack thereof) of IAS use has any impact on the relationship between IAS

compliance and each of the dependent variables. The audit compliance variable appears

in the statistical models as a variable providing an effect separate from IAS compliance

(an "intercept shifter"), but it is also examined as if it interacts (a "slope shifter") with

IAS compliance to affect the dependent variables. Finally, a comparison of the extent of

compliance between "auditor-confirming" firms and all others is performed to see if the

auditor's claims are indicative of a firm's greater compliance with IAS.

Bid-Ask Spread

Measuring Bid-Ask Spread

There are several metrics used in the literature to evaluate the magnitude of the bid-

ask spread, including quoted, effective, percentage (or relative) spreads, normalized (or

standardized) spreads, and logarithmic transformations of one or more of these. The

quoted spread is commonly defined as the raw difference between the bid and ask prices.

The *effective* spread is two times the difference between the execution price and the most

recent midpoint of the bid and ask prices. The *percentage* or *relative* spread is either the

quoted or effective spread divided by the midpoint of the bid and ask prices (see Chung et

al., 2003 for more detail). However, the definitions provided by Chung et al. do not seem

to be universal. Affleck-Graves et al. (2000) mention five methods that have been used

in the literature: 1) spread (raw spread), 2) percentage spread (spread divided by price),

the natural logarithms of 3) spread and 4) percentage spread, and 5) the change in spread

(first differences). These authors argue that since little is known about the distributional

properties of various spread metrics, it is difficult to assess the size (probability of Type I error) and power (probability of rejection) of any statistical tests employing these metrics. Affleck-Graves et al. then use the distributional properties of various spread metrics to provide support for standardizing the raw spread, and to show that logarithmic transformations appear to be unnecessary.

As Chung et al. (2003) and Affleck-Graves et al. (2000) illustrate, there seems to be some inconsistency in the literature regarding the number and form of bid-ask spread metrics. Since Affleck-Graves et al. find that standardizing the raw spread is important and logarithmic transformations are not necessarily useful, the percentage spread (raw spread divided by the midpoint of the bid and ask quotes) is used in this study as a proxy for information asymmetry. Specifically, the calculation is:

$$\text{Percentage Spread} = \frac{(\text{Ask} - \text{Bid})}{(\text{Ask} + \text{Bid})/2}$$

The bid and ask quotes for French and Swiss firm are provided by Datastream, while the Stockholm Exchange (OM Stockholmsbörsen) is the source for the Swedish bid and ask quotes.[41] The closing-day bid and ask quotes for all the sample firms are used to form daily percentage spread measures. A monthly mean percentage spread is then calculated using the daily measures. The months corresponding to the fiscal period covered by a firm's annual report are then aggregated (and divided by the relevant number of months) to form an average percentage spread over a 12-month period. This average "annual" percentage spread becomes the measure of the first proxy for information asymmetry in the regression analysis detailed later in this chapter.

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[41] www.stockholmsborsen.se provides historical daily opening prices, closing prices, and closing bid and ask quotes for all listed firms.

Measuring the Dispersion of Analysts' Forecasts

Thomson's I/B/E/S (Institutional Brokers Estimate System) provides financial analysts' forecasts. The International Summary/History tapes provide consensus forecasts and summary statistics on forecasts of non-U.S. firms' earnings per share on a continuing operations basis (having eliminated the effects of discontinued operations, extraordinary items, and other non-recurring or unusual events). The International Details tapes provide information on the individual analysts and their forecasts of the same group of firms. Consistent with Brown and Higgins (2002), the standard deviation of the aggregate forecasts in the month before the actual earnings announcement is extracted from the Summary/History tapes. This metric is then deflated by both the mean and median forecast from that same month to form two sets of alternative coefficient of variation (CV, hereafter) measures for dispersion. Both the mean and median forecasts are used as deflators because these two numbers are quite different (indicating skewness in the forecasts) across many of the consensus estimates.

Hope (2003) defines forecast dispersion as the standard deviation of analysts' forecasts scaled by stock price. Duru and Reeb (2002) and Lang and Lundholm (1996) are among others who have measured forecast dispersion as the standard deviation of analysts' earnings forecasts, deflated by the stock price at the forecast date. However, standard deviation is sensitive to the size of the forecasted earnings and a measure of dispersion scaled by price is sensitive to stock price levels. The use of standard deviation scaled by either the mean or median forecast is also commonly used in the literature (e.g.,

Ajinkya et al., 1991; Comiskey et al., 1987; Elliott and Philbrick, 1990; Ziebart, 1990; Imhoff and Lobo, 1992; Healy et al., 1996; Das and Saudagaran, 1998). Consequently, it seems the use of CV (and the mean or median forecast) is the most appropriate measure of dispersion, thus information asymmetry, in this context.

A number of authors find that forecast accuracy improves as the actual earnings announcement draws near (e.g., Brown, 1991, Das and Saudagaran, 1998; Capstaff et al., 2001; Richardson et al., 2001). Since forecast accuracy and forecast dispersion are presumably related, a second measure of dispersion is taken by using the forecasts six months prior to the actual earnings announcement. The standard deviation of this second set of forecasts is again used to form two more CV measures. For reasons discussed in Chapter IV, this second measure of dispersion is used for the primary testing, with the previously discussed measure serving as a sensitivity analysis. Finally, the I/B/E/S Summary/History tapes also provide the number of analysts supplying forecasts for that particular fiscal time period (a year, in this case), which then becomes the measure used for the number of analysts following a particular firm.

In summary, the following information is collected from the I/B/E/S Summary tapes:

1) the last consensus estimate of earnings prior to the actual earnings announcement
2) a consensus estimate of earnings six months prior to the earnings announcement
3) the mean and median for each of the consensus estimates above
4) the standard deviation for each of the consensus estimates above
5) the number of forecasts making up each of the consensus estimates above

The standard deviation from each of the first two consensus numbers are then deflated by the mean and median estimates to form the four CV measures. These CV measures are used to then gauge the dispersion of analysts' forecasts for each firm. Higher (lower)

levels of the CV indicate lower (higher) levels of agreement among analysts regarding a firm's earnings per share.

Idiosyncratic Risk

The idiosyncratic risk associated with a particular stock is unobservable. Since it is estimated relative to the systematic returns of a stock, idiosyncratic risk is also model dependent. Idiosyncratic risk is defined in this study as the firm-specific variation in price (or returns) unexplained by the co-variation with a broad market benchmark. Thus, idiosyncratic risk is the magnitude of a price change in a security resulting from circumstances that are unique to that particular firm, as opposed to circumstances that affect the overall market.

Measuring Idiosyncratic Risk

This study uses the market model to disaggregate a firm's returns into that portion that is the result of covariation with some market return benchmark and that portion that is the result of "idiosyncratic" variables having a unique effect on that specific firm. There are alternative pricing models available (e.g., Fama and French [1993] and their use of book-to-market as an additional "risk" factor), but given the controversy in the finance literature, the most straightforward pricing model is used. Also, some of the factors included in the alternative pricing models serve as control variables in this study (e.g., country, firm size). Thus, the Sharpe/Linter/Black market model provides that the relationship between the rate of return on a security ($r_{i,t}$) and the market ($r_{m,t}$) may be expressed as:

$$r_{i,t} = \alpha_i + \beta_i r_{m,t} + \varepsilon_{i,t} \qquad\qquad \textbf{Equation 4}$$

where $r_{,t}$ $= (P_{i,t} + D_{i,t})/P_{i,t\text{-}1}$

                      $r_{m,t}$ $= M_t/M_{t\text{-}1}$

                      α_i $= E(r_{i,t}) - \beta_i\, E(r_{m,t})$ (the normal unsystematic return for stock i)

                      β_i $= \mathrm{cov}(r_{i,t}, r_{m,t})/\sigma^2(r_{m,t})$ (the systematic risk of stock i)

                      $\varepsilon_{i,t}$ $=$ a disturbance (random error) term that is assumed to be serially
                                    independent and contemporaneously independent of $r_{m,t}$

and $P_{i,t}$ $=$ price of ith asset at time t

                      $D_{i,t}$ $=$ dividend paid on the ith asset during period t

                      $P_{i,t\text{-}1}$ $=$ price of ith asset at t-1 adjusted for capital changes during t

                      M_t $=$ a general market index or portfolio at time t

Datastream provides daily closing prices and cash dividends for most sample firms. The

daily returns for firm i are calculated by comparing the current day's closing price to the

previous day's closing price. A number of firms in these three markets experience

sporadic trading, occasionally resulting in an unchanging stock price over a number of

days. The resulting effect is that beta takes on unreasonably low levels when firms have

more than a few periods of unchanging prices. Thus, each firm's return is calculated by

going back to the last day in which there is a price different from the current price,

essentially assuming that there is no trading activity during the interim. Hence, the

general form to calculate returns below is applied only when a price change is detected:

$\underline{\text{(Current Price + Dividend – Previous Price)}}$ = Return for a specific number of days
                        Previous Price

The resulting return is then "annualized" by multiplying it by $365/t$, where t is the

number of days since the previous (different) price. The same series of calculations are

performed on observations of a daily market index obtained from Reuters. These are

commonly known benchmarks for the three countries in this study (CAC40 for France,

the SAX all share index for Sweden, and the SMI index for Switzerland). The result is

that there is a vector of annualized firm returns and a vector of annualized index (or

market) returns.

After the vector of firm returns is contemporaneously matched to a vector of index

returns appropriate for that particular firm, the market model regression is performed on

the individual observations over the period(s) of time corresponding to the firm's fiscal

period(s). As in Richards (1999) the idiosyncratic risk for each firm in a specific period

is then equivalent to the mean squared error (MSE):

$$\text{MSE}_{it} = \sqrt{SSE_{it} / n - k}$$

where SSE_{it} = sum of the squared errors from regressing firm i returns on the index
                     returns during period t
        n   = the number of observations
        k   = degrees of freedom (2 in each case here)

To determine the sensitivity of the results to the market indices used, the same process

above is also performed using an alternative index. The Datastream International Total

Market Index represents a value-weighted portfolio of all the stocks from a particular

country found on the Datastream database. However, since only monthly observations

are available for this index, the "matching" process requires that the daily observations of

prices between the monthly index observations are ignored. The annualization of the

firm's returns and the market returns is accomplished in the same manner as was

previously described.

This method to calculate idiosyncratic risk has two distinct advantages over the use of

other models: 1) it requires less data, and 2) it does not constrain a firm to a pre-estimated

CAPM beta, which a number of researchers suggest is time-varying across firms (e.g.,

Fabozzi and Francis, 1978; Harvey, 1989; Bos and Newbold, 1984, Ferson and

Korajczyk, 1995; Jagannathan and Wang, 1996).[42]

Control Variables

This study controls for structural and trading process differences in these three

markets by using a country dummy variable. The base regression is for Switzerland, with

an individual dummy variable added for both France and Sweden. The coefficients on

the country dummy variables indicate the effects of regressing French and Swedish firm

on a particular dependent variable, relative to the effects of Swiss firms.[43]

There are a number of other variables that can potentially impact the behavior of the

dependent variables. To summarize the relevant findings (or suggested relationships) on

these other variables and the author(s) of some of the pertinent studies:

- firms with greater trading volume tend to have lower bid-ask spreads (McInish and Wood, 1992; Easley et al., 1996; Brockman and Chung, 1999b)

- small firms tend to have greater adverse selection problems, thus greater bid-ask spreads (Chung et al., 1989; Daley et al., 1995)

- firms with greater analyst following are associated with higher bid-ask spreads (Chung et al., 1995)

- firms with greater trading volume tend to have less disperse forecasts (Comiskey et al., 1987; Ajinkya et al., 1991)

- a large analyst following is associated with improved forecast accuracy, hence dispersion (Lys and Soo, 1995, Botosan, 1997; Hope, 2003)

- greater earnings volatility is associated with greater forecast dispersion (Duru and Reeb, 2002).

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[42] A cursory glance at two alternative beta specifications for the sample firms (one from Global Vantage and one from I/B/E/S) suggests that beta is anything but constant. The methodology used in this study to derive idiosyncratic risk does, however, assume that beta is constant over the study period.

[43] Swiss firms' effects are used as the "baseline" due to the majority of the sample firms being domiciled in Switzerland.

Efforts are made to examine and control for the potential effects of these variables. A

number of previous authors, in fact, have used analyst following to proxy or control for

the amount of information available on a firm (Dowen, 1989; Bhardwaj and Brooks,

1992; Lim, 2001; Leuz, 2003), while several others (e.g., Chung et al., 1995; Chang et

al., 2000; Frost et al., 2002) suggest that the number of analysts following a firm

represents an appropriate proxy for the extent of private information acquisition and

communication. Leuz (2003) also argues that since financial disclosure alternatives other

than the financial report are associated with firm size, using firm size as a control variable

should mitigate concerns that the financial report is usurped by other sources of

information. Consequently, this study controls for the level of non-financial report

disclosures, and particularly the firm's communications with financial analysts, by

including both firm size and the number of analysts following a firm as control variables.

There may also be some interaction among the independent variables. Though no

formal hypotheses are provided regarding these relationships, the following ideas will be

evaluated:

- that a greater number of financial analysts will tend to follow companies with
  greater trading volume (Lys and Soo, 1995)

- that larger firms are associated with greater analyst following (Bhushan, 1989a,b;
  Moyer et al., 1989; Dunn and Nathan, 2000; Duru and Reeb, 2002)

- that firm size and the extent of disclosure (i.e., IAS compliance) are positively
  related (Meek et al., 1995; Raffournier, 1995; Wallace and Naser, 1995;
  Ashbaugh, 2001)

Models

Each of the three models takes the following general form:

$$(Y)_{it} = \alpha_i + \beta_1(X1)_{it} + \beta_2(X2)_{it} + \beta_3(X3)_{it} + \beta_4(X4)_{it} + \beta_5(X5)_{it} + \beta_6(X6)_{it} + \beta_7(X7)_{it} + \beta_8(X8)_{it} + \beta_9(X1*X2)_{it} + \varepsilon_{it}$$

where the dependent variable (Y) takes the following forms:

(Y1) $BIDASK_{it}$ = the annualized average daily quoted spreads (difference between the bid and ask prices divided by the midpoint of the bid and ask) for firm i at time period t

(Y2) $DISP_{it}$ = the coefficient of variation (standard deviation deflated by the median forecast) of the analysts' EPS forecasts six months prior to the earnings announcement for firm i at time period t

(Y3A) $IDIO\text{-}D_{it}$ = the annualized average monthly idiosyncratic risk for firm i at time period t based on daily observations of price and Reuters market indices

(Y3B) $IDIO\text{-}M_{it}$ = the annualized average monthly idiosyncratic risk for firm i at time period t based on monthly observations of price and Datastream total market country index

and where the independent variables (X1-X8) take the following forms:

(X1) IAS_{it} = the weighted percentage IAS compliance score for firm i during each of three (maximum) fiscal report periods t

(X2) $AUDIT_i$ = dummy variable representing the auditor's IAS compliance confirmation ('1' if present, '0' otherwise) for firm i and period t

(X3) $FRANCE_i$ = dummy variable ('1' if firm domiciled in France, '0' otherwise) for firm i

(X4) $SWEDEN_i$ = dummy variable ('1' if firm domiciled in Sweden, '0' otherwise) for firm i

(X5) $SIZECAP_{it}$ = market capitalization based on the number of common shares outstanding multiplied by the closing price for firm i and period t

(X6) $ANALYST_{it}$ = number of analysts for firm i and period t

(X7) $VOLUME_{it}$ = average monthly trading volume in number of common shares for firm i during year t

(X8) $EPSVAR_{it}$ = the absolute value of the percentage change in earnings per share (from the previous year's earnings) for firm i and period t

(X9) $INTERA_{it}$ = the interaction between IAS compliance and the auditor's IAS compliance

An alternative measure of firm size is also provided. Though market capitalization

(SIZECAP above) is commonly used as the primary indicator of firm size, some of the

sample firms have relatively few employees, yet maintain significant market capitalizations. By using a firm's number of employees (SIZEEMP in the analyses) as an alternative (in sensitivity analyses) to market capitalization, it provides insight into whether the findings in the prior literature on firm size extend to this sample—and if they do, whether they are sensitive to how firm size is specified. The market capitalization figures are from Global Vantage and are based on the fiscal year-end closing prices multiplied by the common shares outstanding. The number of employees is also provided by Global Vantage. This figure represents the number of full-time and part-time employees at the parent and all consolidated subsidiaries. If a specific firm is not covered on the I/B/E/S tapes during this study's time period, this firm is assumed to have an analyst following of zero (five firms).

Duru and Reeb (2002) measure earnings volatility as the standard deviation of return on assets over the previous five-year period. However, this measure is sensitive to asset size and the metric for earnings volatility should reflect the degree to which the forecasting task becomes more or less difficult. Since it is actually earnings per share that the analysts are attempting to forecast, and this study is interested in the dispersion of those forecasts, earnings variability in this study is defined as the annual percentage change in earnings (from the prior year).

Though Global Vantage provides the bulk of the market capitalization and employee number figures, it does not have full coverage of the sample firms Where figures are missing in Global Vantage, the firm's annual report is used to calculate market capitalization and, when available, the number of employees. Because all of the control variables except for analyst following can take on extremely large values, and because

these large values can distort results from regression analysis, natural logarithms are used in lieu of the raw numbers for these variables (i.e., SIZECAP, SIZEEMP, VOLUME, EPSVAR).

Descriptive statistics on each one of the dependent and independent variables are provided. Pearson correlation coefficients are also presented in Chapter IV. These coefficients provide evidence on the presence of multicollinearity in the models and also offer insight into some of the relationships among the independent variables discussed in prior literature, but primarily in the U.S. context. The Pearson correlation coefficient (r) takes the following form.

$$\textbf{Pearson Correlation Coefficient } (\textbf{\textit{r}}) = \frac{\sum (x - \overline{x})(y - \overline{y})}{\sqrt{(x - \overline{x})^2 \sum (y - \overline{y})^2}} \qquad \textbf{Equation 5}$$

where $\overline{x}$ and $\overline{y}$ are the sample means respective averages. The Spearman rank correlation coefficient (*Rho*) is the equivalent of the Pearson correlation coefficient, but is based on a comparison of the ranking of variables, rather than their means. The Spearman comparison is appropriate when the variables are not distributed normally, there are several outliers greatly impacting the Pearson coefficient, or the relationship between the two variables is actually non-linear. The Spearman *Rho* is used to substantiate results from Pearson's coefficient.

Hypothesis

The multivariate model above are used to test each of the hypothesis below. The coefficient of primary interest in each of these examinations is β_1, the coefficient on the IAS compliance independent variable. Because the expectation is that greater IAS

compliance reduces information asymmetry, relatively higher (lower) levels of IAS compliance are expected to be associated with relatively lower (higher) levels of each of the three information asymmetry proxies. Hence, the primary hypothesis (in the null form) for each of the three full models is:

H_0: **The IAS compliance variable (IAS) coefficient $\geq$ 0.**

versus the alternative:

H_A: **The IAS compliance variable (IAS) coefficient < 0**

The alternative is couched as a one-tail test, since the expectation is that greater (lesser) IAS compliance results in lesser (greater) levels for each of the information asymmetry proxies. There are also likely to be differential effects on the proxies due to the impact of the control variables. Because of the uncertainty associated with the behavior of these variables within this sample of firms and the fact that they are in fact control variables, no particular hypotheses are provided. However, the impact of country and the other control variables (firm size, analyst following, trading volume, and earnings variability) on the dependent variables are examined in Chapter IV.

CHAPTER IV

This chapter provides the descriptive statistics on firm characteristics and correlation

statistics on the independent variables. The results of the formal test of hypotheses

follow these statistics.

Descriptive Statistics and Correlations among Independent Variables

Table I below shows descriptive statistics on firm characteristics. The primary

variable of interest, IAS compliance, ranges from 70.25% to 95.31% compliance. The

firms from Switzerland have the highest average percentage IAS compliance score

(85.3%), while the firms from Sweden have the lowest (75.8%) average. Although these

91 sample firms each claim compliance with IAS, only 48 (52.7%) of them have auditor

confirmation of compliance. Characteristics such as market capitalization, number of

employees, trading volume, and earning per share variability span a wide range of values.

The effects of these variables' extreme observations are mitigated by using the natural

logarithms of the raw data.

Table I – Descriptive Statistics on Firm Characteristics

	IAS Compliance	Market Capitalization	Number of Employees	Number of Analysts	Trading Volume	EPS Variability
Number of firms	91	89	87	81	89	85
Mean	83.47%	$5,276,020	17,380	15.2381	3,225,464	130.70%
Median	84.31%	$811,490	6,940	15	380,795	38.57%
Max.	95.31%	$111,303,750	225,810	41	46,116,336	3039.39%
Min.	70.25%	$15,770	35	3	88	0.17%
Std. Dev.	6.69%	$17,105,241	32,681	7.89	7,606,056	296.24%

Auditor Confirmation	Firms by Country	% Compliance by Country
91 Firms	France - 18	France - 80.6
48 Confirmations	Sweden - 9	Sweden - 75.8
43 Non-Confirmations	Switzerland - 64	Switzer. - 85.3

Number of firms is the count of firms having values for that variable for all reporting periods.
Number of employees is the full-time and part-time employees at the parent and subsidiaries.
Market Capitalization (in 000s of $U.S.) is the year-end closing price times common shares outstanding.
The number of analysts is based on per-firm averages during the study period.
Trading Volume is the raw number of shares traded on an average monthly basis during a year.
EPS Volatility is measured as the percent change in EPS from the previous year.
Auditor Confirmation is the number of firms for which an auditor verifies the use of IAS in the audit report.

Given the number of relatively small firms in the sample, it is not surprising that ten firms are not followed by at least three analysts. These ten firms represent missing observations with respect to the forecast dispersion dependent variable. However, five of these ten firms have either one or two analysts providing I/B/E/S estimates, and so are assigned a value of either '1' or '2' for the analyst following (ANALYST) control variable in the regressions for bid-ask spreads and idiosyncratic risk. The five firms not listed on I/B/E/S are assumed to have a '0' analyst following for these same regressions.

Table II below shows that there are a number of independent variables that are highly correlated. Using .5 correlation as a subjective benchmark, and while realizing that even some less significant correlations can cause collinearity problems, these pairs of variables

appearing in the same model may create imprecise coefficient estimates in any ordinary

least square (OLS) regressions[44]:

SIZECAP and VOLUME ($r = .66517$)
SIZECAP and ANALYST ($r = .66447$)
SIZEEMP and ANALYST ($r = .63951$)
SIZEEMP and VOLUME ($r = .56678$)

Table II below also provides some insight into the firm characteristics that are

associated with higher or lower levels of IAS compliance. Consistent with Tower et al.

(1999), the country designations provide *ex ante* indications regarding a firm's IAS

compliance. However, the best indicator of the extent of IAS compliance appears to be

the auditor's confirmation of its use. The Pearson Correlation matrix also indicates that,

like Tower et al., firm size (whether measured as market capitalization or number of

employees) has only a modest positive association with IAS compliance. Another

variable that has a relatively strong correlation with both measures of firm size, analyst

following, has a slightly stronger association with the extent of IAS compliance than do

the size measures. Trading volume and earnings per share variability seem to be

unrelated with IAS compliance. In summary, it appears that among the group of

independent variables in this study, country and the auditor's confirmation[45] are the best

indicators of the extent of a firm's IAS compliance.

Table II also offers some evidence regarding relationships found in previous studies,

primarily in the context of U.S. listed firms. The Pearson correlation measures indicate

that the larger firms are associated with a greater number of analysts (e.g., Bhushan,

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[44] In the presence of multicollinearity, OLS is still BLUE (best linear unbiased estimator) and all the
beneficial properties of OLS (e.g., unbiased, consistent, efficient) remain. The effect of
multicollinearity that causes the most concern is the loss of precision in parameter estimates.
[45] The average IAS compliance score for those firms with auditors confirming IAS use is 85.93%, whereas
the average IAS compliance score for the "non-confirming" group is 79.97%.

1989a,b; Moyer et al., 1989; Dunn and Nathan, 2000; Duru and Reeb, 2002), whether

firm size is based on market capitalization ($r = .66447$) or number of employees ($r = .63951$). The correlation between number of analysts and trading volume ($r = .43299$)

suggests a positive association between analyst following and the number of common

shares traded (Lys and Soo, 1995). Meek et al. (1995), Raffournier, (1995), Wallace and

Naser, (1995), and Ashbaugh (2001) are among those previously documenting a

relationship between firm size and the extent of firm disclosure. There is less support in

this study for a relationship between firm size and the extent of disclosure (as measured

by IAS compliance). The correlations, though indicative of a positive relationship, are

relatively low between IAS compliance and size as market capitalization ($r = .15483$) and

size as number of employees ($r = .10767$).

   Ordinary least squares is run on each of the three dependent variable models. Because

White's (1980) test indicates the presence of heteroscedastic errors in the regressions for

the bid-ask spread and forecast dispersion, White's covariance matrix is used in a GMM

(General Method of Moments) estimator.

Table II – Pearson Correlation Matrix (Independent Variables)

(with number of observations used)

	IAS (238)	AUDIT (238)	FRANCE (238)	SWEDEN (238)	SIZECAP (224)	SIZEEMP (217)	ANALYST (233)	VOLUME (224)	EPSVAR (222)	INTERA (238)
(X1) IAS		0.49545	-0.24419	-0.38077	0.15483	0.10767	0.18774	0.04937	-0.09207	0.54574
(X2) AUDIT	0.49545		-0.43559	-0.31647	-0.05188	-0.06588	0.05650	-0.15957	-0.00663	0.99602
(X3) FRANCE	-0.24419	-0.43559		-0.16041	0.22354	0.27301	0.16664	0.35051	-0.04194	-0.44059
(X4) SWEDEN	-0.38077	-0.31647	-0.16041		0.04373	0.10881	0.13696	0.25838	0.04288	-0.31521
(X5) SIZECAP	0.15483	-0.05188	0.22354	0.04373		0.69744	0.66447	0.66517	-0.18353	-0.02583
(X5A) SIZEEMP	0.10767	-0.06588	0.27301	0.10881	0.69744		0.63951	0.56678	-0.11733	-0.04515
(X6) ANALYST	0.18774	0.05650	0.16664	0.13696	0.66447	0.63951		0.43299	-0.06835	0.08446
(X7) VOLUME	0.04937	-0.15957	0.35051	0.25838	0.66517	0.56678	0.43299		-0.01870	-0.14235
(X8) EPSVAR	-0.09207	-0.00663	-0.04194	0.04288	-0.18353	-0.11733	-0.06835	-0.01870		-0.01369
(X1*X2) INTERA	0.54574	0.99602	-0.44059	-0.31521	-0.02583	-0.04515	0.08446	-0.14235	-0.01369	

In Table II, IAS is the weighted percentage IAS compliance score during each of three (maximum) fiscal report periods. AUDIT is a binary variable representing the auditor's IAS compliance confirmation ('1' if present). FRANCE is a binary variable ('1' if firm domiciled in France). SWEDEN is a binary variable ('1' if firm domiciled in Sweden). SIZECAP is the natural log of a firm's market capitalization (closing market price times number of common shares outstanding). SIZEEMP is the natural log of the number of full-time and part-time firm employees. ANALYST is the number of analysts providing estimates during a particular time period. VOLUME is the natural log of the average monthly trading volume (in common shares) over a 12-month period. EPSVAR is the natural log of the absolute value of the percentage change in earnings per share when comparing the current and most recent annual earnings per share. INTERA is the interaction term resulting from the multiplication of IAS and AUDIT.

RESULTS

The null hypothesis, as stated in Chapter III, is:

H_O: The IAS compliance variable (IAS) coefficient ≥ 0

versus the alternative:

H_A: The IAS compliance variable (IAS) coefficient < 0

Hypothesis test results are discussed in the three sections below.

IAS Compliance and Bid-Ask Spreads

Based on the literature discussed in earlier chapters, the following model is estimated

to determine the relationship between IAS compliance and bid-ask spread:

$$(BIDASK)_{it} = \alpha_i + \beta_1(IAS)_{it} + \beta_2(AUDIT)_{it} + \beta_3(FRANCE)_{it} + \beta_4(SWEDEN)_{it} +$$

$$\beta_5(SIZECAP)_{it} + \beta_6(ANALYST)_{it} + \beta_7(VOLUME)_{it} + \beta_8(EPSVAR)_{it} +$$

$$\beta_9(INTERA)_{it} + \varepsilon_{it}$$

where:

(Y1) $BIDASK_{it}$ = the annualized average daily quoted spreads (difference between the bid and ask prices divided by the midpoint of the bid and ask) for firm i at time period t

(X1) IAS_{it}	=	the weighted percentage IAS compliance score for firm i during each of three (maximum) fiscal report periods $t, t+1, t+2$[46]
(X2) $AUDIT_i$	=	dummy variable representing the auditor's IAS compliance confirmation ('1' if present, '0' otherwise) for firm i
(X3) $FRANCE_i$	=	dummy variable ('1' if firm domiciled in France, '0' otherwise) for firm i
(X4) $SWEDEN_i$	=	dummy variable ('1' if firm domiciled in Sweden, '0' otherwise) for firm i
(X5) $SIZECAP_{it}$	=	market capitalization based on the number of common shares outstanding multiplied by the closing price for firm i and period t
(X6) $ANALYST_{it}$	=	number of analysts for firm i and period t
(X7) $VOLUME_{it}$	=	average monthly trading volume in number of common shares for firm i during year t
(X8) $EPSVAR_{it}$	=	the absolute value of the percentage change in earnings per share (from the previous year's earnings) for firm i and period t
(X9) $INTERA_{it}$	=	the interaction between IAS compliance and the auditor's IAS compliance

Table III shows that the model explains almost 40 percent of the variation in the bid-ask spreads (adjusted $R^2 = 0.3969$). IAS compliance does not appear to affect bid-ask spread. Thus, the null hypothesis is not rejected. The AUDIT term and the interaction between IAS and AUDIT (INTERA) are also insignificant. The highly significant ($p < .01$)[47] VOLUME coefficient confirms the theoretical premise that firms with higher trading volume are apt to see lower spreads. EPSVAR is positive and marginally significant ($p < .10$), indicating that greater variability in a firm's earnings creates relatively larger bid-ask spreads. All remaining control variables (FRANCE, SWEDEN, SIZECAP, ANALYST), appear to have little or no impact on the bid-ask spread for this sample of firms. Finally, a test of all the coefficients on the independent variables allows us to reject the null that these coefficients are zero (Wald statistic $= 355.16$, $p < .0001$).

In sensitivity tests (not reported) using three alternative bid-ask model specifications (i.e., IAS compliance without audit conformation or interaction, AUDIT confirmation

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[46] Since a comparison of the unweighted and weighted versions of the compliance instrument indicates there is virtually no difference in the resulting firm compliance scores, only the weighted percentage compliance scores are used in the analyses.

[47] Throughout the model evaluation and hypothesis testing phase, the critical levels of significance are assumed to be $p < .01$ (highly significant), $p < .05$ (significant), and $p < .10$ (marginally significant).

without IAS or interaction, and interaction without IAS or AUDIT, plus all other control variables), the conclusions regarding the impact of trading volume and earnings variability remain unchanged. The auditor confirmation is significantly negative in the AUDIT-only model and INTERA is marginally significant (negative) in the INTERA-only model. These latter results provide some mild evidence that auditor confirmation of IAS use reduces a firm's bid-ask spread. When number of employees (SIZEEMP) replaces market capitalization as the measure for size in the main model and the three alternative models described above, the results (not reported) remain virtually unchanged (auditor confirmation becomes marginally significant in the AUDIT-only model).

Table III - IAS Compliance on BIDASK

GMM Summary of (White Corrected) Residual Errors							
Equation	DF Model	DF Error	SSE	MSE	Root MSE	Wald on Coeff. All Zero	Adj R-Sq
BIDASK	10	180	0.0358	0.000199	0.0141	355.16	**0.3969**

GMM Parameter Estimates				
Parameter	Estimate	Approx Std Err	t Value	Approx Pr > |t|
intercept	-0.0035	0.02780	-0.13	0.8991
(X1) IAS	0.0531	0.03950	1.34	0.1804
(X2) AUDIT	-0.0050	0.03200	-0.16	0.8749
(X3) FRANCE	-0.0012	0.00264	-0.46	0.6434
(X4) SWEDEN	0.0046	0.00352	1.31	0.1924
(X5) SIZECAP	-0.0010	0.00162	-0.60	0.5506
(X6) ANALYST	0.0001	0.00035	0.31	0.7543
(X7) VOLUME	-0.0038	0.00099	-3.92	0.0001
(X8) EPSVAR	0.0013	0.00072	1.75	0.0827
(X1*X2)INTERA	-0.0050	0.03920	-0.13	0.8981

IAS is the weighted percentage IAS compliance score during each of three (maximum) fiscal report periods. AUDIT is a binary variable representing the auditor's IAS compliance confirmation ('1' if present). FRANCE is a binary variable ('1' if firm domiciled in France). SWEDEN is a binary variable ('1' if firm domiciled in Sweden). SIZECAP is the natural log of a firm's market capitalization (closing market price times number of common shares outstanding). ANALYST is the number of analysts providing estimates during a particular time period. VOLUME is the natural log of the average monthly trading volume (in common shares) over a 12-month period. EPSVAR is the natural log of the absolute value of the percentage change in earnings per share when comparing the current and most recent annual earnings per share. INTERA is the interaction term resulting from the multiplication of IAS and AUDIT.

IAS Compliance and Analyst Forecast Dispersion

Based on the prior literature, the following model is estimated to determine the relationship between IAS compliance and forecast dispersion:

$$(DISP)_{it} = \alpha_i + \beta_1(IAS)_{it} + \beta_2(AUDIT)_{it} + \beta_3(FRANCE)_{it} + \beta_4(SWEDEN)_{it} +$$

$$\beta_5(SIZECAP)_{it} + \beta_6(ANALYST)_{it} + \beta_7(VOLUME)_{it} + \beta_8(EPSVAR)_{it} +$$

$$\beta_9(INTERA)_{it} + \varepsilon_{it}$$

where:

(Y2) $DISP_{it}$ = the coefficient of variation (standard deviation deflated by the median forecast) of the analysts' EPS forecasts six months prior[48] to the earnings announcement for firm i at time period t. The raw dispersion measures are winzorized by constraining the CV number to a maximum of 1.0. Less than one percent of the raw CV numbers are affected by the constraint.[49]

(X1) IAS_{it} = the weighted percentage IAS compliance score for firm i during each of three (maximum) fiscal report periods t

(X2) $AUDIT_i$ = dummy variable representing the auditor's IAS compliance confirmation ('1' if present, '0' otherwise) for firm i

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[48] When forecasting the earnings of the current year, it is likely that the analysts are depending on the previous year's annual report to a much greater extent approximately six months after it becomes public than they are approximately twelve months after it is published. This is due not only to the previous year's report becoming less timely, but also because alternative information sources are likely to be more readily available as earnings for the current year are about to be announced. Consequently, the dispersion metric (CV) formed on consensus forecasts from six months prior to the earnings announcement (rather than the most current set of forecasts) is used in the analysis. The eventual results do not materially differ when CV is based on the current consensus, nor when it is deflated by the mean forecast (rather than the median).

[49] When using the IB/E/S Summary History tapes to form the dispersion metric, there is the possibility that stale forecasts or errors are part of the consensus measures. The individual forecasts that make up the 6-month prior forecasts relating to the 1998 fiscal period were examined to degree to which stale forecasts were affecting resulting standard deviation numbers. Very few forecasts were more than six months old, and they did not materially impact that firms related standard deviation calculation (hence, the CV calculation).

(X3) FRANCE$_i$ = dummy variable ('1' if firm domiciled in France, '0' otherwise) for firm i
(X4) SWEDEN$_i$ = dummy variable ('1' if firm domiciled in Sweden, '0' otherwise) for
                    firm i
(X5) SIZECAP$_{it}$ = market capitalization based on the number of common shares
                    outstanding multiplied by the closing price for firm i and period t
(X6) ANALYST$_{it}$ = number of analysts for firm i and period t
(X7) VOLUME$_{it}$ = average monthly trading volume in number of common shares for
                    firm i during year t
(X8) EPSVAR$_{it}$ = the absolute value of the percentage change in earnings per share
                    (from the previous year's earnings) for firm i and period t
(X9) INTERA$_{it}$ = the interaction between IAS compliance and the auditor's IAS
                    compliance

The results in Table IV indicate that the independent variables only explain about

seventeen percent (adjusted R^2 = 0.1730) of the variation in forecast dispersion, and that

IAS is not statistically significant in explaining the variation in forecast dispersion. Thus,

the null hypothesis is not rejected. Among control variables, large firms (for SIZECAP,

$p < .01$), firms with lesser trading volume ($p < .01$), and firms with relatively less

earnings variability ($p < .05$) seem to generate significantly less forecast dispersion.

Also, the FRANCE variable is positive and marginally significant ($p < .10$), indicating

that the French firms may see more dispersion in analyst forecasts than the Swiss firms

(represented by the intercept term). There is little indication that the auditor's

confirmation of IAS compliance, its interaction with IAS compliance, or the number of

analysts following a firm has an impact on the dispersion of analysts' forecasts.

The alternative (not reported) model specifications detailed earlier (i.e., IAS-only,

AUDIT-only, and INTERA-only, each with all the other control variables present) result

in the same basic conclusions regarding all variables except for the two country variables.

FRANCE remains positive and becomes more significant ($p < .05$) in the IAS-only

model, while SWEDEN becomes negative and marginally significant ($p < .10$) in the

AUDIT-only and INTERA-only models. When number of employees is used as the

measure of firm size (results not reported), it is significant in both the main forecast dispersion model and each of the three alternative models. Also, trading volume is no longer significant when size is specified as number of firm employees. The coefficients for IAS, AUDIT, SWEDEN, ANALYST, and INTERA are insignificant at conventional levels. Results also do not materially differ when forecast dispersion (per the coefficient of variation) is deflated by the mean rather than the median forecast.[50] Finally, a test of the coefficients on the independent variables in the dispersion model above allows us to reject the null that these coefficients are equal to zero (Wald statistic = 225.6, $p < .0001$).

Table IV - IAS Compliance on Forecast Dispersion							
GMM Summary of (White Corrected) Residual Errors							
Equation	DF Model	DF Error	SSE	MSE	Root MSE	Wald on Coeff. All Zero	Adj R-Sq
DISP	10	183	7.9927	0.0437	0.2090	225.6	**0.1730**

GMM Parameter Estimates				
Parameter	Estimate	Approx Std Err	t Value	Approx Pr > |t|
intercept	0.1173	0.3606	0.33	0.7453
(X1) IAS	0.2161	0.3992	0.54	0.5890
(X2) AUDIT	-0.1753	0.4030	-0.44	0.6640
(X3) FRANCE	0.0974	0.0557	1.75	0.0822
(X4) SWEDEN	-0.0692	0.0671	-1.03	0.3036
(X5) SIZECAP	-0.0669	0.0206	-3.24	0.0014
(X6) ANALYST	0.0054	0.0035	1.54	0.1249
(X7) VOLUME	0.0271	0.0104	2.61	0.0097
(X8) EPSVAR	0.0355	0.0158	2.25	0.0258
(X1*X2)INTERA	0.1456	0.4777	0.30	0.7609

IAS is the weighted percentage IAS compliance score during each of three (maximum) fiscal report periods. AUDIT is a binary variable representing the auditor's IAS compliance

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[50] Another sensitivity test limiting the sample of dispersion (CV) observations to those firms with a minimum of five forecasts produced similar results to the basic dispersion model here (based on a minimum of three forecasts), with the FRANCE variable becoming slightly more significant ($p < .05$).

confirmation ('1' if present). FRANCE is a binary variable ('1' if firm domiciled in France). SWEDEN is a binary variable ('1' if firm domiciled in Sweden). SIZECAP is the natural log of a firm's market capitalization (closing market price times number of common shares outstanding). ANALYST is the number of analysts providing estimates during a particular time period. VOLUME is the natural log of the average monthly trading volume (in common shares) over a 12-month period. EPSVAR is the natural log of the absolute value of the percentage change in earnings per share when comparing the current and most recent annual earnings per share. INTERA is the interaction term resulting from the multiplication of IAS and AUDIT.

A variation (not reported) of the full dispersion model above is also run with a redefined dependent variable. Instead of using the consensus forecasts from six months prior to the earnings announcement, the consensus forecasts from the month prior to the earnings announcement is used. The coefficient of variation (standard deviation deflated by the median forecast) is again used to measure the extent of dispersion. The adjusted R^2 of this model is lower (0.108) than the original specification of forecast dispersion, but the coefficients on size (market capitalization), trading volume, and earnings variability are still statistically significant ($p < .05$) with the same signs. The coefficient on SWEDEN is marginally significant ($p < .10$) and negative, while the coefficient on FRANCE is insignificant at traditional rejection levels. All other coefficients remain insignificant in explaining the variation in analyst forecast dispersion under the revised specification.[51]

<center>IAS Compliance and Idiosyncratic Risk</center>

Two specifications of idiosyncratic risk are used in this study, one based on daily returns and the other based on monthly returns. A number of the firms in the study are

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[51] Pearson correlation coefficients between 1) the dispersion values based on the last consensus and 2) the dispersion values from the consensus from six-months prior are very low (.0011), thus illustrating the importance of taking time horizon into consideration when using financial analyst forecasts in a study of this nature. The CV measures also indicate that, contrary to past results in primarily U.S. literature (e.g., Brown, 1991; Das and Saudagaran, 1998; Capstaff et al., 2001; Richardson, 2001), the dispersion measure is actually *less* disperse when the forecasts from six months prior to the earnings announcement are used.

lightly traded, which potentially creates noise in the daily returns measures of idiosyncratic risk. Thus, an alternative specification of idiosyncratic risk using monthly returns is also provided. The first model specification is based on error terms from regressing the individual firms' returns on the daily country Reuters indices (IDIO-D). The model used to test the association between IAS compliance and idiosyncratic risk using the first (daily) specification is:

$$(\text{IDIO-D})_{it} = \alpha_i + \beta_1(\text{IAS})_{it} + \beta_2(\text{AUDIT})_{it} + \beta_3(\text{FRANCE})_{it} + \beta_4(\text{SWEDEN})_{it} +$$
$$\beta_5(\text{SIZECAP})_{it} + \beta_6(\text{ANALYST})_{it} + \beta_7(\text{VOLUME})_{it} + \beta_8(\text{EPSVAR})_{it} +$$
$$\beta_9(\text{INTERA})_{it} + \varepsilon_{it}$$

where:

(Y3) IDIO-D_{it} = the annualized average monthly idiosyncratic risk for firm i at time period t based on daily observations of price and Reuters market indices

(X1) IAS_{it} = the weighted percentage IAS compliance score for firm i during each of three (maximum) fiscal report periods t

(X2) AUDIT_i = dummy variable representing the auditor's IAS compliance confirmation ('1' if present, '0' otherwise) for firm i

(X3) FRANCE_i = dummy variable ('1' if firm domiciled in France, '0' otherwise) for firm i

(X4) SWEDEN_i = dummy variable ('1' if firm domiciled in Sweden, '0' otherwise) for firm i

(X5) SIZECAP_{it} = market capitalization based on the number of common shares outstanding multiplied by the closing price for firm i and period t

(X6) ANALYST_{it} = number of analysts for firm i and period t

(X7) VOLUME_{it} = average monthly trading volume in number of common shares for firm i during year t

(X8) EPSVAR_{it} = the absolute value of the percentage change in earnings per share (from the previous year's earnings) for firm i and period t

(X9) INTERA_{it} = the interaction between IAS compliance and the auditor's IAS compliance

Table V shows that the IAS compliance coefficient is again not statistically significant. Therefore, the null hypothesis is not rejected. However, both the AUDIT and INTERA terms are significant in this model, albeit with opposite effects. The coefficient on FRANCE is highly significant and positive. For this specification of

idiosyncratic risk, the French firms appear to have greater idiosyncratic risk than the Swiss firms, while the Swedish firms do not statistically differ from the Swiss firms. Firm size (SIZECAP, $p < .05$) and analyst following (ANALYST, $p < .10$) both seem to affect the level of firms' idiosyncratic risk, with larger firms and firms followed by a greater number of analysts being associated with lower levels of idiosyncratic risk. Finally, a test of all the coefficients on the independent variables in the IDIO-D model above allows us to reject the null that these coefficients are equal to zero (Wald statistic = 1792.7, $p < .0001$).

The alternative (not reported) model specifications (i.e., IAS-only, AUDIT-only, and INTERA-only, each with all the other control variables present) result in the same conclusions regarding the effects of FRANCE and firm size (SIZECAP). However, the auditor confirmation (AUDIT) and interaction (INTERA) cease to be significant in any of the alternative models. When number of employees is used as the measure of firm size (not reported), it is insignificant in both the main forecast dispersion model and each of the three alternative models. The revised measure of firm size is insignificant, yet analyst following (ANALYST) becomes highly significant (and negative) and earnings variability (EPSVAR) becomes marginally (positive) significant. The coefficients for IAS and INTERA are insignificant in all the alternative models with size based on number of employees, and are only marginally significant ($p < .10$) in the full model with the same size specification.

Table V - IAS Compliance on Idiosyncratic Risk (Daily)

			OLS Summary of Residual Errors				
Equation	DF Model	DF Error	SSE	MSE	Root MSE	Wald on Coeff. All Zero	Adj R-Sq
IDIO-D	10	208	995.3	4.7851	2.1875	1792.7	**0.1251**

OLS Parameter Estimates				
Parameter	Estimate	Approx Std Err	t Value	Approx Pr > |t|
intercept	10.08592	3.3247	3.03	0.0027
(X1) IAS	-2.3700	3.8258	-0.62	0.5363
(X2) AUDIT	-10.4187	4.7247	-2.21	0.0285
(X3) FRANCE	1.6824	0.5406	3.11	0.0021
(X4) SWEDEN	0.0203	0.7724	0.03	0.9791
(X5) SIZECAP	-0.3057	0.1445	-2.12	0.0356
(X6) ANALYST	-0.0490	0.0266	-1.84	0.0669
(X7) VOLUME	0.0068	0.0831	0.08	0.9345
(X8) EPSVAR	0.0890	0.1061	0.84	0.4024
(X1*X2)INTERA	12.1925	5.5285	2.21	0.0285

IAS is the weighted percentage IAS compliance score during each of three (maximum) fiscal report periods. AUDIT is a binary variable representing the auditor's IAS compliance confirmation ('1' if present). FRANCE is a binary variable ('1' if firm domiciled in France). SWEDEN is a binary variable ('1' if firm domiciled in Sweden). SIZECAP is the natural log of a firm's market capitalization (closing market price times number of common shares outstanding). ANALYST is the number of analysts providing estimates during a particular time period. VOLUME is the natural log of the average monthly trading volume (in common shares) over a 12-month period. EPSVAR is the natural log of the absolute value of the percentage change in earnings per share when comparing the current and most recent annual earnings per share. INTERA is the interaction term resulting from the multiplication of IAS and AUDIT.

The second measure of idiosyncratic risk is based on monthly Datastream indices

(IDIO-M) regressed on individual firm's monthly returns:

$$(IDIO\text{-}M)_{it} = \alpha_i + \beta_1(IAS)_{it} + \beta_2(AUDIT)_{it} + \beta_3(FRANCE)_{it} + \beta_4(SWEDEN)_{it} +$$
$$\beta_5(SIZECAP)_{it} + \beta_6(ANALYST)_{it} + \beta_7(VOLUME)_{it} + \beta_8(EPSVAR)_{it} +$$
$$\beta_9(INTERA)_{it} + \varepsilon_{it}$$

where:

(Y3) IDIO-M$_{it}$	=	the annualized average monthly idiosyncratic risk for firm i at time period t based on montly observations of price and Datastream market indices
(X1) IAS$_{it}$	=	the weighted percentage IAS compliance score for firm i during each of three (maximum) fiscal report periods t
(X2) AUDIT$_i$	=	dummy variable representing the auditor's IAS compliance confirmation ('1' if present, '0' otherwise) for firm i
(X3) FRANCE$_i$	=	dummy variable ('1' if firm domiciled in France, '0' otherwise) for firm i
(X4) SWEDEN$_i$	=	dummy variable ('1' if firm domiciled in Sweden, '0' otherwise) for firm i
(X5) SIZECAP$_{it}$	=	market capitalization based on the number of common shares outstanding multiplied by the closing price for firm i and period t
(X6) ANALYST$_{it}$	=	number of analysts for firm i and period t
(X7) VOLUME$_{it}$	=	average monthly trading volume in number of common shares for firm i during year t
(X8) EPSVAR$_{it}$	=	the absolute value of the percentage change in earnings per share (from the previous year's earnings) for firm i and period t
(X9) INTERA$_{it}$	=	the interaction between IAS compliance and the auditor's IAS compliance

The results in Table VI below have little in common with the model based on the previous specification of idiosyncratic risk. The AUDIT and INTERA terms are no longer even marginally significant and neither of the country variables remain significant (while FRANCE is highly significant in the previous specification). Trading volume becomes marginally significant (and positive), whereas analyst following loses the marginal significance it has under the daily specification of idiosyncratic risk. A test of all the coefficients on the independent variables in the IDIO-M model above allows us to reject the null that these coefficients are equal to zero (Wald statistic = 1792.7, p < .0001). When size is alternatively characterized as number of employees, the results (not reported) are very consistent with those from the other (daily) specification of idiosyncratic risk. Analyst following (ANALYST, p < .05) and earnings variability (EPSVAR, p < .05) continue to have significant negative and positively effects, respectively, on idiosyncratic risk. However, audit confirmation (AUDIT) and the

IAS*AUDIT interaction are no longer even marginally significant for this specification

of size.

Table VI - Compliance on Idiosyncratic Risk (Monthly)							
OLS Summary of Residual Errors							
Equation	DF Model	DF Error	SSE	MSE	Root MSE	Wald on Coeff. All Zero	Adj R-Sq
IDIO-M	10	208	42.840	0.2060	0.4538	1052.2	**0.0407**

OLS Parameter Estimates				
Parameter	Estimate	Approx Std Err	t Value	Approx Pr > |t|
intercept	0.7409	0.6898	1.07	0.2840
(X1) IAS	0.6319	0.7937	0.80	0.4268
(X2) AUDIT	-0.1801	0.9802	-0.18	0.8544
(X3) FRANCE	0.0528	0.1122	0.47	0.6380
(X4) SWEDEN	-0.1413	0.1602	-0.88	0.3788
(X5) SIZECAP	-0.0689	0.0300	-2.30	0.0226
(X6) ANALYST	-0.0021	0.0055	-0.38	0.7047
(X7) VOLUME	0.0294	0.0172	1.71	0.0894
(X8) EPSVAR	0.0271	0.0220	1.23	0.2199
(X1*X2)INTERA	0.0774	1.1470	0.07	0.9463

IAS is the weighted percentage IAS compliance score during each of three (maximum) fiscal report periods. AUDIT is a binary variable representing the auditor's IAS compliance confirmation ('1' if present). FRANCE is a binary variable ('1' if firm domiciled in France). SWEDEN is a binary variable ('1' if firm domiciled in Sweden). SIZECAP is the natural log of a firm's market capitalization (closing market price times number of common shares outstanding). ANALYST is the number of analysts providing estimates during a particular time period. VOLUME is the natural log of the average monthly trading volume (in common shares) over a 12-month period. EPSVAR is the natural log of the absolute value of the percentage change in earnings per share when comparing the current and most recent annual earnings per share. INTERA is the interaction term resulting from the multiplication of IAS and AUDIT.

Summary of Results

The primary variable of interest, IAS compliance, does not appear to have a material impact on the three proxies for information asymmetry in this study.[52] It is statistically insignificant at all conventional levels of rejection in the four basic models and in each one of the alternatively specified models. Stated otherwise, this study is unable to document that IAS compliance benefits firms in the form of reduced information asymmetry.

It is somewhat surprising that the capital market participants apparently do not pay more attention to the level of compliance with IAS and the presumed improvement in firm transparency. However, the mild evidence that the auditor's confirmation—and possibly the interaction between the auditor's confirmation and IAS compliance— explains some of the variation in the bid-ask spread and daily idiosyncratic risk models suggests that the accountant and/or accounting information play some role in determining the level of these proxies. There does appear to be at least one variable unrelated to country that explains much of the variation in each of the proxies for information asymmetry. Based on the results from the full models and ignoring country effects, a firm's trading volume is important in its effect on the bid-ask spread, firm size and the variability of a firm's earnings affects analysts' forecast dispersion, and firm size impacts idiosyncratic risk levels. These control variable results are not surprising. When the trading volume of a firm's stock is relatively large, dealers and traders are not as

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[52] A rank-order nonparametric test (Spearman R) is also applied to the observations of IAS compliance and each of the dependent variables. The correlation between IAS compliance and the dependent variables is low even when based on ranks. It should also be noted that several of the assumptions inherent in the proper application of Spearman's coefficient are violated (e.g., more than 30 observations and the data points within each dataset are not independent of one another.

concerned about illiquidity and the potential of finding themselves holding a stock with few potential buyers. With respect to forecast dispersion, analysts should naturally have a more difficult time (as measured by both low forecast accuracy and high forecast dispersion) predicting earnings when the earnings stream is highly variable, but they should have an easier time predicting large firms' earnings (for which there is generally more available information). Finally, it is well established in the empirical literature that large firms are less risky than small ones.

CHAPTER V

SUMMARY, LIMITATIONS, AND EXTENSIONS

Summary

The objective of this study is to determine whether the extent of IAS compliance has

an impact on information asymmetry. Information asymmetry proxies for information

risk, which in turn impacts a firm's cost of capital. This paper adds to the international

accounting literature by addressing the extent to which the quality of a firm's reporting

impacts information asymmetry proxies in a non-U.S. environment. It also provides

insight into what variables may be associated with changes in the information asymmetry

proxies. A firm is motivated to reduce information asymmetry to reduce its cost of

capital. Overall, this study finds no evidence that the extent of IAS compliance has an

effect on information asymmetry. If the bid-ask spread, analyst forecast dispersion, and

idiosyncratic risk are adequate proxies for information asymmetry, the results of this

study imply that the extent of IAS compliance is unrelated to information asymmetry and,

consequently, also unrelated to the information risk component of a firm's cost of capital.

One possible reason for the lack of association between IAS compliance and the three

proxies for information asymmetry is that the information available in the annual report is

usurped by other means of communication between the firm and capital market

participants. Though IAS compliance does not appear to be an important explanatory

variable for the three proxies, there is mild evidence that the auditor's confirmation of IAS use and the interaction between the auditor's confirmation and IAS compliance do impact two of the three proxies for information asymmetry, bid-ask spreads and idiosyncratic risk.

While it was not the primary objective of this study, the statistical models also show that variables unrelated to compliance with IAS or the auditor's assessment are associated with firms' information asymmetry proxies. Trading volume appears to best explain the variation in firms' bid-ask spreads, whereas firm size, trading volume, and the variability in firms' earnings all serve to explain variation in forecast dispersion. Alternative specifications of the measure of forecast dispersion do not materially change the overall results. However, the conclusions stemming from the models involving idiosyncratic risk as the dependent variable are greatly dependent upon which model is used to generate the idiosyncratic risk. Firm size (as measured by market capitalization), the auditor's confirmation of IAS use, and the interaction between IAS compliance and the auditor's confirmation of IAS each have a significant impact on idiosyncratic risk when it is measured using daily returns. Conversely, when idiosyncratic risk is estimated using monthly returns, only firm size (and to a lesser extent, trading volume) impacts the variation in idiosyncratic risk. These differing results show that the choice of a pricing model to derive firm-specific idiosyncratic risk can cause changes to the inferences though the same statistical model is applied in both cases.

An investigation of the factors associated with IAS compliance suggests that compliance seems to be related to a number of firm characteristics. For this sample of firms, the country of domicile is a good indicator of the extent of compliance. Firms

from Switzerland comply with IAS to a greater degree than firms from France and Sweden. When an auditor confirms the use of IAS, it is also a strong indicator of relatively higher levels of IAS compliance for this sample of firms. Relatively greater firm size, as measured by both market capitalization and number of employees, is mildly associated with greater levels of IAS compliance. Analyst following, possibly because it is closely related to firm size, is also positively correlated with IAS compliance.

The conclusions in this study are only as reliable as the tests used to derive the results. The methods applied in this study are common in the literature and attempts have been made to control for all variables known to impact the variables of interest. Because data availability does not allow for all potentially important variables to be included in this study, the results should be interpreted with caution. However, the conclusion that the primary variable of interest, IAS compliance, does not appear to be associated with any of the three proxies for information asymmetry is unlikely to change with differing measurement and testing techniques.

Limitations

It is difficult to believe that the quality of a firm's financial reporting does not impact information asymmetry. If the proxies used in this study are in fact adequate indicators of firm-level information asymmetry, it does not bode well for anyone wishing to justify compliance with rigorous financial accounting standards based on a firm reducing these proxies and, theoretically, its cost of capital. However, two caveats should be noted. First, this study uses firms from a limited geographic region and fairly similar capital market environments, thus limiting generalizability of the results. Second, there is

always the possibility that, in addition to several of the control variables, an omitted variable would assist in explaining the variation in bid-ask spreads, forecast dispersion, and idiosyncratic risk.

For instance, Tinic and West (1972), Benston and Hagerman (1974), Stoll (1978), Copeland and Galai (1983), and McInish and Wood (1992) all find that price volatility affects the bid-ask spread in U.S. markets. Bhushan (1989a, b) and Moyer et al. (1989) also show that price volatility impacts the number of analysts following a firm. Though one could presume that price volatility and earnings volatility measure a similar construct, the introduction of price volatility into at least the bid-ask model may have enhanced the ability of the model to explain the variation in bid-ask spreads. Likewise, examining characteristics of the analyst providing the earnings forecasts may have provided a better explanation for variation in forecast dispersion. The relative experience of an individual forecaster or his/her affiliations (i.e., buy-side versus investment banking firm) are just two characteristics that could plausibly cause consensus forecasts to have differing properties. Finally, the relatively low R^2 numbers in the idiosyncratic risk models also provide some indication that other omitted variables are possibly the cause of changes in idiosyncratic risk. For example, industry or book-to-market factors (i.e., Fama and French, 1993) could enhance the ability of a pricing model to get at the "true" firm-specific risk.

Extensions

Alternative modeling or testing techniques may provide additional insight into the relationships examined in this study. Though IAS compliance and the auditor's

confirmation of accounting standards use do not appear to greatly influence the information asymmetry proxies, more precise ways of measuring compliance and the auditor's confirmation could serve to create more variability in these particular independent variables. This would enhance the possibility that a relationship between these independent variables and the information asymmetry proxies is detected. Non-parametric tests, which do not assume the independent variables have a particular distribution, could also be applied to ranks of the data or on data that are transformed in some other manner.

Due to data availability, the entire bid-ask spread is used in this study (eventually resulting in the percentage spread metric). The decomposition of the bid-ask spread and possibly an analysis of the size of individual trades (Easley et al., 1997) would enable a researcher to extract the theorized adverse selection component of the spread, thus providing a more precise proxy for information asymmetry. Whether this will change conclusions about the impact of compliance with IAS (or even the auditor's confirmation of IAS use) on information asymmetry is unclear and deserving of further study. Finally, the low correlation between the analysts' forecasts of differing time horizons in this study's sample also indicates that the relationship between analysts' accuracy and/or dispersion and the proximity to earnings announcement may require further investigation in the international arena.

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APPENDIX 1 - COUNTRY MARKET MICROSTRUCTURE

FRANCE

Pagano (1998) reports that the Paris Bourse is an electronic limit-order book exchange

that anonymously and automatically matches buy and sell orders.[53] Orders are prioritized

for execution within the limit order book by price and time. Since an electronic market

of this nature has no market maker, the limit order traders provide liquidity to the market,

and market order traders essentially use the market liquidity supplied by the limit order

traders.[54] The older system of dealers using open outcry in call auctions was replaced

with an electronic order-driven CAC (*Cotation Assistée en Continu*) system in July 1986

(Pagano, 1998)[55]. Since 1986, the trading in nearly all securities has moved from the

floor of the Paris Bourse onto the CAC system. The CAC functions without either

market-makers or specialists, although small- to medium-capitalized companies may

contract with French brokerage houses so that the brokerage houses carry out certain

market-making functions, such as posting bid-ask spreads. Ranaldo (2002) states that

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[53] The FIBV reports that there are 1,097 firms listed in Paris, 425 on the Swiss Exchange, and 276 on the Stockholm Exchange. Of these numbers, domestic firms represented 83.3%, 54.6%, and 93.3% of the total for each of the respective exchanges.

[54] A market order is a request to either buy or sell at the best price (highest price for a sell and lowest price for a buy) available in the market. Again, a limit order is a request to either buy or sell with the condition that a price ceiling (for a bid to buy) or a price floor (for an ask to sell) is specified.

[55] In addition to Pagano (1998), also see Jacquillat and Gresse (1998), Biais et al. (1995), and de Jong et al. (1995) for in-depth summaries of the operations of the Paris Bourse. De Jong et al. probably provide the greatest detail regarding trading, while others provide more general observations on the Paris microstructure. For instance, Jacquillat and Gresse note that it is difficult to compare volume of trade between Paris and either Stockholm or Zurich because the latter exchanges count trades made by their members on other markets, whereas Paris does not.

when the intermediaries (brokerage houses) are performing this role, they are referred to as "animateurs". Ranaldo reports that the Paris Bourse exchange facilitates orderly trading by engaging these intermediaries to maintain a maximum size for the bid-ask spread and a minimum depth in the limit order book.

Since orders are prioritized in the limit order book by price and time, the trading members submit orders indicating the order quantity, the price bid or asked, and the length of time the order is active (Aktas et al., 2002). The most actively traded French stocks are traded on a monthly settlement basis in round lots (from 5 to 100 shares) as set by the Société des Bourses Françaises (SBF), which also acts as both a clearinghouse and a guarantor against default for traders. De Jong et al. (1995) report that the Paris Bourse imposes a minimum tick size of 0.1 French francs for stock prices below 500 French francs and a tick size of 1 French franc for higher prices. If multiple limit orders are issued at the same price, the CAC executes the trades based on strict time priority.[56]

The Paris Stock Exchange is also a market segmented on size and/or volume of trade. For instance, the "Nouveau Marche", launched in 1996 by the Paris Stock Exchange, is designed for smaller firms in their attempts to acquire capital. The requirements for listing on this segment of the Paris Bourse (a.k.a. Euronext Paris as of September 22, 2000)[57] are less rigorous than those of the other areas. Euronext Paris is now divided into three markets (the Premier Marche, the Second Marche, and the Nouveau Marche), again, based on firm size and/or volume of trade.

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[56] Gajewski and Gresse (2003) offer a more recent description of the Paris Bourse microstructure. They report that in 1999, the CAC system was technologically improved and renamed as the NSC (Nouveau Système de Cotation). Gajewski and Gresse also review the literature exploring how trading costs differ between quote- and order-driven markets in various locations, including the U.S.

[57] Euronext is the consolidation of the Paris Bourse, the Amsterdam Exchange, and the Brussels Exchange.

While claiming that the CAC system is extremely transparent, Pagano (1998) does note the existence of "hidden orders" on the Paris Bourse's CAC system. These are special limit orders which have both a disclosed and an undisclosed component. The disclosed portion is observable as part of the limit order book, while the undisclosed portion is used to fill incoming orders after the disclosed portion is exhausted. De Jong et al. (1996) find that although bid-ask spreads were similar for the CAC transactions and "cross" transactions (trades outside the CAC system), the subsequent price impacts of the two types of trades differ, with the CAC trades having a greater impact on future prices. Thus, the authors posit that the off-exchange trading is not anonymous and asymmetric information (adverse selection) is likely more of a concern for the CAC system. De Jong et al. surmise that the lack of anonymity might explain why the CAC system seems to see a greater number of small transactions, with large trades occurring on either the London SEAQ International system or off-exchange in Paris.

De Jong et al. (1995) also compare the cost of trading French shares on two exchanges, the Paris Bourse and London's SEAQ International. Using effective and quoted bid-ask spreads to measure transaction costs, they find that for small transactions the Paris Bourse has lower costs. The authors also note that in both markets the cost of trading decreases as the trade size gets larger, thus differing with each of two otherwise competing market microstructure theories (adverse selection and inventory control), which predict that as trade sizes increase, bid-ask spreads should also grow larger. In a follow-up study, De Jong et al. (1996) point out that although French firms are often cross-listed on other exchanges (particularly the London SEAQ International), analyzing London transactions to ascertain bid-ask spreads is unreasonable. According to De Jong

et al., transactions in London are often negotiated by telephone and are not made public. They report that only the market makers' quotes are publicly observable, but that these quotes are not indicative of the actual transaction prices.

In what is apparently the only study of bid-ask components using Paris data, Declerck (2000) uses the Huang and Stoll (1997) decomposition model and trades in the CAC 40 shares[58] during the first six months of 1998 to assess the relative size of the spread components. Declerck finds that the actual traded spread is only 85% of the posted spread, and that the order processing component makes up a comparatively large portion (82%) of the traded spread relative to the adverse selection component (10.12%) and the inventory component (8.34%). The author also notes that the traded spread contains a relatively larger adverse selection component at both the beginning and the end of the trading day.

Finally, market depth appears to be a factor in the makeup of the limit order book. For instance, Biais et al. (1995) also use Paris Bourse data to show that traders submit a greater number of market orders when the limit order book is relatively full, and a greater number of limit orders when the order book is relatively empty. However, Biais et al. did not explore how these behavioral characteristics of traders on the Paris Bourse might be impacting any bid-ask spread metrics.

SWEDEN

Hollifield et al. (2001) and Sandås (2001), among others, detail the structure of the Stockholm Stock Exchange (SSE). Hollifield et al. report that Stockholm completed the

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[58] The CAC 40 is an index that is essentially equivalent to the DOW 30 in the U.S. Declerck (2000) lists the 40 firms that make up the index in Table 1.

introduction of a computerized limit order book in June 1990. Continuous trading runs

from 10 A.M. until 2:30 P.M. on the SSE, with the opening price determined by a call

auction. There are no floor traders, market makers, or specialists with trading privileges.

All listed SSE stocks trade through a computer-based system called the Stockholm

Automated Exchange (SAX hereafter). Hollifield et al. claim that the SAX is very

similar to other electronic limit order markets, including the Paris Bourse. The SAX limit

order book (LOB) provides traders fully automated execution of orders. Incoming

market orders (which would normally be executed immediately) are matched with

existing limit orders (execution is condition on price) that are categorized first by price

and then by time of submission. If an incoming limit order cannot be matched to form an

immediate trade, it is added to the existing order book. The authors posit that when the

market orders are matched with a previously submitted limit order, the market order is

typically submitted by a trader who has better information than the limit order trader.

Thus, Hollifield et al. theorize that traders submitting limit orders may be exposed to

adverse selection (which these authors refer to as the "winner's curse"). Sandås (2001)

adds to the Hollifield et al. description of the Stockholm Exchange by claiming that the

SAX, like the Paris Bourse, is indeed a *pure* limit order book, with the member firms

acting as "broker-dealers". He also claims that the Swedish market is quite transparent,

with the limit order book information (i.e., five best bid and ask quotes with the

corresponding quantities and the identities of the broker-dealers submitting the orders)

being continuously transmitted to the offices of exchange members.

  Niemeyer and Sandås (1993) provide further details on the characteristics of the

Stockholm Exchange. The authors contrast the Swedish exchange with the NYSE, where

a specialist handles a non-public limit order book that takes care of only a portion of the total trades. To further distinguish between the two limit order books, the authors refer to the SAX version (taking care of most if not all trading and publicly viewable) as a "consolidated" open limit order book (COLOB). Niemeyer and Sandås state that all Stockholm Exchange members (including some that also function as brokerage houses) may enter orders directly into the SAX system. Though the brokerage firms can act as both dealers and brokers in the market, there are, again, no designated market makers as there are on SEAQ-I or the NYSE. Niemeyer and Sandås claim that this "dual-capacity trading" may result in the problem of "front-running," in which broker/dealers trade on their own account before executing a customer order. However, as Niemeyer and Sandås point out, this danger is present in all markets in which the dealer and broker functions are integrated.

   Niemeyer and Sandås (1993) also report that during 1992, trading on the SSE was highly concentrated in relatively few companies. They find that 82 percent of the market value and 84 percent of the volume to be with the 20 most actively traded companies. Ownership is also concentrated, with the 10 largest shareholders holding 32 percent of market capitalization and the 50 largest shareholders accounting for 57 percent.[59] While studying some of these most actively traded Swedish stocks, Niemeyer and Sandås (1993) found that only about half of the total trading volume in their sample firms was executed within the electronic SAX system. The remainder of the volume was accomplished through either off-the-exchange trading (during both normal trading hours and after) and foreign markets (primarily SEAQ-International).

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[59] Graflund (2002) does, however, point out that nearly eight of ten Swedes have invested in the Swedish stock market.

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Unlike the results of many studies of other markets, Niemeyer and Sandås (1993) find

no evidence of a U-shaped price volatility measure within the Swedish trading day. The

authors indicate volatility is higher is the first 15 minutes of the trading day, but quickly

settles to a fairly constant level throughout the rest of the day. The authors also find a

similar L-shaped pattern when studying the behavior of the bid-ask spread. After an

early day spike in the magnitude and the volatility of the spread, it tends to level out by

mid-day and does not spike near the close (again, differing from the U-shaped results for

the bid-ask spread from other markets (e.g., Abhyankar et al.., 1997 [London], McInish

and Wood, 1990 [Toronto], 1992 [New York], Chung et al., 1999 [New York], and

Hamao and Hasbrouck, 1995 [Tokyo]). Niemeyer and Sandås (1993) also advise that the

bid-ask spread found in the Swedish market appears to be larger than other markets (e.g.,

London, Paris, NYSE, AMEX). The authors discover that the average intraday spread

for OMX stocks[60] ranges from 0.78 percent of the bid-ask quote midpoint to 1.6 percent

of the midpoint. Comparatively, Pagano and Röell (1990) find that the spread in Paris

ranges from 0.52 percent to 0.67 percent for sixteen French firms that are also listed on

the SEAQ-I.

Angel (1997) determines, in contrast to Niemeyer and Sandås (1993), that the Swedish

Exchange (per January, 1994) has one of the lowest transaction costs as measured by the

relationship between each firm's median bid-ask spread and the median tick size (with

Swiss and French numbers being only marginally higher). Angel also points out that the

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[60] The OMX index from the Swedish market is a value weighted index based on the 30 most active stocks
at the SSE. Niemeyer and Sandås (1993) warn that the OMX occasionally includes more than one
class of stock from the same company. The authors also report that it is common for Swedish
companies to have multiple classes of stocks ("dual-class" stocks) based on whether or not the stock
contained restrictions on foreign ownership (a rule that was revised Jan. 1993 to allow foreign
ownership of all stocks) and whether the share of stock has full voting power.

tick size, as part of the design of a market, can have a big impact on what values the bid-ask spread takes.[61] For instance, if a tick size on a particular market is in eighths, it is unclear how the bid-ask spread may differ if it were allowed to take on finer values (as it would in a "decimalized" market). Niemeyer and Sandås (1993) report that relatively large tick sizes in Sweden imply that the bid-ask spread is comparatively large, creating a negative effect on liquidity. Niemeyer and Sandås also point out that, like the Paris Bourse, the Swedish market has different tick sizes based on the price of a stock.[62] During the Hollifield et al. (2001) sample period (December 1991 to March 1992), the tick size on the SAX was ½ SKr (kronor) when prices were below 100 kronor and 1 SKr when prices were above 100 SKr.[63] Order sizes were also required to be an integer multiple of a round lot, typically 100 shares.

Finally, Niemeyer and Sandås (1993) note that trades greater than 500 trading units (which can be from 25,000 to 500,000 shares depending on the price of the share) often occur outside the bid-ask spread. Niemeyer and Sandås claim that the Paris Bourse, conversely, requires a large block trade to be included in the CAC electronic system and that all limit orders with better prices are executed prior to the block trade. In Stockholm, the trading parties are also under no obligation to clear the limit orders with better prices before executing large block trades.

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[61] Angel (1997) analyzes 22 of the world's largest equity markets, including the U.S. and all three countries in this study's sample. Angel also discusses, as do Niemeyer and Sandås (1993), the impact of tick size on the bid-ask spread in various markets.

[62] Niemeyer and Sandås (1993) present the tick sizes for the SSE, the NYSE, and the Paris Bourse in Table 4 (p. 10). Their numbers concur with the Hollifield et al. (2001) numbers, but also include further details regarding the tick prices of shares traded at prices below 10 SKr., which become progressively smaller as the share prices get smaller.

[63] Hollifield et al. (2001) report that during their sample period, $1 was worth approximately 6.25 SKr.

Demarchi and Foucault (1998) state that in 1995, three exchanges (Basel, Geneva, and

Zurich) merged to form the Swiss Stock Exchange (SWX, hereafter).[64] Like the two

markets previously discussed, the SWX is an electronic limit order market which matches

all orders in one computerized "book" (aside from a special procedure on the SWX that

takes cares of odd lots). Demarchi and Foucault mention that—as is the case with the

NSC (the technologically revised CAC system) at the Paris Bourse—a very large

percentage of all trades take place within the SWX trading system. Ranaldo (2002)

affirms that the SWX is a pure order-driven market, noting that the SWX also does not

use market makers to provide supporting liquidity. The traders on the SWX provide

liquidity in the same manner they do on the NSC and the SSE—by supplying the order

book with limit orders. Ranaldo reports that the SWX and the Paris Bourse function in a

very similar manner. Though, as discussed earlier, Ranaldo also explains that the

brokerage houses on the Paris Bourse help supply liquidity to some small- and medium-

sized firms by posting spreads and providing depth, a situation not found on the SWX.

Using intraday trading data, Ranaldo (2002) finds that the order processing cost

component of the bid-ask spread is the largest of the three spread components on the

SWX. However, Ranaldo points out that the adverse selection and order persistence

components are statistically significant as well. He additionally finds that adverse

selection and order processing costs both increase for less liquid stocks (those stocks with

relatively less trading volume in terms of Swiss Francs and number of shares). Finally,

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[64] For more information, Ranaldo (2004) provides an historical perspective of the development of the
    SWX.

Ranaldo discovers that trading costs for on the SWX are very comparable to those of the NYSE and the Paris Bourse.

The levels of bid and ask prices on a market can impact the measure of any variable in which these prices are used as "deflated" metrics (e.g., effective spread, relative spread). The stock prices on the SWX are of particular interest in this regard because, as Angel (1997) reports, the median price of a stock on the Swiss exchange per January 1994 is a lofty 888 Swiss francs ($605), as compared to France at 609 French francs ($103), and Sweden at 161 kronor ($20). Thus, the same raw quoted spread, when deflated by price, would appear much smaller in the Swedish context than it would in Sweden. The large stock price in Switzerland is due to restrictive par value rules, but Angel surmises that the relaxation of the rules in the mid-1990s will cause a great number of stock splits, thus decreasing Swiss prices. In fact, Kunz and Majhensek (2002) claim that high Swiss prices and a 2001 law change that reduced the minimum par value of shares (from 10 to .01 Swiss francs) may have both served to motivate many firms to split their stock. The authors report that the volume of stock splits have helped to bring down Swiss prices to the point that the January 2002 median price stood at 153 SWF.[65]

Given the prevalence of stock splits in at least the SWX, it may serve to discuss any research dealing with stock splits and the proxies for information asymmetry. Desai et al. (1998) study the impact of stock splits on price volatility and the bid-ask spread for NASDAQ firms. They find that volatility, the total bid-ask spread, and the adverse selection component of the spread all increase after stock splits. However, those firms

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[65] Kunz and Majhensek (2002) report that the lowering of the par value requirement assisted in 64 Swiss companies carrying out 80 stock splits from January 1992 to December 2001. Some of these firms (e.g., Phonak, Richemont, and Roche) each split their stocks by a ratio of up to 1:100. Also, 40 of these stock splits were carried out in 2001 alone (as many as those in the nine previous years combined).

which experience a relatively larger increase in trading activity after splits also have a relatively smaller increase in the two spread measures. The extent to which the Desai et al. findings can be generalized to France, Sweden, and Switzerland is unknown at present, but the prevalence of stock splits in, particularly, Switzerland, may help explain any increases in spread metrics for those firms splitting their stock during (or immediately prior to) the period of study.

APPENDIX 2 – IAS COMPLIANCE INSTRUMENT

The firms' financial statements were evaluated for IAS compliance based on the following Questions and this scoring method:

Obviously compliant   3
Unclear as to compliance   2
Obviously not compliant   1

The questions are in bold below, and are each preceded by the rationale for that particular question or set of questions being included in the IAS compliance instrument:

IAS #2 requires disclosure of either 1) the cost of inventories recognized as expense during the period, or 2) the operating costs, classified by nature. You would usually see the following under each of the two approaches:

Function & COGS	Operating Costs by Nature
COGS	Raw Materials
Distribution expenses	Staff Costs
Selling expenses	Depreciation & Amortization exp.
Gen. and Adm. Expenses	other operating expenses

1-B) Q: Does the entity presents either COGS as a separate expense or it presents operating expenses classified by their nature?

IAS #5 requires the disclosure of each component of stockholder's equity (i.e., share capital, capital paid in excess of par value, revaluation surplus, reserves, and retained earnings) and the changes in these components during the year.

2-B) Q: Does the entity split up the components of stockholder's equity?

3-B) Q: Does the entity provide the changes in the components of stockholder's equity from beginning to end of the year?

IAS #7 requires the presentation of a cash flow statement.

4-A) Q: Does the entity provide a statement summarizing the difference between cash inflows and cash outflows as part of the main financial statements?

IAS #7 also requires that the cash flow statement be split into operating, investing, and financing sections. Note that the cash flows can only be reported on a net basis in one or more of these sections if: 1) the cash flows reflect activities of an individual customer

rather the enterprise as a whole, or 2) these are cash receipts and payments for which there is quick turnover, amounts are large, and maturities are short.

5-A) Q: Does the Statement of Cash Flows provide a breakdown of the operating, investing, and financing activities?

IAS #7 also requires that cash flows from the payment/receipt of interest, the payment/receipt of dividends, and the payment of taxes be reported.

6-B) Q: Does the Statement of Cash Flows disclose the payments and receipts for interest, the payments and receipts for dividends, and the payments for taxes?

IAS #7 requires the cash and cash equivalents to be reported as reconciling amounts with the cash reported in the balance sheet.

7-B) Q: Are Cash and Cash equivalents reported on the Statement of Cash Flows as a reconciliation to the cash reported in the Balance Sheet?

IAS #6 and #7 specify that Cash equivalents are short-term, highly liquid interests which can be converted to known amounts of cash and which are exposed to only a small risk of changes in value. The assets included in this section are held for the purpose of meeting short-term cash needs rather than for investment or other purposes. Cairns (1999a) lists the type of assets that one would expect to see classified as Cash equivalents: short-term bank deposits (other than those demand deposits which are instead included in Cash), debt securities with a maturity of three months or less from the date of acquisition, and the few equity securities which are subject to insignificant risks of price changes.

8-C) Q: Does the entity properly include purchases and sales of equity investments in the Investing activities section of the Statement of Cash Flows, rather than erroneously classifying these instruments as Cash equivalents?

IAS #7 also precludes a firm from deducting bank loans (which should be financing activity) and advances to/from parties in the cash and cash equivalents section of the Statement of Cash Flows.

9-C) Q: Are there no bank loans or advances deducted from cash or cash equivalents on the Statement of Cash Flows?

IAS #8 (revised 1995) provides that only rarely would items be placed in the extraordinary items section of the income statement. This requirement would preclude things that are under management's control from being placed in the extraordinary item section (Cairns, 1999a). For instance, these items do not belong in the extraordinary items section: effects of discontinued operations, write-downs of fixed assets, change in accounting principles, utilization of reserves, reorganization costs, foreign currency gains

and losses, etc. IAS #8 also requires the disclosure of the nature and amount of each of these extraordinary items.

10-B) Q: Does the entity presents only those items meeting the definition of an extraordinary item in the extraordinary items section of the income statement and is proper justification for their inclusion provided?

IAS # 8 also provides that items such as goodwill amortization and profit sharing charges should be expenses that are deducted in determining profit from ordinary activities (not deducted after profit has been determined).

11-A) Q: Does the entity amortize goodwill and other intangible assets in deriving profit from ordinary activities?

IAS #9 requires that research costs be expensed in the period incurred.

12-A) Q: Are research costs expensed rather than capitalized?

IAS #9 also requires that development costs are expensed unless: 1) product or process is clearly defined and costs attributable to the product or process can be separately identified and measured reliably, 2) the technical feasibility of the product or process can be demonstrated, 3) the entity intends to produce and market or use the product or process, 4) the usefulness of the product or process can be demonstrated, and 5) adequate resources exist to complete the project and market or use the product or process.

13-B) Q: Are the development costs that meet the necessary criteria then capitalized?

IAS #10 requires that no contingent gains are reported unless realization of these gains is a near certainty.

14-B) Q: Are there no contingent gains on the balance sheet?

IAS #14 requires the measurement of segment sales (distinguishable as external or between segment sales), segment profit, segment assets (either in monetary amounts or as a percentage of consolidated totals), and the basis of inter-segment pricing.

15-A) Q: Does the entity provide segment sales, distinguishing external customers from other segments (internal customers)?

16-A) Q: Does the entity provide segment profits?

17-A) Q: Does the entity provide segment assets?

18-B) Q: Does the entity disclose the basis for inter-segment pricing?

IAS #14 requires that the entity choose segments so that an adequate disaggregation of results is achieved.

19-A) Q: Does the entity adequately break down its operations into segments necessary to evaluate do product line and geographic analysis?

IAS #14 also requires a description of both industry segments and geographic segments.

20-A) Q: Does the entity provide a description of its industry segments?

21-A) Q: Does the entity provide a description of its geographic segments?

IAS #16 allows for fixed asset revaluations, but requires increases be taken to reserves and decreases be taken to the income statement (reversals of past increases are taken to the income statement and reversals of past decreases are taken to reserves).

22-B) Q: Does the entity take revaluation increases and reversals of past decreases to reserves, while taking revaluation decreases and reversals of past increases to the income statement?

IAS #17 requires *operating* leases for a lessor to be classified as property, plant, and equipment, while *financing* leases should be classified as a receivable (and not as property, plant, and equipment).

23-C) Q: Does the entity as lessor properly classify its operating and financing leases?

IAS #17 requires that leased assets and related liabilities for a lessee be separately disclosed on the Balance Sheet.

24-B) Q: Does the entity as lessee segregate leased assets and liabilities for leases from other assets and liabilities on the balance sheet?

IAS #18 requires firms to disclosure the accounting policy for the recognition of revenue.

25-A) Q: Does the entity provide the basis for revenue recognition within the notes?

IAS #18 also requires that each significant category of revenue be disclosed, including revenue from: 1) sale of goods, 2) providing services, and 3) interest, royalties, and dividends.

26-A) Q: Does the entity provide revenues segregated by source?

IAS #19 requires firms to expense the current service cost (defined benefit) or current contributions (defined contribution) related to its pension plans.

27-A) Q: Does the entity report pension service cost as an expense in the income statement?

IAS #19 also requires the firm disclose a description of the pension plan and provide a statement as to whether or not the plan is funded.

28-A) Q: Does the entity provide a description of its pension plan and state whether or not it is funded?

IAS #21 and SIC (Standing Interpretations Committee) #19 require that exchange rate differences for foreign operations *integral* to the reporting entity be recognized through the income statement. At the date of the transaction, initial recognition should use the transaction-date exchange rate. At subsequent balance sheet dates: 1) monetary items should be reported using the closing rate, 2) nonmonetary items carried at historical cost should be reported using the exchange rate at the date of the transaction, and 3) nonmonetary items carried at fair value should use the exchanges rates in existence when the values were determined.

29-A) Q: Does the entity run gains and losses due to exchange rate differences through the income statement when the foreign operations are deemed to be integral to the reporting entity?

IAS #21 requires that exchange rate differences for foreign operations of *self-sustaining* foreign entities be classified as a separate component of stockholder's equity. Assets and liabilities (both monetary and nonmonetary) are translated using closing rates. Income statement items are translated at the rate in effect when the transaction occurred.

30-A) Q: Does the entity report gains and losses due to exchange rate differences as a separate component of equity (as a reconciliation of exchange differences) when the foreign operation is deemed to be a self-sustaining entity?

IAS #22 requires the Pooling of Interests method be used when there is a uniting of interests and it requires the Purchase method be used for acquisitions.

31-A) Q: Does the entity use the Pooling of Interests method for any uniting of interests and use the Purchase method for acquisitions.

IAS #22 (per 1993 version) requires that goodwill is capitalized and amortized over a period not to exceed five years using the straight-line method, unless a longer period (up to 20 years maximum) can be justified. Any pre-1994 goodwill may have been written off directly to equity (under IAS #22-1983 version).

32-A) Q: Does the entity amortize positive (or negative) goodwill over a period not to exceed 20 years?

IAS #24 requires that related party relationships in which control exists should be disclosed whether or not there have been transactions between the related parties. If there have been transactions between these related parties, the reporting entity should disclose 1) the nature of the relationships, and 2) the types of transactions.

33-C) Q: Does the entity disclose relationships in which they have control, regardless of whether there are transactions or not?

34-B) Q: If there are transactions between related parties, has the reporting enterprise disclosed 1) the nature of the relationship, and 2) the types of transactions?

IAS #25, which was eventually superseded by IAS #39 on financial instruments, required disclosures for the accounting policy for determination of the carrying amounts of investments.

35-B) Q: Doe the entity report its policy for determining the carrying amounts of investments?

IAS #25 also required a disclosure for the accounting policy on the treatment of changes in market value of current investments carried at market value.

36-B) Q: Does the entity report its policy for treating changes in the market value for those current investments carried at market value?

IAS #27 requires that a parent company should present consolidated financial statements.

37-A) Q: Does the entity present consolidated financial statements?

IAS #27 requires minority interest to be shown separately from liabilities and the parent shareholder's equity in the consolidated balance sheet.

38-B) Q: Does the entity present minority interest as a separate component from liabilities and the parent shareholder's equity?

IAS #27 requires that minority interest be shown separately in the consolidated income statement.

39-B) Q: Does the entity report minority interest as a separate component in the consolidated income statement?

IAS #31 requires a number of disclosures when a firm has a joint venture in operations, assets, or entities. However, these rules are specific to each of the three areas, and it is unlikely that a large number of the sample firms will have each of the three arrangements. Consequently, the general question becomes:

40-B) Q: Does the entity provide information about joint operations, joint assets, or joint entities?

IAS #32 (for periods beginning on or after January 1, 1996) requires a firm to, for each class of financial asset or liability, disclose information about the extent and nature of the instruments, including significant terms and conditions that may affect the amount, timing, and certainty of future cash flows.

41-A) Q: Does the entity present information about its financial assets and liabilities so that the amount, timing, and likelihood of future cash flows can be assessed?

IAS #33, effective for fiscal periods beginning on or after January 1, 1998, requires a firm to provide a Basic earnings per share number (net income after extraordinary items – preference dividends) and Diluted earnings per share (Basis E.P.S. after adjusting for dividends deducted in arriving at gross profit, interest, and changes in income or expense from the conversion of potentially dilutive ordinary shares).

42-A) Q: Does the entity report both Basic and Diluted earnings per share figures?

IAS #33 also requires the firm to provide the weighted average number of ordinary shares outstanding for both Basic and Diluted earnings per share.

43-B) Q: Does the entity disclose the weighted average number of ordinary shares used to calculate both Basic and Diluted earnings per share?

The final three questions were added because they dealt with issues specifically noted in Cairns (1999a). These questions were added after consulting the academics and practitioner regarding a proper weighting scheme. Because these questions either do not apply to a large number of firms (#44) or noncompliance was uncommon (#45, 46), all three were assigned the moderate weighting factor (1.5).

44-B) Have prior periods been restating according to IAS when initially adopting IAS?

45-B) Has the company postponed or insufficiently recognized certain standards because "IAS has not developed core standards" or "IOSCO does not yet recognize IAS"?

46-B) Does the company avoided using LIFO to value inventories in one location, but other valuation methods are used for similar inventories in other locations?

APPENDIX 3 – AUDIT REPORT/ACCTG POLICY CLAIMS

LEGEND FOR AUDIT REPORT/ACCOUNTING POLICY CLAIMS

A.   **<u>STANDARDS CLAIMED – ACCOUNTING POLICY STATEMENT</u>**

IAS	1
Domestic (or just says "GAAP")	2
Combination IAS and Domestic	3
Other (e.g., US GAAP, EU Directives)	4
Silent	5

B.   **<u>STANDARDS CLAIMED – AUDIT REPORT</u>**

IAS	1
Domestic (or just says "GAAP")	2
Combination IAS and Domestic	3
Other (e.g., US GAAP, EU Directives)	4
Silent	5

B1.   **<u>EXTENT OF COMPLIANCE?</u>**

Full compliance	A
Exceptions summarized	B
Exceptions without specifics	C

APPENDIX 4 – SAMPLE FIRMS

ABB AG
AGA Group AB
Agie Charmilles Holding
Alusuisse-Lonza Holding Ltd.
Ares-Serono SA
Ascom Holding Ltd.
Avesta
BB Biotech AG
BB MedTech
BK Vision Ag
Bossard Holding AG
Calida Holding AG
Canal+
CAP Gemini S.A.
Cementia Holding AG
Christian Dalloz Group
Clariant International, Ltd.
Däetwyler Holding Inc.
Danzas Holding
DMC
Eichhof Holding
Ems-Chemie Holding AG
Esec Holding AG
Esselte AB
Essilor International Compagnie
Forbo Holding SA
Fotolabo SA
Gas Vision AG
Georg Fischer AG
Gurit-Heberlein AG
Hermes International
Holderbank Financiére Glarus LTD.
Interroll Holding AG
Intershop Holding Ltd.
Jelmoli Holding Ltd.
Julius Baer Holding Ltd.
Keramik Holding AG
Kuehne & Nagel International
Kuoni Reisen Holding
Lafarge S.A.
Lagardere
Lectra Systemes
LVMH
Micronas Semiconductor Holding AG
Moulinex S.A.
Mövenpick Holding

Nestlé S.A.
Nextrom Holding SA
Norbert Dentressangle
Novartis AG
Oerlikon Büehrle Holding Ltd.
OM Gruppen
OZ Holding
Pargesa Holding SA
Perstorp AB
Pharma Vision 2000 AG
Phoenix Mecano AG
Phonak Holding Ltd.
Remy Cointreau
Renault
Richemont
Rieter Holding AG
Roche Holding Ltd.
Saint-Gobain
SAIRGroup
SAS
Saurer AG
Scania
Schneider S.A.
SEZ Holding
SGS Société Générale de Surveillance
Siegfried Ltd.
Sihl Zuercher Paperfabrik an der Sihl
Sika Finanz AG
Stora Kopparbergs Bergslags AB
STRATEC Holding AG
Süedelecktra Holding AG
Sulzer Ltd.
Sunstar Holding AG
Swisslog Holding Inc.
Tecan AG
Technip
TEGE SA
Trelleborg AB
Unigestion Holding
Unilabs SA
Union Bank of Switzerland
Valeo SA
Von Roll AG
WMH Walter Meier Holding
Zellweger Luwa AG

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Bachelors Degree: Emporia State University (KS): B.S.B. in Accounting (1986)
Master's Degree: Emporia State University (KS): M.B.A. (1988)
Completed the Requirements for the Ph.D. in Business Administration at Oklahoma State University in July, 2004

PRIMARY RESEARCH INTEREST:
Empirical analyses of variables that have the potential to affect firm valuation including disclosure, earnings management, litigation exposure, etc., both from a domestic (U.S.) and an international perspective.

PROFESSIONAL ACTIVITIES

Program Coordinator:

International Regional Program Coordinator for the Ohio Region of the American Association (2002-2003, 2003-2004)

Moderator:

Ohio Region American Accounting Association Meeting 2003 – International Section
Ohio Region American Accounting Association Meeting 2000 – International Section

Organizations:

Ohio Region American Accounting Association (2000, 2002, 2003)
International Association for Accounting Education and Research (IAAER) (1998-2002)
European Accounting Association (1997-2002)
American Accounting Association – International Section (1995-2004)
American Accounting Association – Financial Accounting and Reporting Section (1995-2003)
American Accounting Association – Accounting Behavior and Organizations Section (1995-2003)

PROFESSIONAL RECOGNITIONS

Vernon K. Zimmerman Outstanding Paper - IAAER/CIERA 1998 Conference - Chicago
Oklahoma State University Outstanding Graduate Teaching Assistant for the College of Business Administration 1997-1998
American Accounting Association Doctoral Consortium Fellow - Lake Tahoe, NV. (1997)
Conoco Inc. Graduate Fellowship (1996)
Southwest Accounting Doctoral Consortium Fellow - San Antonio, TX (1995)
Wilton T. Anderson Distinguished Graduate Fellowship (1995)