Differences between Domestic Accounting Standards and IAS:

Measurement, Determinants and Implications

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Abstract

This study analyzes determinants and effects of differences between Domestic Accounting Standards (DAS) and International Accounting Standards (IAS). We use an extensive list of differences between DAS and IAS to create two indices, *absence* and *divergence*. *Absence* measures the extent to which the rules regarding certain accounting issues are missing in DAS but are covered in IAS. *Divergence* applies in circumstances where the rules regarding the same accounting issue differ in DAS and IAS. It measures the extent of differences between DAS-based rules and IAS-based rules.

Using a sample of 30 countries for 2001, we show that *absence* is (mainly) determined by the importance of the equity market and ownership concentration, while *divergence* is positively associated with the level of economic development and the importance of the accounting profession, but is constrained by the importance of equity markets. Our analysis suggests that a higher level of *absence* implies more opportunities for earnings management and for decreases in firm-specific information to investors. A larger *divergence* from IAS is associated with richer firm-specific information in capital markets.

Key words

International accounting differences; institutional factors; earnings management; synchronicity.

1. Introduction

Although accounting standards are important determinants of financial reporting quality, they differ across countries. A commonly held belief is that such differences reduce the quality and the relevance of accounting information. Proponents of harmonized international standards claim that if all firms follow the same set of accounting standards, external financial reports of firms would provide more uniform disclosures and more useful accounting information to investors (e.g., Purvis et al., 1991). The recent initiatives to harmonize (or converge) accounting standards across countries and to adopt a uniform set of International Accounting Standards (IAS) have received considerable attention from investors, regulators, and academics worldwide.[1] Prior research reveals that complex institutional factors influence financial reporting quality (e.g., Ball, 2001). The purpose of our study is two-fold. First, we investigate the impact of cross-country variations in institutional frameworks on the differences between domestic accounting standards (DAS) and International Accounting Standards (IAS). Second, we explore how these differences impact financial reporting quality.

Adoption of IAS has been controversial and heavily debated (Flower, 1997; Zeff, 1998). Nonetheless, the mandatory adoption of IAS/IFRS by the European Union[2] and the formal commitment by the U.S. Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) to converge U.S. GAAP with IAS, have clearly contributed to the acceptance of IAS in many parts of the world. However, accounting standards exist in a mosaic of complex institutional frameworks, rather than in isolation. Changing one piece of the mosaic may or may not be the optimal solution if other institutions stay unchanged (Ball, 2001; Hope, 2003a; Hope et al. 2005). Therefore, it is important to consider the influence of institutional frameworks on the differences

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[1] We refer to these standards as International Accounting Standards (IAS) because our research is based on accounting standards promulgated by the International Accounting Standards Committee (IASC) before its transformation into the International Accounting Standards Board (IASB) and before the introduction of International Financial Reporting Standards (IFRS).
[2] Publicly listed EU companies must apply IAS/IFRS from fiscal year 2005.

between DAS and IAS when we investigate implications of such differences on financial reporting quality.

Prior studies and surveys (e.g., Price Waterhouse International, 1973, 1975, 1979; Ordelheide and Semler, 1995) often interpret international accounting differences as different options adopted by different nations to address the same accounting issue. Such interpretation matches the concept of *divergence* that we use in this paper (explained in Section 2). Few studies, however, have examined the comprehensiveness of a given set of accounting standards in comparison with another set of standards, which corresponds to the concept of *absence* in this study.

Our aim is to analyze international accounting differences by developing a more refined measure of differences between DAS and IAS. Our primary source for accounting differences is "GAAP 2001: A Survey of National Accounting Rules Benchmarked against International Accounting Standards" (Nobes, 2001). Based upon this survey, we construct a comprehensive list of items to develop the measures used in this paper – *absence* and *divergence*. *Absence* measures the differences between DAS and IAS as the extent to which the rules regarding certain accounting issues are missing in DAS while covered in IAS. *Divergence* measures the difference between DAS and IAS as the extent to which the rules regarding the same accounting issue differ in DAS and IAS. We discuss our measures in detail in Section 2.

Using a sample of 30 countries for the year 2001, we investigate the role of five institutional factors (legal origin, ownership concentration proxying for governance structure, economic development, importance of the accounting profession, and importance of the equity market) as potential determinants of the differences between DAS and IAS. Our evidence suggests that the importance of the equity market is negatively related to the *absence* of DAS. There is a positive association between ownership concentration and *absence*. We find a significant positive relation between *divergence* and the level of economic development and the importance of the accounting profession, and a negative association between *divergence* and the importance of equity market. Our results are consistent with Ball's (2001) argument that merely changing accounting standards without effecting corresponding improvements in capital market

regulations/development may not yield desired results in financial reporting quality. Our study also provides evidence that emerging countries often treat IAS as a reference point and as a way to upgrade their accounting system. Until recently, nations that were more economically developed have been more likely to be confident in exploring independent accounting options that are appropriate for their own context, without referring to IAS. As a result, their DAS often diverge from IAS. Furthermore, in nations with highly developed equity markets we are more likely to observe standards similar to IAS - this is consistent with the idea that IAS are developed primarily for publicly traded firms.

We explore the implications of the differences between DAS and IAS for earnings management and for synchronicity of stock prices. Our main findings indicate that *absence* creates an opportunity for more earnings management and exacerbates the synchronicity of stock prices. Greater synchronicity implies that the idiosyncratic component of the changes in prices is small, thus stock prices are mainly affected by market-wide stock price swings. This result is consistent with the theory developed by Jin and Myers (2006), who find that lack of transparency (opaqueness) leads to a high level of synchronicity. We also find that *divergence* between DAS and IAS has no effect on earnings management and is negatively related to the synchronicity of stock prices.

Our paper makes three contributions to the accounting literature. First, based upon a survey published by major accounting firms, we construct two measures of international accounting differences which measure differences in two dimensions – *absence* and *divergence*. To our knowledge, *absence* is new to the literature. Prior research has examined accounting differences similar to our *divergence* notion; hence our contribution is to provide complementary evidence to prior research (using a new data source).

Second, our study investigates the complex relation between institutional factors and the differences between DAS and IAS. International harmonization of accounting standards is not necessarily a desirable goal because country-specific GAAP evolves in a political process that balances country-specific economic environments, users, and objectives (Ball, 2001). Our study is another step towards better understanding of whether institutional factors and accounting standards are substitutes or complements. The determinant analysis results suggest that simply adopting IAS may not necessarily

improve national accounting systems unless countries also implement profound changes in economic development policy, corporate governance mechanisms, and financial market functioning in general. This evidence is consistent with Ball, Robin and Wu's (2003) study on earnings quality in four Asian countries.

Third, by exploring the implications of variations in *absence* and *divergence* on financial reporting quality, our study indirectly highlights the advantages and disadvantages of adopting a uniform set of IAS worldwide. While a high degree of *absence* harms financial reporting quality, our study provides evidence that *divergence* from IAS has no impact on financial reporting quality. To a certain extent, *divergence* enables information preparers to disclose more firm-based information.

The remainder of the paper is organized as follows. Section 2 reviews the literature and describes our measures. Section 3 examines determinants of *absence* and *divergence* while Section 4 reports and discusses the results for the implications of *absence* and *divergence* on financial reporting quality. Finally, Section 5 concludes.

2. Measurement of differences between IAS and DAS

2.1. Literature on international accounting differences

Various data sources have been used to measure international accounting differences in prior literature. Most of the prior studies interpret international accounting differences as different options adopted by different nations for the same accounting issues, which corresponds to our *divergence* concept.

During the 1970s, Price Waterhouse International (1973; 1975; 1979) published a series of studies on accounting principles and reporting practices worldwide. These surveys have been used in several international accounting studies (e.g. Frank, 1979; Nair and Frank, 1980, 1981; McKinnon and Janell, 1984; Doupnik and Taylor, 1985).

After summarizing the information on accounting practices in 15 countries (European countries, the U.S., Canada, Australia and Japan) plus IAS, Ordelheide and Semler (1995) proposed the TRANSACC Reference Matrix. They provide a comprehensive examination of different accounting methods. However, their analysis is restricted to the

most developed countries in the world. Several subsequent studies have used this matrix to classify countries according to their accounting differences (e.g. d'Arcy, 2001).

Ashbaugh and Pincus (2001) seek to determine whether the variation in accounting standards across national boundaries relative to IAS has an impact on financial analysts' ability to forecast non-U.S. firms' earnings accurately. They analyze accounting practices in 13 countries to identify differences in countries' accounting standards relative to IAS, covering both differences in disclosure requirements and measurement methods for IAS versus sample firms' domestic GAAP in 1993. Besides Ashbaugh and Pincus (2001), few extant studies examine the comprehensiveness of a given set of accounting standards in comparison with others.[3] There is thus ample room for improvement in the existing measurements for international accounting differences.

2.2. Framework of analysis

Prior studies have established some links between differences in accounting standards across countries and financial reporting quality (e.g., Alford et al., 1993; Joos and Lang, 1994; Auer, 1996) (see Figure 1). In a widely cited study, Alford et al. (1993) find that differences in countries' accounting standards affect the informativeness of reported financial information. The effect of institutional factors on financial reporting quality has also been studied (see Figure 1). Ball, Robin and Wu (2003) operationalize financial reporting quality as timely incorporation of economic losses and find that it is misleading to classify countries by accounting standards, ignoring reporting incentives, as is common in some international accounting textbooks, transparency indexes, and IAS advocacy. They argue that financial reporting quality is sensitive to the incentives of both managers and auditors. Such incentives are in turn highly influenced by the interplay between market and political forces in the reporting jurisdiction. In the present study, we examine similar issues while investigating the interrelations between institutional factors and differences in accounting standards. We further explore the implications of these differences (i.e., *absence* and *divergence*) on the financial reporting quality. The dotted

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[3] Bushman, Piotroski, and Smith (2004) examine links between corporate transparency and several corporate governance variables using an international sample.

lines in Figure 1 delineate our approach to studying the indirect impact of institutional factors on the financial reporting quality.

Insert Figure 1 about here

Insert Figure 2 about here

Figure 2 illustrates the extensions we make to the general framework in the extant literature. First, we disaggregate differences between DAS and IAS as *absence* and *divergence*. Appendix A provides a detailed description of these constructs. Second, we examine institutional determinants that influence each of these accounting difference constructs.[4] Third, we examine how absence and divergence impact financial reporting quality proxies by earnings management and synchronicity of stock prices.

2.3. Measurement of absence and divergence

As explained above, in this study we examine differences between local GAAP and IAS. IAS is a logical benchmark to use due to its growing importance worldwide. Similar to U.S. GAAP, the IAS framework has an investor focus (where "investor" is defined broadly), and consequently our measures - *absence* and *divergence* - should be interpreted with this in mind.

One of the contributions of this study is that we construct a measure of differences between national GAAP and IAS based on the survey "GAAP 2001: A Survey of National Accounting Rules Benchmarked against International Accounting Standards." This survey was published jointly by seven large audit firms: Andersen, BDO, Deloitte Touche Tohmatsu, Ernst & Young, Grant Thornton, KPMG and PricewaterhouseCoopers. In this survey, partners in the large audit firms in 62 countries were asked to benchmark their local written requirements against some 80 accounting measures, focusing on both national and international standards in force for the financial reporting period ending

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[4] We acknowledge the difficulty in jointly examining determinants and economic consequences of variations in accounting standards. We also are not claiming that we are able to completely control for any potential simultaneity between determinants of differences and consequences of such differences.

December 31, 2001 (Nobes, 2001).[5] We believe that it is reasonable to use the year 2001 as an observation point to help understand the impact of institutional factors on the differences between DAS and IAS, because these observed differences occur at the last point in time prior to the *mandated* adoption of IAS in major jurisdictions.

In the survey, the resulting high-level summaries were prepared by identifying, for the selected accounting measures, those instances in which a country would not allow (because of inconsistent requirements) or would not require (because of missing or permissive requirements) the IAS treatment (Nobes, 2001).   For each country, the accounting differences with IAS are listed in four categories:

1. Accounting may differ from what is required by IAS because of the *absence* of specific rules on recognition and measurement,

2. No specific rules requiring disclosures,

3. Inconsistencies between national and IAS rules that could lead to differences for many enterprises in certain areas, and

4. In certain enterprises, these other issues could lead to differences from IAS.

Based on these four differences we define *absence* to be items from group one or two and *divergence* to be items from group three or four. Appendix A describes the measurement of *absence* and *divergence* in greater detail.

2.4. Sample

We have information on accounting differences for 62 countries. However, our sample size is constrained by data availability and varies between 31 and 39 countries, depending on the regressions. To enable the readers to compare more easily across tables, we have identified a common sample across all tests (N=30) and report primary results based on the common sample. Results based on the expanded sample are not displayed for the sake of simplicity, but results using the maximum sample size are consistent with those reported and generally stronger.

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[5] Street (2002) provides a summary of the GAAP 2001 survey.

Table 1, Panel A, details the sample and shows how *absence* and *divergence* scores are distributed across sample countries included in our multivariate tests. Countries are classified in a decreasing order of *absence* and *divergence*. Our sample captures a significant proportion of the world economy; it represents 66.2% of the total World GDP in 2001[6] with 30 countries[7]. Our view is that until 2001, the differences between DAS and IAS in our sample countries reflected the natural development of accounting standards without mandated adoption of IAS (e.g., the European Union in 2005). Countries (e.g., Kenya) adopting the entire set of IAS (i.e., adopting the entire set of IAS with limited prior standards in place) could be argued to represent artificial conformity. These countries are not included in our 30-country sample. In addition, Table 1, Panel A shows that there is no country with a zero score in *divergence*. Countries with a zero score in *absence,* the U.K. and Ireland, on the other hand, are obviously countries that do not fit with the concept of artificial conformity.

Insert Table 1 about here

On average, 18.3 items out of the 111 (16.45%) covered by IAS are absent from DAS. For 22.6 items (20.69% of the items) IAS and DAS prescribe different solutions. Median values are similar. As of 2001, in spite of the convergence of accounting standards, DAS and IAS differ on more than one third of the items. Note that for each measure, we observe a large variance across countries with values ranging from 0 to 40 for *absence* and from 1 to 38 for *divergence*.

2.5. Validity and interest of the measures absence and divergence

In Table 1, Panel B, we compute the Pearson correlation between *absence*, *divergence*, and existing measures used in the literature. First, we find there is a low and insignificant correlation between these two measures in our 30-country sample. We also find an insignificant correlation between *absence* and *divergence* in our 62- and 39-country samples. Consequently, the absence of correlation between *absence* and

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[6] Source: World Development Indicators database, online version, World Bank, GDP, PPP (current international $) (NY.GDP.MKTP.PP.CD).
[7] 93.5% of the total World GDP in 2001 with 62 countries.

divergence is not sample specific. This finding confirms that our constructs measure two different dimensions of the same phenomenon (differences between DAS and IAS). As a consequence, *absence* and *divergence* cannot be considered as substitutes or as complements.[8]

Second, we compute the correlation coefficients between our two measures and other measures used in prior literature:

- The CIFAR Disclosure index: measure of the quantity of financial information in financial reports, an index created by examining and rating companies' annual reports on their inclusion or omission of 85 items (Center for International Financial Analysis & Research - CIFAR, 1995). This index has been used extensively in prior accounting and finance research (La Porta et al., 1998; Morck et al., 2000; Hope, 2003a).[9]

- The Disclose index developed by Ashbaugh and Pincus (2001) to capture differences in financial reporting standards across countries relative to IAS due to the differences in disclosure requirements.

- The Methods index developed by Ashbaugh and Pincus (2001) to capture differences in financial reporting standards across countries relative to IAS due to the differences in measurement methods.

- The Accrual index used by Hung (2001) and constructed by equally weighting 11 accrual-related accounting standards for each country. This index measures the use of accrual accounting.

We find that *absence* is negatively and significantly correlated with the CIFAR disclosure index and the Accrual index. These findings are intuitive. IAS require a large number of disclosures. If these disclosures are not required in DAS this would increase the *absence* index and explain the negative correlation between *absence* and the CIFAR index. Similarly, accrual accounting implies the existence of specific accounting rules, which may explain the negative correlation between the Accrual index and *absence*.

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[8] As anecdotal evidence, note that whereas Austria and the U.K. have similar scores of *divergence* (respectively, 36 and 35), Austria ranks high in *absence* (34) and the U.K. ranks low (0).
[9] Hope (2003a, Appendix) provides an in-depth discussion of and validity tests of the CIFAR scores.

Divergence is positively and significantly correlated with the Methods index because both measures capture differences in measurement methods between DAS and IAS. Thus, the observed correlations appear intuitive and provide some comfort that our measures pick up what they are intended to. Our measures add to the literature in two aspects: (1) they are based on a larger sample of countries and (2) the correlations show that none of the past indexes is correlated with *both* our measures. In addition, using both measures *absence* and *divergence* better describes accounting differences across countries.

3. Determinants of differences between DAS and IAS

This research is exploratory in nature since there is little if any extant theory regarding the usefulness or importance of the *absence* and *divergence* measures of accounting standard differences. Thus, we rely on existing literature and use economic and institutional rationales to identify five possible determinants of *absence* and *divergence*: legal origin, ownership concentration, economic development, importance of the accounting profession, and importance of equity markets. Consequently, instead of formulating hypotheses *per se* for our institutional factors, we provide an analysis of the possible impact of these factors on *absence* and *divergence*. As all determinants that we consider could be related to both *absence* and *divergence*, we include all variables in our regressions for both *absence* and *divergence*. Table 2, Panel A, provides the details of how these variables are measured, and Panel B summarizes the predicted signs.

Insert Table 2 about here

3.1 Factors potentially associated with absence

Legal origin[10]

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[10] There is abundant literature examining the links between international accounting differences and legal system. As early as 1967, Seidler (1967) studied this relation. He indicated that the fundamental similarity in the results of the legalistic approach to the determination of accounting principles in civil law countries, such as Turkey and Italy, can be contrasted with the patterns found in common law countries such as England and the United States (1967, p. 776). Salter and Doupnik (1992) conduct an empirical study, and their results demonstrate a dichotomization of accounting systems correspondent to the Common law/Code law dichotomization of legal systems. In previous literature, a country's legal system is often used as a

Common law countries are likely to exhibit greater shareholder protection than code law countries because their public shareholders are more willing to provide funding to companies. Common law originated in England and was established chiefly by judges who resolved specific factual disputes. Code law or civil law originated in ancient Rome and was instituted as rules of conduct linked to concepts of justice and morality (Hung, 2001). Ball, Kothari and Robin (2000) suggest that common laws are adapted to contracting in open, public markets, while code laws are appropriate for contracting between a small number of parties. Thus, in common law countries, such as the U.K. and the U.S., companies rely heavily on public shareholders and creditors as sources of capital. In contrast, in code law countries, such as France and Germany, companies typically rely on employees, managers, banks, and governments for financing. Evidence based on 49 countries find that common law (French civil law) countries generally have the strongest (weakest) investor legal protections, and German–Scandinavian civil law countries were in the middle (La Porta et al., 1998).

Such fundamental difference in legal origin has an impact on the role played by accounting information. In common law countries, firms deal with other parties such as investors at arm's length, which generates demand for information on firm performance. In code law countries, there is a greater degree of insider owners, such as banks, who get their information directly from management (or may even participate in firm decision making through board membership) (Hope, 2003b). In this context, we could expect that the accounting standards are more developed in common law countries than in code law countries, therefore the *absence* index should be lower for common law countries.[11]

Ownership concentration

With developed markets and financial institutions, the ownership structure is typically highly diffused, thus creating a great demand for high quality accounting

proxy for shareholder protection (Ball et al., 2000; Hung, 2001; Ball et al., 2003; Hope, 2003a; Pincus et al., 2006; Bushman and Piotroski, 2006).

[11] Though the above discussion leads to a negative association between *absence* and common law legal system, it is possible to argue for a positive relation. That is, while the common law system is characterized by limited law texts complemented by court cases and their interpretations, the detailed laws of code law countries *could* also imply more comprehensive accounting standards (i.e., accounting standards that would cover more issues). We consider a negative relation more likely.

information by the diversified ownership. Similarly, standard setters and regulators in such countries respond to the demand for higher financial reporting quality by promulgating sophisticated accounting standards. However, in countries where the ownership structure is highly concentrated, there would not be such a great market demand for high quality financial reporting, which in turn could affect the quantity and quality of the accounting standards in such countries. Thus, we expect the degree of ownership concentration in a country to be positively related *absence*.

Economic development

In developing countries, due to relatively simpler economies, there may not be the need for accounting standards for certain complex economic transactions. Therefore, even though these countries may have adopted IAS, they may only have done so selectively for areas relevant to them. In addition, developed countries would have comprehensive standards in all areas even though they may be different from IAS. Thus, *absence* should be negatively associated with economic development.

Importance of the accounting profession

We could expect that a less developed accounting profession with less experience and knowledge regarding complex accounting issues would be associated with less sophisticated accounting standards. In other words, in countries with a weak accounting profession, the comprehensiveness of accounting standards would be lower leading to higher *absence*. Similarly, a stronger, more developed accounting profession is more likely to be associated with the development of more rigorous and sophisticated accounting standards. This would suggest less *absence* as compared to IAS.

Importance of equity markets

As accounting regulations are put in place to satisfy the needs of information users, we expect a negative relation between *absence* and the importance of the country's equity market. With highly developed equity market, the need for a sophisticated accounting system is also high, which leads to a low level of *absence*, given that IAS are market-user oriented.

3.2 Factors potentially associated with divergence

<u>Legal origin</u>

As mentioned above, previous literature shows that common law countries offers greater shareholder protection and the transparency level is higher than in code law countries. The IASC Framework (IASC, 1989, p. 10) states: "as investors are providers of risk capital to the enterprise, the provision of financial statements that meet their needs will also meet most of the needs of other users that financial statements can satisfy." This focus suggests that the accounting rules of IAS should go in the same direction as those rules adopted by common law countries. Thus we expect a negative relation between common law and *divergence*.

<u>Ownership concentration</u>

There are two opposite ways to interpret the relation between ownership concentration and *divergence*. First, as mentioned above, IAS are elaborated to satisfy shareholders' information needs in the context of improving disclosure transparency and reducing the information asymmetry between managers and external users. An environment characterized by high ownership concentration would likely not be conducive to developing an IAS-style transparent accounting system, suggesting a positive association between ownership concentration and *divergence*. Second, in order to have a high *divergence* score, DAS have to cover a theme covered by IAS but with a different solution. Highly concentrated ownership reduces the need to develop a sophisticated accounting system, which leads to a DAS system covering fewer issues than IAS. In such situation, the *divergence* score could be low not because the DAS are in conformity with IAS, but the DAS are less developed than IAS. Consequently, we do not have a predicted sign for the relation between ownership concentration and *divergence*.

<u>Economic development</u>

Extant literature provides evidence that developed countries tend to be more confident of their own accounting standards and more reluctant to adopt accounting practices from others. For example, before 2005, despite the efforts made by the IASB,

most of the countries that had adopted IAS were either developing or transitional economies (Walton et al., 2003).

Cooke and Wallace (1990) show that the level of corporate financial disclosure regulation in many developed countries is more likely determined by internal factors, whereas in many developing countries it is more likely determined by external factors. Internal variables include (1) the stage of economic development; (2) the implicit and explicit goals of society, such as whether accounting is meant to serve micro or macro purposes. In the case of micro purposes, whose interests, those of the investor (U.K., U.S.), creditor (Germany) or government (France) are uppermost; (3) the underlying legal rules (code or common law); and (4) culture value like the degree of uncertainty avoidance (Hofstede, 1980). External variables are those factors that are likely to make accounting regulators in a country ignore or give less emphasis to internal factors. A list of such factors includes but is not limited to colonial ties that can explain some transplantation of accounting standards, the impact of transnational corporations, the effect of regional economic communities, the internationalization of world trade and stock markets, membership and participation in the meetings of bodies that set international accounting standards, and international movements of accounting professionals and firms (Cooke and Wallace, 1990).

A developing country that wants to attract foreign investors to its equity markets or encourage its domestic companies to finance through foreign equity markets is more likely to choose similar options existing in IAS, since IAS have higher acceptance and recognition worldwide than its own DAS.[12] Accordingly we expect a positive relation between *divergence* and economic development level.

Importance of the accounting profession

The link between the importance of accounting profession and *divergence* is unclear. On one hand, it is possible that a country with a highly developed accounting profession has the confidence and the capacity to develop its accounting standards independently

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[12] By comparison, a U.S. firm trying to attract foreign investors is not under the same pressure to adopt some other GAAP since U.S. GAAP is generally recognized and accepted as high quality.

without relying on external references (such as IAS), which would suggest a positive relation between *divergence* and the importance of the accounting profession. On the other hand, a confounding factor is that countries with strong accounting profession, such as Australia, the United Kingdom, and the United States, have contributed significantly to the IASC/IASB standards development. We thus make no prediction for the importance of the accounting profession.

<u>Importance of equity markets</u>

The philosophy of IAS is to establish a fully transparent and equity market friendly accounting system (Ball et al., 2000). It thus seems natural to expect that countries with important equity markets will have similar accounting standards that are similar to IAS. For example, Ashbaugh (2001) finds that non-U.S. firms are more likely to disclose IAS financial information when they are raising additional capital via the issuance of equity shares (i.e., participating in seasoned equity offerings). These findings are consistent with the suggestion that non-U.S. firms voluntarily disclose IAS financial information in an attempt to lower the information asymmetry component of their costs of capital (Leuz and Verrecchia, 2000). We thus predict a negative relation between *divergence* and the importance of the country's equity market.

3.3. Research design

As emphasized previously, this paper is exploratory in nature as the determinants of the accounting difference indices are open to alternative explanations. In this context, we consider a stepwise regression approach to be appropriate.[13] This methodology has been employed in extant accounting literature in similar settings where there are a number of possible independent variables and no coherent theory to guide the empirical tests (e.g., Raffournier, 1995; Beaver et al., 1997; Street and Bryant, 2000; Ittner et al., 2003). We thus use the two following OLS stepwise regressions.[14]

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[13] We thank a referee for suggesting this approach.

[14] In a stepwise regression, the independent variable that is most correlated with the dependent variable is introduced first in the model. Subsequently, the other exogenous variables are included one by one, on the basis of the partial correlation coefficients. A new variable is included in the model only when its t statistic is not smaller than a critical value (and the t statistics of the other variables that are already in the model do

Determinants of *absence*

$$Absence = \alpha_0 + \alpha_1 Legal\ tradition + \alpha_2 Ownership\ concentration$$
$$+ \alpha_3 Economic\ development + \alpha_4 Importance\ of\ the\ accounting\ profession \qquad (1)$$
$$+ \alpha_5 Importance\ of\ equity\ market + \varepsilon_1$$

Determinants of *divergence*

$$Divergence = \alpha_0 + \alpha_1 Legal\ tradition + \alpha_2 Ownership\ concentration$$
$$+ \alpha_3 Economic\ development + \alpha_4 Importance\ of\ the\ accounting\ profession \qquad (2)$$
$$+ \alpha_5 Importance\ of\ equity\ market + \varepsilon_2$$

3.4. Findings and interpretation of determinants of variations in absence and divergence

Descriptive statistics

Table 3, Panel A, provides the descriptive statistics for dependent and independent variables of our sample countries.

Insert Table 3 about here

In panel A, both dependent and independent variables exhibit variation around their mean values. This suggests that our 30-country sample covers a great variety of institutional, economic, and accounting settings.

Correlations

Table 3, Panel B, reports the Pearson correlation coefficients between our two measures, *absence* and *divergence*, and the following country variables: legal tradition, ownership concentration, economic development, importance of the accounting profession, and importance of equity markets in a country.

Absence and *divergence* are both significantly negatively correlated with common law legal tradition (at the 0.05 level). In addition, *absence* is significantly positively correlated with ownership concentration, and significantly negatively correlated with the

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not fall below that value after the inclusion of the new variable). We have used a critical value corresponding to a two-sided 10% significance level.

importance of the accounting profession and the importance of equity market. *Divergence* is positively and significantly correlated with the economic development level of the country.[15] Our univariate tests suggest that the determinants of *absence* and *divergence* are, with the exception of legal tradition, quite different. However, correlation results should be interpreted cautiously as they do not control for other factors. Thus, we now turn to multivariate tests.

Multivariate results

Table 3, Panel C, reports results of stepwise regression analysis on the determinants of *absence* (Model 1) and *divergence* (Model 2). We first regress *absence* on the five institutional factors previously identified. In the first model, two variables meet the threshold for model inclusion: the estimated coefficient on the importance of equity market is negative and significant (at the 0.05 level) and the coefficient on ownership concentration is positive and significant (at the 0.05 level).[16] These results are consistent with the bivariate findings.[17]

Our regression results suggest that the *absence* of accounting standards (compared with IAS) in a given country is not a random phenomenon. Rather, it is associated with important elements of the institutional environment, that is, with the importance of equity market and with the nature of ownership structure. Our results may also be interpreted as implying that if a nation with a low accounting development level adopts IAS, the supposed benefits from the adoption may not be realized until institutional factors are changed accordingly. In other words, this study provides some evidence for the indirect impact of institutional factors on the financial reporting quality via its influence on the accounting standards, and thus provides supplementary evidence to Ball, Robin and Wu (2003).

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[15] Consistent with prior research, legal tradition, importance of the accounting profession, and importance of equity market are all significantly positively correlated. For example, La Porta et al. (1997; 1998) show that common law countries are more market based than code law countries, which tend to rely more heavily on bank financing.

[16] All reported significance levels are two-sided. T-values are based on White (1980).

[17] There is no indication of serious multicollinearity in this regression (i.e., all variance inflation factors (VIF) are below 1.40).

In Panel C, Model 2, we report results of regressing *divergence* on the five identified institutional factors. The stepwise regression results document a negative and significant coefficient for the importance of equity market (at the 0.01 level), a positive and significant coefficient for the importance of the accounting profession (at the 0.10 level) and the economic development (at the 0.01 level). These results are also consistent with the univariate findings reported above.[18] Our regression analyses show that international accounting differences can be explained by country-specific factors. In particular, variation in DAS from IAS is positively affected by economic development and the importance of the accounting profession and negatively affected by the capital market development in the country.[19]

As additional tests (not reported) for both models, we exclude Anglo-American countries (i.e., Australia, Canada, the U.K., and the U.S.), which were founding members of the IASC and are supposed to have played a major role in the development of the content of IAS. Our results remain robust after excluding these countries. We also rerun the regressions with the maximum size samples (39 countries) and find similar results.

Although our focus is on the stepwise regression results, for completeness we also present results of regressions that include all explanatory factors. Panel D of Table 3 shows that results are consistent with those previously reported. For *absence*, we find a positive and significant coefficient for ownership concentration. *Divergence* is negatively (positively) and significantly associated with the importance of the equity market (economic development).

4. Implications of differences between DAS and IAS

In this section we explore economic consequences of variations in absence and divergence. In particular we focus on implications for earnings management and stock price synchronicity.

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[18] VIFs are below 1.67.

[19] A standard caveat is that we establish statistical associations between our dependent and independent variables. Such association does not necessarily imply causality.

4.1. Hypothesis development

Earnings management

Since the *absence* index measures the development of a nation's accounting standards, we expect a higher level of *absence* of IAS items to result in greater flexibility and opacity in firms' accounting practices and disclosure levels. Consequently, we expect to observe a higher level of earnings management and thus lower financial reporting quality when *absence* is high.[20] Thus:[21]

H1: *Absence* is positively associated with earnings management.

We do not make any predictions about the relation between *divergence* and earnings management since *divergence* by itself does not imply whether DAS are superior or inferior to IAS. Therefore it is difficult to specify a priori whether *divergence* results in lower earnings management.

Synchronicity

Stock price synchronicity represents the degree to which stock prices in a country move together (Morck et al., 2000). Synchronicity arises when firm-specific information is not properly perceived and valued by the market. As indicated by Roll (1988), the extent to which stocks move together depends on the relative amounts of firm-level and market-level information capitalized into stock prices. Morck et al. (2000) find a negative relation between per capita GDP and stock price synchronicities. They also show that stock returns are more synchronous in emerging economies than in developed economies. Among developed economies, they find greater synchronicity in countries that provide poor protection of the property rights of minority shareholders. We attempt to explain stock price synchronicity by using accounting standards, while controlling for other institutional factors.

Stock prices are more likely to move together in a country where there is less credible firm-specific information available for pricing individual stocks. Thus,

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[20] Clearly, not all forms of earnings management may hurt investors. However, most extant literature suggests that on balance earnings management is associated with lower financial reporting quality. Healy and Wahlen (1999) provide an overview of the earnings management literature.

[21] Our hypotheses are stated in alternative form.

19

idiosyncratic factors influence the changes of stock prices to a lesser extent. Jin and Myers (2006) show that information opaqueness affects the division of risk bearing between insiders and outside investors. Their model predicts that opaque stocks are more likely to deliver large negative returns. Crashes occur when insiders have to absorb too much firm-specific bad news and decide to give up (Jin and Myers, 2006). Lack of transparency shifts firm-specific risk to insiders and reduces the amount of firm-specific risk absorbed by outside investors (Jin and Myers, 2006). In the *absence* of firm-specific information, macroeconomic news is expected to influence stock prices considerably, therefore the level of synchronicity increases. Accounting opacity induces a low level of disclosure. Lower quality accounting and disclosure implies a poorer firm-specific information environment, which could lead to higher synchronicity in stock prices. Thus:

H2: *Absence* is positively associated with synchronicity.

The effect of *divergence* on synchronicity is ambiguous. First, it could be argued that the countries adopting more divergent standards are more economically developed countries because they are more confident with their unique accounting rules. It could be that their unique accounting rules indeed are superior to IAS in dealing with the local business and legal issues. It also could be that their unique accounting rules have been used for a long time, making it difficult at least in the short term to switch to alternative rules. If we treat the countries with a high *divergence* index as more developed countries (tested by Pearson correlation between country's GDP and *divergence* score – see Table 3, Panel B), then according to the theory of Morck, Yeung and Yu (2000), these countries should have low price synchronicity. That is, we expect to see a negative association between price synchronicity and *divergence*. Second, one can argue that national accounting standards setters would choose the options that fit best with the needs of local business and legal environments. This country-specific regulation approach might in turn encourage accounting information preparers to disclose more firm-specific information to local investors. Under this approach, we expect a lower synchronicity of stock prices in a country with higher *divergence*. Third, we can expect that the international accounting standard setting process targets the improvement of accounting information transparency and therefore helps firms better communicate with investors (IASC, 1989). In this

context, any accounting standards diverging from IAS may represent a less transparent accounting mechanism and imply less efficient communications with investors. As a result, a set of accounting standards that has a higher *divergence* score implies a lower level of firm-specific information. Consequently, we could expect a higher synchronicity of stock prices in a country with a higher *divergence* index.

Given these possible implications of *divergence* on synchronicity, we assume no direction in our final hypothesis:

H3: *Divergence* is associated with synchronicity of stock prices.

4.2. Research design

Implications of *absence* and *divergence* on earnings management

$$
\begin{aligned}
Earnings\ management = \lambda_0 + \lambda_1 Absence + \lambda_2 Divergence \\
+ \lambda_3 Investor\ protection + \lambda_4 Legal\ enforcement + \varepsilon_3
\end{aligned}
\tag{3}
$$

We use the earnings management measure developed by Leuz, Nanda, and Wysocki (2003). They develop four different country-level measures of earnings management that capture various dimensions along which managers can exercise their discretion to manage earnings. In particular, their measure is based on averaging the following four measures: (1) smoothing reported operating earnings using accruals, (2) the correlation between accruals and operating cash flows, (3) the magnitude of accruals (scaled by cash flow from operations), and (4) the ratio of small profits to small losses.[22]

As control variables for our earnings management test, we include two variables also used by Leuz, Nanda, and Wysocki. (2003): (1) Investor protection is the anti-director rights index created by La Porta et al. (1998). It is an aggregate measure of minority shareholder rights and ranges from zero to five. (2) Legal enforcement is developed by Leuz, Nanda, and Wysocki (2003) and is measured as the mean score across three legal variables used in La Porta et al. (1998): (i) the efficiency of the judicial system, (ii) an

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[22] Although the Leuz, Nanda, and Wysocki (2003) measure has been widely adopted in the literature, we acknowledge that this measure does not capture all aspects of earnings management, and that this potentially represents a limitation of our study.

assessment of rule of law, and (iii) the corruption index. All three variables range from zero to ten.

<u>Implications of *absence* and *divergence* on synchronicity</u>

$$Synchronicity = \mu_0 + \mu_1 Absence + \mu_2 Divergence + \mu_3 Economic\ development$$
$$+ \mu_4 Logarithm\ of\ geographical\ size + \mu_5 Variance\ in\ GDP\ growth$$
$$+ \mu_6 Logarithm\ of\ number\ of\ listed\ stocks + \mu_7 Industry\ Herfindahl\ index \qquad (4)$$
$$+ \mu_8 Country\ Herfindahl\ index + \mu_9 Good\ government\ index + \varepsilon_4$$

As control variables for our stock price synchronicity test we use the independent variables in Morck, Yeung and Yu (2000): economic development (explained above), logarithm of geographical size, variance in GDP growth, logarithm of number of listed stocks, industry Herfindahl index and country Herfindahl index, and the good government index.

Table 4 provides the details of the computation of the earnings management and synchronicity variables.

<center>Insert Table 4 about here</center>

4.3. Empirical findings

<u>Earnings management</u>

Descriptive statistics

Table 5, Panel A, provides the descriptive statistics for the dependent and independent variables of our sample countries.

<center>Insert Table 5 about here</center>

Correlations

Table 5, Panel B, reports Pearson correlation coefficients between earnings management and our two measures *absence* and *divergence* plus the two control variables investor protection and legal enforcement. As expected, we find a positive and significant correlation between *absence* and earnings management (at the 0.01 level) and no evidence of association between *divergence* and earnings management.

<center>22</center>

Multivariate results

In Table 5, Panel C, we use the earnings management indicator developed by Leuz, Nanda and Wysocki (2003) as a proxy for financial reporting quality. Model 1 includes *absence* and our two control variables investor protection and legal enforcement. Model 2 is a similar specification replacing *absence* with *divergence* and Model 3 includes all measures.

Consistent with H1, we find that earnings management is positively and significantly associated (at the 0.01 level) with *absence* (and not significantly related to *divergence*). A high *absence* score creates room for earnings management. This finding suggests that in an unsophisticated accounting regulation environment, companies tend to take advantage of the accounting discretion to manage earnings.

<u>Synchronicity</u>

Descriptive statistics

Table 6, Panel A, provides the descriptive statistics for the dependent and independent variables of our sample countries.

Insert Table 6 about here

Correlations

Table 6, Panel B, displays correlation coefficients between synchronicity of stock prices and *absence* and *divergence*. We find a positive correlation between *absence* and synchronicity; however, this correlation is not significant at conventional levels. Untabulated results, however, show that the correlation is significant (at the 0.05 level) when using the maximum available sample of 34 countries. In addition, the significant correlations between *absence* and variables potentially related to synchronicity (industry Herfindahl index, and good government index) suggest an emphasis on multivariate results. We obtain a negative and significant correlation between *divergence* and the synchronicity index.

Multivariate results

In Table 6, Panel C, we measure financial reporting quality by the synchronicity measure developed by Morck, Yeung and Yu (2000). We adopt their regression

specification and add our two indicators of accounting differences. We present three specifications of the model:[23]

- Model 1 which includes only our measures *absence* and *divergence*;
- Model 2 which adds the following control variables (based on Morck et al. (2000)): economic development, logarithm of geographical size, variance in GDP growth, logarithm of number of listed stocks, industry Herfindahl index and country Herfindahl index;
- Model 3 which further adds the good government index.

Consistent with H2, our results show that synchronicity is positively associated with *absence* across all three regression specifications. Specifically, for models 1 and 2 the coefficient on absence is positive and significant at the 0.08 level or better (two-sided). For model 3, the coefficient is positive but the two-sided p-value is 0.113. However, untabulated results show that if we use our maximum sample available (N = 35), then absence is significant at the 0.04 level (two-sided test) in Model 3. These results are consistent with a low development of accounting standards, measured by *absence*, contributing to low firm-specific information that results in a high price synchronicity. Our results further show that *divergence* is significantly negatively related to synchronicity in all specifications. In other words, in countries with greater *divergence*, stock prices move together less, consistent with the presence of more firm-specific information (Morck et al., 2000). This finding, which does not imply that *divergence* is "better" than conformity, is consistent with the belief that diverging from IAS might enable national standard setters to issue standards that best fit with their local legal and business environments.[24]

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[23] We present these three specifications of equation 4 in order to better isolate the effect of our two variables of interest (*absence* and *divergence*) on synchronicity because (1) we want to isolate the effect of the control variables, and (2) Table 6, panel B, suggests that the good government index and *divergence* are correlated.

[24] Morck et al. (2000) find a negative and significant coefficient for the good government index. We also find a negative coefficient but it is not significant. This difference in results can be explained as follows. First, if we exclude *absence* and *divergence* from the regression model (as in Morck et al.), the good government index is significant at the 0.08 level (two-sided test). Second, if we use our maximum available

Our results for earnings management and synchronicity suggest that variations in accounting standards between domestic and international GAAP can have real economic consequences. It is important for standard setters and regulators to keep such possible consequences in mind when moving to harmonized accounting standards worldwide (see also Ball, 2001; Ball et al., 2003).

An important caveat to our economic consequences results is that we have not fully addressed the possibility that determinants and consequences of variations in accounting standards are jointly determined. Our limited sample size of country-level observations makes such an investigation (e.g., 2SLS) difficult. Thus, it is possible that our results in this section could to some extent reflect factors that drive international accounting differences.

5. Conclusions

Our study provides empirical evidence of links between financial reporting standards and the economic, financial, and governance institutions in a country. An important contribution of this study is that we construct interesting measures of international accounting differences which have not been used in prior literature. Our measures are two-dimensional – *absence* and *divergence*. Specific rules on recognition, measurement and disclosure may be absent in domestic accounting standards (DAS) compared with IAS. *Divergence* represents inconsistencies in national accounting rules regarding certain accounting issues with those of IAS.

We show that the level of *absence* is higher in countries with less developed equity market and with a higher ownership concentration. *Divergence* between DAS and IAS is positively associated with the economic development and the strength of the accounting profession but is constrained by the importance of equity markets. Our results corroborate and complement those of extant research (e.g., Ball et al., 2003; Hope, 2003a) and have important implications for the harmonization of the accounting standards. That is, accounting institutions do not exist in isolation but in a mosaic of complex sets of

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sample size (N = 35) to be comparable to Morck et al. (N = 37), the coefficient is significant at the 0.02 level (two-sided test). Thus, our results are consistent with those in Morck et al. (2000).

institutions. Merely changing one link (i.e., accounting standards) may not be sufficient to substantially improve the financial reporting quality unless changes to the capital market development and legal environment are brought about simultaneously. This raises an important issue: although the application of IAS is meant to achieve uniformity worldwide, it is possible that this desired uniformity may remain elusive due to the lack of simultaneous changes in other accompanying institutions. The preparers of the GAAP 2001 survey are also conscious of this challenge, arguing that convergence will require a joint effort of governments, stock market regulators, standards setters, preparers, users and the accounting profession (Nobes, 2001, p. 2).

In addition to investigating determinants of differences between domestic and international accounting standards, we also examine economic consequences of such differences. We find that a higher *absence* level is associated with more earnings management and a higher synchronicity of stock prices. This suggests that expanding the coverage of accounting issues by DAS is essential to improve transparency and to curb earnings management.

Meanwhile, *divergence* of DAS from IAS is associated with low synchronicity but is not significantly related to earnings management. This finding corresponds to the first possible interpretation of our final hypothesis, *divergence* from IAS could mean standards that are better tailored to the needs of local legal and business environments.

A limitation of our study is that, given our relatively small sample of country-level observations, we are not able to jointly consider the determinants of and economic consequences of differences in financial accounting standards. Such a test would have the potential to strengthen our inferences regarding whether the results we observe for earnings management and synchronicity are in fact due to the hypothesized effects, or whether they are affected by factors that help explain variation in accounting standards in the first place. Future research, using a larger sample (and possibly using firm-level data), can hopefully shed more light on this issue.

Appendix A. Details of the Measurement of *Absence* and *Divergence*

As described in Section 2.2, for each country, the accounting differences in GAAP 2001 between DAS and IAS are listed in four categories, and we collapse these four categories into *absence* and *divergence*. We faced several methodological issues in measuring *absence* and *divergence*. The results of the survey are negatively organized in the sense that the survey includes absent or inconsistent (i.e., divergent) items. Items that are "in conformity" or "present" or "consistent" are not disclosed. Because it is essential to identify these items for the purposes of our study, we examined the Survey Questionnaire presented in "GAAP 2001" (p. 149-161) in detail. The questionnaire has 79 questions. For illustrative purposes, Appendix B shows the results of the survey for one sample country: Japan. The only way to identify the "in conformity" items is to take all the questions from the questionnaire and search for the related item and/or IAS paragraph in the survey's results (see Appendix B). We then assumed that an item related to a question not covered in the results was an in conformity item. During this exercise we realized that the order of questions in the questionnaire and the order of items mentioned in the results were not always consistent. Additionally, some topics listed in the results did not correspond exactly to a question; for instance, some questions were split into two items.

We therefore matched the questions and results country by country. We decided to create a comprehensive list of items, comprising all items found in both the results and the questions. We identified 111 items from the initial 79 questions in the questionnaire. With this list of items, for each country we were able to prepare the following codification:

Code	Meaning
A	Absence of specific rules on recognition and measurement
B	No specific rules requiring disclosures
C	Inconsistencies that could lead to differences for many enterprises
D	Differences in some enterprises

The distinction between categories C and D was often not clear cut. We decided to merge these two categories. We also merged categories A and B, because both categories refer to the absence of rules. Thus, we finally ended up with two unique measures which show that DAS may differ from IAS in two aspects:

1. *Absence* (A + B). A particular issue is covered only by IAS but not by DAS.

2. *Divergence* (C + D). A particular accounting issue is covered by both DAS and IAS, but the treatment required under DAS differs from that required under IAS.

For each country, we compute the total of absent items, providing the *absence* score. The same process is applied to *divergence* items in order to obtain the *divergence* scores.[25]

Regarding *absence*, it is important to point out that our underlying assumption is that IAS cover a more comprehensive list of accounting issues than DAS in most countries included in our study. However, it is possible that in some countries with a highly developed accounting system, DAS cover certain accounting issues which are absent from IAS. For example, the requirements for goodwill impairment tests in SFAS 141 were not included in IAS in 2001 (FASB, 2001). Meanwhile, it is quite unlikely that a country would on one side develop its DAS on some advanced issues absent in IAS while on the other side leave some gaps on basic issues. Consequently, although our *absence* index does not measure the superiority of DAS over IAS, we argue that a weak score on *absence* reflects the lack of comprehensiveness of these countries' accounting standards relative to IAS.

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[25] In disclosure studies, the weighting of each disclosure item is potentially important. In the reported results, the indexes have been determined assuming that each of the 111 items has an equal weight. This assumption is standard in the literature and is also based on the difficulty involved in defining a specific weight for each item. However, we have re-run all tests with alternative weighting schemes. We first group all items within a given IAS and determine *absence* and *divergence* indexes per IAS. For example, if a given IAS includes 10 items among the 111 studied, we compute for each country the number of absent and divergent items over 10. This determines a percentage of *absence* and *divergence* per IAS. We then compute a non-weighted average of these indexes on all the IAS, resulting in disclosure indices where all the IAS have the same weight. Untabulated results show that inferences are not affected by this alternative weighting scheme.

Appendix B. Japan (Source: Nobes, 2001, p. 75)

Japanese requirements are based on the Commercial Code, the standards of the Business Accounting Deliberation Council and statements of the Japanese Institute of Certified Public Accountants. Because March year ends are the most common in Japan, this analysis is prepared based on Japanese standards which will be in force for accounting periods ending on 31 March 2002.

Japanese accounting may differ from that required by IAS because of the absence of specific Japanese rules on recognition and measurement in the following areas:

-	the classification of business combinations as acquisitions or unitings of interest	IAS 22.8
-	the setting up of provisions in the context of business combinations accounted for as acquisitions	IAS 22.31
-	impairment of assets	IAS 36
-	the discounting of provisions	IAS 37.45
-	the recognition of lease incentives	SIC 15
-	accounting for employee benefits other than severance indemnities.	IAS 19

There are no specific rules requiring disclosures of:

-	a primary statement of changes in equity	IAS 1.7
-	the FIFO or current cost of inventories valued on the LIFO basis	IAS 2.36
-	the fair values of investment properties	IAS 40.69
-	discontinuing operations	IAS 35
-	segment reporting of liabilities.	IAS 14.56

There are inconsistencies between Japanese and IAS rules that could lead to differences for many enterprises in certain areas. Under Japanese rules:

-	it is acceptable that overseas subsidiaries apply different accounting policies if they are appropriate under the requirements of the country of those subsidiaries	IAS 27.21
-	under a temporary regulation, land can be revalued, but the revaluation does not need to be kept up to date	IAS 16.29
-	pre-operating costs can be capitalized	IAS 38.57
-	leases, except those which transfer ownership to the lessee, can be treated as operating leases	IAS 17.12/28
-	inventories can generally be valued at cost rather than at the lower of cost and net realizable value	IAS 2.6
-	inventory cost can include overheads in addition to those relating to production	IAS 2.6
-	the completed contract method can be used for the recognition of revenues on construction contracts	IAS 11.22
-	some trading liabilities are measured at fair value, but the category is not clearly defined	IAS 39.93
-	provisions can be made on the basis of decisions by directors before an obligation arises	IAS 37.14
-	proposed dividends can be accrued in consolidated financial statements	IAS 10.11
-	the discount rate for employee benefit obligations can be adjusted to take account of fluctuations within the previous five years	IAS 19.78
-	any past service cost of employee benefits is spread of the average service lives of active employees even if the cost is vested	IAS 19.96
-	the portion of a convertible debenture that is in substance equity is not normally accounted for as such	IAS 32.23
-	extraordinary items are defined more widely	IAS 8.6/12
-	segment reporting does not use the primary/secondary basis.	IAS 14.26

In certain enterprises, these other issues could lead to differences from IAS:

-	it is possible, though unusual, for dissimilar subsidiaries to be excluded from consolidation if the consolidation of such subsidiaries would mislead stakeholders	IAS 27.14
-	there are no requirements concerning the translation of the financial statements of hyperinflationary subsidiaries.	IAS 21.36

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Table 1: *Absence* **and** *divergence*

Panel A Scores by country			
Country	*Absence*	Country	*Divergence*
Greece	40	Germany	38
Austria	34	Italy	37
Denmark	31	Austria	36
Malaysia	30	United Kingdom	35
Thailand	29	France	34
Portugal	29	Ireland	34
Spain	28	Belgium	32
Pakistan	27	Finland	31
Italy	27	Spain	29
Philippines	24	Greece	28
Finland	22	Sweden	26
Belgium	22	Canada	25
Australia	22	Netherlands	25
France	21	Taiwan	23
Taiwan	19	United States	23
Japan	18	Japan	22
India	18	Portugal	22
Germany	18	Australia	21
Korea, Rep.	15	Denmark	21
Hong Kong, China	14	India	19
Indonesia	12	Norway	17
Sweden	10	Hong Kong, China	15
Netherlands	10	Pakistan	14
South Africa	7	Philippines	14
Norway	7	Singapore	14
United States	6	Malaysia	13
Singapore	4	Indonesia	12
Canada	4	Korea, Rep.	11
United Kingdom	0	Thailand	7
Ireland	0	South Africa	1
Number of countries	30	Number of countries	30
Average	18.3	Average	22.6

Panel B Pearson correlations

	Absence	*Divergence*
Divergence	0.0738	
p-values	(0.698)	
N	30	30
CIFAR disclosure index	-0.5876	-0.1165
p-values	(0.001)	(0.563)
N	27	27
Disclose (Ashbaugh and Pincus)	-0.0975	0.2415
p-values	(0.763)	(0.450)
N	12	12
Methods (Ashbaugh and Pincus)	0.3414	0.6922
p-values	(0.278)	(0.013)
N	12	12
Accrual index (Hung)	-0.5427	-0.2078
p-values	(0.016)	(0.393)
N	19	19
Two-sided p-values in parentheses		

Absence of specific rules on recognition, measurement and disclosure in DAS compared to IAS (= number of absent items per country out of 111)

Divergence: inconsistencies that could lead to differences for many or some enterprises between DAS and IAS (number of divergent items per country out of 111).

Panel A is presented by decreasing order of *absence* and *divergence*.

CIFAR disclosure index: measure of the quantity of financial information in financial reports, an index created by examining and rating companies' annual reports on their inclusion or omission of 85 items (Center for International Financial Analysis & Research - CIFAR, 1995).

Methods index: captures the differences in financial reporting standards across countries relative to IAS due to the differences in measurement methods (Ashbaugh and Pincus, 2001).

Accrual index designed by equally weighting 11 accrual-related accounting standards for each country (Hung, 2001).

Table 2: Determinants of *absence* and *divergence*

Panel A: Measurement of institutional factors

Variable	Measurement	Source
Legal tradition	Legal tradition is a dummy variable, coded one if the country has a common law tradition and zero otherwise.	La Porta et al. (1998).
Ownership concentration	Ownership concentration is measured as the average percentage of common shares owned by the three largest shareholders in the 10 largest nonfinancial domestic firms.	La Porta et al. (1998).
Economic development	Economic development is proxied by the natural logarithm of GDP per capita, i.e., the GDP in US$ adjusted to purchasing power parity, divided by the country's population.	World Bank: World Development Indicators database, online version (data from 2001).
Importance of the accounting profession	The development level of the accounting profession in each country is measured by the density of public accountants/auditors per 100,000 inhabitants.	IFAC 2002 membership statistics in February 2003 (www.ifac.org). Population data: U.S. Census Bureau World Population http://www.census.gov/ipc/www/world.html.
Equity market development	The importance of the equity market index is measured as the mean rank across three variables used in La Porta et al. (1997): (1) the ratio of the aggregate stock market capitalization held by minority shareholders to gross national product, (2) the number of listed domestic firms relative to the population, and (3) the number of IPOs relative to the population. Each variable is ranked such that higher scores indicate greater importance of the stock market[26].	Leuz, Nanda and Wysocki (2003).

Panel B: Predicted signs

Variable	*Absence*	*Divergence*
Legal tradition	-	-
Ownership concentration	+	+/-
Economic development	-	+
Importance of the accounting profession	-	+/-
Equity market development	-	-

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[26] Leuz, Nanda and Wysocki (2003) have a sample of 31 countries. In some additional tests, we extend their sample by adding eight countries that are included in La Porta et al. (1997) and computing the measure of the importance of equity market following Leuz, Nanda and Wysocki (2003).

Table 3: *Absence* and *divergence* determinants

Panel A: Descriptive statistics

	N	Mean	S.D.	Min	0.25	Mdn	0.75	Max
Absence	30	18.27	10.61	0.00	10.00	18.50	27.00	40.00
Divergence	30	22.63	9.59	1.00	14.00	22.50	31.00	38.00
Legal tradition	30	0.40	0.50	0.00	0.00	0.00	1.00	1.00
Ownership concentration	30	0.42	0.14	0.18	0.34	0.43	0.54	0.67
Economic development	30	9.73	0.82	7.58	9.44	10.15	10.22	10.50
Importance of the accounting profession	30	120.30	170.09	2.29	11.69	47.42	139.83	656.56
Importance of equity market	30	22.25	9.10	7.00	15.33	21.83	28.17	38.50

Panel B: Pearson correlations (30 countries)

	(1)	(2)	(3)	(4)	(5)	(6)
(1) *Absence*						
(2) *Divergence*	0.0738					
p-values	(0.698)					
(3) Legal tradition	-0.3797	-0.3650				
p-values	(0.039)	(0.047)				
(4) Ownership concentration	0.4758	-0.0564	-0.1251			
p-values	(0.008)	(0.767)	(0.510)			
(5) Economic development	-0.2209	0.5616	-0.2127	-0.2136		
p-values	(0.241)	(0.001)	(0.259)	(0.257)		
(6) Importance of the accounting profession	-0.4648	0.1905	0.5754	-0.2581	0.3864	
p-values	(0.010)	(0.313)	(0.001)	(0.169)	(0.035)	
(7) Importance of equity market	-0.4877	-0.2211	0.6223	-0.3542	0.3760	0.6097
p-values	(0.006)	(0.240)	(0.000)	(0.055)	(0.041)	(0.000)

Two-sided p-values in parentheses.

Panel C: Stepwise regressions

	Model 1 - *Absence*		Model 2 - *Divergence*	
	coef.	p	coef.	p
Importance of equity market	-0.425	0.042	-0.728	0.000
Ownership concentration	26.589	0.034		
Importance of the accounting profession			0.019	0.068
Economic development			8.032	0.000
Constant	16.566	0.028	-41.64	0.030
Number of observations	30		30	
F	6.696		11.698	
Prob>F	0.004		0.000	
Adjusted R-square	0.294		0.559	

Panel D: Regressions with the full model	Model 3 - *Absence*		Model 4 - *Divergence*	
	coef.	p	coef.	p
Legal tradition	-3.763	0.651	1.324	0.806
Importance of equity market	-0.143	0.674	-0.794	0.000
Ownership concentration	26.932	0.023	-5.564	0.540
Importance of the accounting profession	-0.011	0.665	0.017	0.245
Economic development	-0.925	0.820	8.438	0.001
Constant	21.923	0.557	-42.074	0.077
Number of observations	30		30	
F	2.672		8.515	
Prob>F	0.042		0.000	
Adjusted R-square	0.262		0.530	

Definition of variables:
Absence: Our measure representing the *absence* of DAS compared to IAS.
Divergence: Our measure representing the divergence between DAS and IAS.
Other variables: see Table 2.

Table 4: Implications of *absence* and *divergence*: Measurement of variables

Variable	Measurement	Source
Earnings management	Aggregate earnings management score computed as the average rank across four measures, two based on discretion in earnings and two based on earnings smoothing. EM1 is the country's median ratio of the firm-level standard deviations of operating income and operating cash flow (both scaled by lagged total assets). Cash flow from operations is equal to operating income minus accruals, where accruals are calculated as: (Δtotal current assets – Δcash) - (Δtotal current liabilities - Δshort-term debt - Δtaxes payable) - depreciation expense. EM2 is the country's median Spearman correlation between the change in accruals and the change in cash flow from operations (both scaled by lagged total assets). EM3 is the country's median ratio of the absolute value of accruals and the absolute value of the cash flow from operations. EM4 is the number of "small profits" divided by the number of "small losses" for each country. A firm-year observation is classified as a small profit if net earnings (scaled by lagged total assets) are in the range (0, 0.01). A firm-year observation is classified as a small loss if net earnings (scaled by lagged total assets) are in the range (-0.01, 0).	Leuz, Nanda and Wysocki (2003).
Investor protection	Anti-director rights index created by La Porta et al. (1998): aggregate measure of minority shareholder rights and ranges from zero to five.	Leuz, Nanda and Wysocki (2003).
Legal enforcement	Equals the mean score across three legal variables used in La Porta et al. (1998): (1) the efficiency of the judicial system, (2) an assessment of rule of law, and (3) the corruption index. All three variables range from zero to ten.	Leuz, Nanda and Wysocki (2003).
Synchronicity	Index which represents the degree to which stocks in a country move together. Stock prices are more likely to move together when there is less credible firm-specific information available for the pricing of individual stocks. Stock price synchronicity is calculated as the fraction of stocks that move in the same direction in country j: $$f_j = \frac{1}{T}\sum_t \frac{\max[n_{jt}^{\mathrm{up}}, n_{jt}^{\mathrm{down}}]}{n_{jt}^{\mathrm{up}} + n_{jt}^{\mathrm{down}}} = \frac{1}{T}\sum_t f_{jt}$$	Morck, Yeung and Yu (2000).
Logarithm of geographical size	In square kilometers. It represents country size	World Bank (2000).
Variance in GDP growth	To measure macroeconomic instability, Morck, Yeung and Yu (2000) use the variance of per capita GDP growth for each country, with per capita GDP measured in nominal U.S. dollars estimated from 1990 to 1994. We apply the same measure for the period 1990-1999 as published by the World Bank (2000).	Morck, Yeung and Yu (2000).
Logarithm of number of listed stocks	Because higher synchronicity might simply reflect fewer traded stocks, Morck et al. (2000) control for this effect by using the logarithm of the number of listed stocks.	Morck, Yeung and Yu (2000).
Herfindahl Index	The Herfindahl Index measures the degree of concentration in an industry or in a country and is computed by squaring the market-share of the firms, and then summing those squares. Industry Herfindahl index of country j: $H_j = \sum_k h_{k,j}^2$ where $h_{k,j}$ is the combined value of the sales of all country j firms in industry k as a percentage of those of all country j firms.	Morck, Yeung and Yu (2000).
Good government index	Measure of how well a country protects private property rights.	Morck, Yeung and Yu (2000).

Table 5: Implications of *absence* and *divergence* on earnings management

Panel A: Descriptive statistics

	N	Mean	S.D.	Min	0.25	Mdn	0.75	Max
Earnings management (LNW)	30	15.82	7.80	2.00	7.00	18.05	21.50	28.30
Investor protection	30	3.23	1.41	0.00	2.00	3.00	4.00	5.00
Legal enforcement	30	7.86	2.12	2.90	6.80	8.80	9.50	10.00

Panel B: Pearson correlations (30 countries)

	Earnings management (LNW)	*Absence*	*Divergence*	Investor protection
Absence	0.6015			
p-values	(0.000)			
Divergence	0.0984	0.0738		
p-values	(0.605)	(0.698)		
Investor protection	-0.5358	-0.4480	-0.3333	
p-values	(0.002)	(0.013)	(0.072)	
Legal enforcement	-0.2619	-0.2639	0.5172	0.0203
p-values	(0.162)	(0.159)	(0.003)	(0.915)
Two-sided p-values in parentheses.				

Panel C: Regressions

	pred signs	Model 1 coef.	p	Model 2 coef.	p	Model 3 coef.	p
Absence	+	0.298	0.009			0.295	0.009
Divergence	?			0.068	0.639	0.037	0.777
Control variables							
Investor protection	-	-1.949	0.008	-2.784	0.001	-1.870	0.018
Legal enforcement	-	-0.545	0.364	-1.087	0.142	-0.637	0.366
Constant	?	20.963	0.006	31.826	0.000	20.636	0.010
Number of observations		30		30		30	
F		9.828		5.629		7.938	
Prob>F		0.000		0.004		0.000	
Adjusted R-square		0.410		0.280		0.387	

P-values are two-sided and computed using the White (1980) correction.
Definition of variables:
Absence: Our measure representing the *absence* of DAS compared to IAS.
Divergence: Our measure representing the divergence between DAS and IAS.
Other variables: see Table 4.

Table 6: Implications of *absence* and *divergence* on synchronicity

Panel A: Descriptive statistics

	N	Mean	S.D.	Min	0.25	Mdn	0.75	Max
Synchronicity index	30	0.16	0.09	0.06	0.10	0.15	0.19	0.43
Economic development	30	9.73	0.82	7.58	9.44	10.15	10.22	10.50
Logarithm of geographical size	30	12.40	2.20	6.43	11.34	12.70	13.22	16.12
Variance in GDP growth	30	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Log of number of listed stocks	30	5.80	1.07	4.25	4.93	5.69	6.22	8.89
Industry Herfindahl index	30	0.21	0.05	0.13	0.16	0.19	0.24	0.36
Country Herfindahl index	30	0.06	0.04	0.01	0.03	0.05	0.08	0.17
Good government index	30	23.71	4.81	12.82	20.18	25.37	27.27	28.82

Panel B: Pearson correlations (30 countries)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Synchronicity index									
(2) *Absence*	0.2789								
p-values	(0.136)								
(3) *Divergence*	(0.4055)	0.0738							
p-values	(0.026)	(0.698)							
(4) Economic development	(0.3627)	(0.2209)	0.5616						
p-values	(0.049)	(0.241)	(0.001)						
(5) Logarithm of geographical size	(0.0409)	(0.0186)	(0.0177)	(0.2469)					
p-values	(0.830)	(0.922)	(0.926)	(0.188)					
(6) Variance in GDP growth	0.4121	(0.0780)	0.0485	(0.0583)	(0.1141)				
p-values	(0.024)	(0.682)	(0.799)	(0.760)	(0.548)				
(7) Log. of number of listed stocks	0.0864	(0.2253)	0.1415	0.2238	0.2678	(0.0185)			
p-values	(0.650)	(0.231)	(0.456)	(0.234)	(0.153)	(0.923)			
(8) Industry Herfindahl index	0.0746	(0.3147)	(0.2169)	0.0171	(0.4495)	0.2952	(0.1854)		
p-values	(0.695)	(0.090)	(0.250)	(0.928)	(0.013)	(0.113)	(0.327)		
(9) Country Herfindahl index	(0.3511)	0.0444	0.1213	0.0359	(0.2470)	(0.1837)	(0.7016)	0.1926	
p-values	(0.057)	(0.816)	(0.523)	(0.851)	(0.188)	(0.331)	(0.000)	(0.308)	
(10) Good government index	(0.3698)	(0.3275)	0.5491	0.9143	(0.2117)	0.0945	0.2165	0.2124	0.0367
p-values	(0.044)	(0.077)	(0.002)	(0.000)	(0.261)	(0.620)	(0.250)	(0.260)	(0.847)

Two-sided p-values in parentheses

Panel C: Regressions

	pred signs	Model 1 coef.	p	Model 2 coef.	p	Model 3 coef.	p
Absence	+	0.003	0.039	0.003	0.079	0.003	0.113
Divergence	?	-0.004	0.001	-0.004	0.003	-0.003	0.023
Economic development				-0.009	0.608	0.029	0.424
Logarithm of geographical size				-0.004	0.357	-0.002	0.593
Variance in GDP growth				42.905	0.010	46.017	0.010
Log. of number of listed stocks				0.017	0.234	0.017	0.221
Industry Herfindahl index				-0.023	0.942	0.139	0.610
Country Herfindahl index				-0.261	0.654	-0.269	0.652
Good government index						-0.008	0.361
Constant	?	0.204	0.000	0.229	0.361	-0.027	0.936
Number of observations		30		30		30	
F		6.996		4.703		5.840	
Prob>F		0.003		0.001		0.000	
R-square		0.260		0.545		0.561	
Adjusted R-square		0.206		0.371		0.363	

P-values are two-sided and computed using the White (1980) correction.
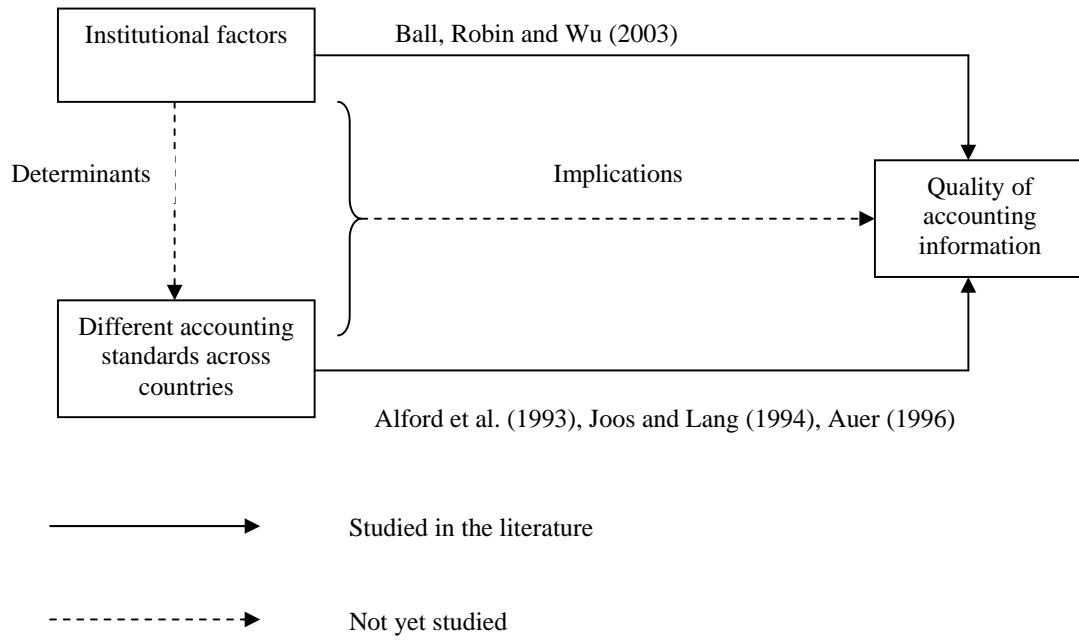
Absence: Our measure representing the *absence* of DAS compared to IAS.

Divergence: Our measure representing the divergence between DAS and IAS.

Other variables: see Tables 2 and 4.

Figure 1: Traditional framework of analysis

Institutional factors

Ball, Robin and Wu (2003)

Determinants

Implications

Quality of accounting information

Different accounting standards across countries

Alford et al. (1993), Joos and Lang (1994), Auer (1996)

Studied in the literature

Not yet studied

Figure 2 – Proposed framework

Divergence of DAS from IAS

Alford et al. (1993), Joos and Lang (1994), Auer (1996)

Determinants

Institutional factors

Implications

Quality of accounting information

Ball, Robin and Wu (2003)

Determinants

Implications

Absence of DAS vis-à-vis IAS

Implications

Studied in the literature

Not yet studied

42