

Using Gray's (1988) Accounting Values to Explain Differing Levels of Implementation of IFRS

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Abstract

We examine the effect of measurement and disclosure related accounting values on the level of use of IFRS in 42 countries. The decision to undertake the cost associated with replacing current domestic GAAP with a set of foreign constructed accounting standards must be justified with many benefits. These benefits, such as high quality financial statements and increased transparency, are valued differently by countries with differing accounting values. We find empirical support for the hesitancy of countries that value conservatism and secrecy to fully implement IFRS. As an additional test, we use recent data gathered from the IAS Plus website. This more recent test of the effect of measurement and disclosure related accounting values on the level of use of IFRS failed to empirically support the hesitancy of countries that value conservatism and secrecy to require or allow the use of IFRS.

Keywords: Accounting values, IFRS, Harmonization

1. Introduction

With the advances in the scope and global acceptance of the International Accounting Standards Board's (IASB) International Financial Reporting Standards (IFRS), international accounting standards have received increasing attention in the academic literature (e.g., Ball, 2006; Botosan, 1997; Haverals, 2007; Nobes, 2006; Suzuki, 2007; Tyrrall, Woodward, & Rakhimbekova; 2007). Many of these studies are documenting the effect of IFRS on the accounting and business practices of a particular country. Domestic accounting regulatory bodies are considering these effects when deciding on the level of adoption or adaptation of IFRS (Zeghal & Mhedhbi, 2006). Gray (1988) has presented a framework for describing the accounting culture of a country and we use a quantification of this framework to provide empirical evidence concerning the effect of accounting values, specifically conservatism and secrecy, on a country's level of adoption of international standards.

This work provides an important starting point for future international accounting research. In general, the inclusion of a measure of the intrinsic preferences of a country concerning accounting measurement and disclosure will be a critical variable in all types of international research. More specifically, the study of the deviations of domestic GAAP from IFRS is ongoing (Beckman, Brandes, & Eierle, 2007; Daske, 2006; Ding, Hope, Jeanjean, & Stolowy, 2007; Horton & Serafeim, 2006; Van der Meulen, Gaeremynck, & Willekens, 2007; van Tendeloo & Vanstraelen, 2005). For example, in the case of the U.S., domestic GAAP and IFRS have been converging over time (Haverty, 2006); however, there is still a substantial lack of comparability between the two sets of standards (Haverty, 2006). This study would provide empirical support for the notion that, despite the global push for convergence in accounting standards, country-level preferences for accounting measurement and disclosure provides important explanatory power in differences between domestic GAAP and IFRS.

While dozens of countries now require or permit the use of IFRS or are converging with IFRS (IASB, 2009), the level of adoption varies between countries (Dean & Clarke, 2005). Ding, Jeanjean, and Stolowy (2005) created an index of a country's nonconformity in its domestic GAAP with IFRS. Ding et al. (2005) reported the nonconformities as an absence of a specific rule from domestic GAAP or as an instance of a divergence of an existing domestic GAAP standard from the corresponding IFRS. We use Ding et al.'s (2005) measures of the absence of IFRS pronouncements from domestic GAAP as the proxy for the differing levels of a country's adoption of IFRS. We hypothesize and empirically show that countries that value conservatism have higher levels of deviation from IFRS and that countries that value secrecy have higher levels of deviation from IFRS. While we report empirical evidence of the effect of accounting values on a country's level of adoption of IFRS, an additional test of the hypotheses with newer data implies this effect may be disappearing as more countries adopt the International Financial Reporting Standards.

2. Literature Review and Hypothesis Development

More than 100 countries now require or permit the use of IFRS or are converging with IFRS (IASB, 2009); however, the level of adoption can vary greatly between countries (Dean & Clarke, 2005). Some countries are accepting IFRS completely and even considering disbanding their local accounting standard settings boards (e.g., Canada¹) while others are adopting IFRS, but keeping their standards setters in order to adapt and modify the international standards to meet local needs, thereby producing various forms of IFRS (Dean & Clarke, 2005). For example, on January 1, 2005, Australia adopted IFRS; however, the Australian Accounting Standards Board (the AASB) continues to issue Australian equivalents to International Financial Reporting Standards (A-IFRS).

The costs and benefits of IFRS adoption weigh heavily in the decisions concerning a country's level of adoption. One theory contends that accounting standards that produce high quality financial statements, such as IFRS, lead to a lower cost of capital for firms (Bailey, Karolyi, & Salva, 2006; Dargenidou, McLeay, & Raonic, 2006; Easley & O'Hara, 2004; IASB, 2002; Leuz & Verrecchia, 2000; Levitt, 1998; Sengupta, 1998). However, others have found that the convergence of IFRS and local GAAP does not automatically produce positive outcomes such as lower cost of capital (Barth, Clinch, & Shibano, 1999; Botosan, 1997; Cohen, 2006; Cuijpers & Buijink, 2005; Daske, 2006; Leuz, 2003).

Jermakowicz and Gornik-Tomaszewski (2006) surveyed 112 European Union (EU) companies required to use both EU GAAP and IFRS for financial statement reporting purposes. Among other things, they reported that the respondents found the process of IFRS compliance is costly, complex, and burdensome. They also reported that these companies do not expect to lower their cost of capital by implementing IFRS. Other studies have reached similar conclusions (Botosan, 1997; Cohen, 2006; Cuijpers & Buijink, 2005; Daske, 2006).

These costs and benefits (or lack thereof) are important considerations when deciding the level of convergence between domestic GAAP and IFRS. It is important to consider that these costs and benefits are examined by individual members of a decision-making group (e.g., the US FASB) through a lens shaped by an individual's socialization into a society's cultural norms. For accounting situations, this socialization has been described in terms of accounting values (Gray, 1988; Perera, 1989) and can be represented by the index of quantified accounting values. Professionalism influences authority, uniformity influences enforcement, conservatism influences measurement, and secrecy influences disclosure; however, as the IFRS are primarily addressing measurement and disclosure, the quantified conservatism and secrecy accounting values are the focus of this analysis.

¹ Canada considered disbanding their Accounting Standards Board (AcSB), but has since decided against it. However, after January 1, 2011, accounting standards for Canadian public companies has been by the IASB and the AcSB has simply attempted to influence future standards.

2.1 Conservatism versus Optimism

Conservatism is defined as a society's "preference for a cautious approach to measurement so as to cope with the uncertainty of future events as opposed to a more optimistic, laissez-faire, risk-taking approach" (Gray, 1988). The IFRS has been theoretically argued and empirically shown to be less conservative than the standards of many countries. Ball (2006) points out numerous instances where measurement under IFRS is closer to fair value than historical cost as well as his expectation that the standards will continue to move in that direction. Although Cairns (2006) argues against the notion that IFRS are fair value based standards, he does point out the numerous contexts in which the less conservative fair value measurement is required instead of the more conservative historical cost.

Ding and Su (2008) describe the results of a study commissioned by the Chinese Ministry of Finance on the impact of a switch from Chinese GAAP to IFRS. The study of 1348 companies reports that about 1000 companies would increase their beginning balances of net assets by an average of nine percent, while 259 companies would record an average decrease of four percent (Ding & Su, 2008). Bertoni and De Rosa (2006) use the restatements of the 2004 annual reports of 42 companies to empirically show that Italian GAAP is more conservative than IFRS. Separate from the issue of IFRS conservatism, but relevant to the discussion, Wüstemann and Kierzek (2005) identify inconsistencies in IFRS revenue recognition. For these reasons, countries that prefer a cautious approach to measurement would likely be wary of adopting IFRS.

Although it encompasses more than just measurement, it is pertinent in the discussion of measurement – IFRS's true and fair view principle is the source of much heated discussion and uncertainty (e.g., Alexander, 2006; Dean & Clarke, 2005; Nobes, 2006; Wüstemann & Kierzek, 2005; Wüstemann & Kierzek, 2006). Until the meaning of true and fair, with respect to IFRS, becomes less uncertain, countries that value conservatism will be reluctant to embrace IFRS. Therefore, countries that value conservatism should have higher levels of deviation from IFRS, which leads to the following hypothesis:

H1: There is a positive association between conservatism and the size of differences between IFRS and domestic GAAP.

This relationship should be clearer when focusing on individual accounting standards that concern asset and liability valuation as well as revenue recognition, which leads to the following sub-hypothesis:

H1a: There is a positive association between conservatism and the size of differences between IFRS *measurement-specific standards* and domestic GAAP *measurement-specific standards*.

2.2 Secrecy versus Transparency

Secrecy is defined as a society's "preference for confidentiality and the restriction of disclosure of information about the business only to those who are closely involved with its management and financing as opposed to a more transparent, open and publicly accountable approach" (Gray, 1988). IFRS have been theoretically argued and empirically shown to be more transparent than the standards of many countries. The U.S. Securities and Exchange Commission (SEC) sees the use of IFRS as leading to a more transparent global financial reporting environment (Rosen, 2007). For example, Weißenberger, Stahl, and Vorstius (2004) point out that the extensive reporting obligations of US GAAP and IFRS are due to a focus on capital market oriented users and German GAAP, with its focus on creditor protection, limitations on profit distribution, and linkage with tax reporting requirements, will produce a balance sheet and income statement that is less informative for investment decisions than IFRS or US GAAP.

Daske and Gebhardt (2006) present empirical evidence that disclosure quality increases significantly in Austrian, German, and Swiss firms that report in IFRS rather than their domestic GAAP. Also, Hodgdon, Tondkar, Harless, and Adhikari (2008) find that firm compliance with the disclosure requirements of IFRS reduces information asymmetry and enhances the ability of financial analysts to provide more accurate forecasts. However, the increased transparency required by IFRS comes with increased costs of compliance for firms (Ball, 2006; Jermakowicz & Gornik-Tomaszewski 2006; Tarca, 2004). Additionally, Jeanjean and Stolowy (2008) present empirical evidence that a change from local GAAP to IFRS does not increase earnings quality as measured by earnings management. Therefore, firms in countries that value secrecy will find it hard to justify these costs with the supposed benefits and will pressure their standard setters to resist convergence with IFRS. Consequently, countries that value secrecy should have higher levels of deviation from IFRS, which leads to the following hypothesis:

H2: There is a positive association between secrecy and the size of differences between IFRS and domestic GAAP.

This relationship should be clearer when focusing on accounting standards that attempt to increase transparency (i.e., increased disclosure), which leads to the following sub-hypothesis:

H2a: There is a positive association between secrecy and the size of differences between IFRS *disclosure-specific standards* and domestic GAAP *disclosure -specific standards*.

3. Research Method

Ding et al. (2005) examined the relationship between the deviation of domestic GAAP from IFRS and societal culture. They used Hofstede's (1980) cultural dimensions as one of their measures of societal culture and presented their own absence and divergence scores as the measure of the deviation of domestic GAAP from IFRS, which are further discussed by Ding et al. (2007). As a test of our hypotheses we use the Ding et al. (2005) measure of the level of IFRS pronouncements missing from domestic GAAP along with the accounting values scores for Conservatism and Secrecy which are quantified in the Appendix instead of Hofstede's (1980) cultural dimensions.

3.1 Variables and Regression Models

Ding et al. (2005) created an index of a country's nonconformity in its domestic GAAP with IFRS. They obtained their data from Nobes' (2001) report of comparisons of domestic GAAP to IFRS by audit firm partners located in 62 countries all over the world for the fiscal year ending December 31, 2001. These partners were asked to compare their country's domestic GAAP to benchmarks based on international accounting standards. Ding et al. (2005) quantified the differences between the various domestic GAAPs and IFRS reported by Nobes (2001). They identified 111 potential nonconforming items between domestic GAAP and IFRS and then counted the actual differences in the items for all 62 countries. Ding et al. (2005) reported the nonconformities as an absence of a specific rule from domestic GAAP or as an instance of a divergence of an existing domestic GAAP standard from the corresponding IFRS. The range of the nonconformity score, which is the sum of the absence score and the divergence score, is 0 to 111 – with 0 representing a perfect harmony with IFRS and 111 a complete deviation from IFRS. Ding et al. (2005) further divide their absence score into a score for the absence of a specific rule on recognition and measurement from domestic GAAP and a score for the absence of a specific rule requiring disclosure from domestic GAAP.

We use the Ding et al. (2005) measures of the absence of IFRS pronouncements from domestic GAAP as the dependent variable in our hypothesis tests. We choose absence over the divergence score and the nonconformity score for two reasons. First, with only 42 observations in our hypothesis testing models, we opt for a dependent variable with the greatest potential for impact in order to overcome any potential lack of statistical power. A complete absence of an IFRS from domestic GAAP is easier to objectively measure and more telling about that country than a divergence of domestic GAAP from IFRS. Additionally, the qualitative nature and extent of the divergence is important (e.g., increased or reduced requirements, large or small divergence), but cannot be objectively captured by the divergence score. Ding et al.'s (2005) nonconformity score is a sum of the absence score and the divergence score and, therefore, carries the same concerns as the divergence score alone. The second reason that we use the absence score as our dependent variable is the availability of individual scores concerning measurement and disclosure, which are required to test our

sub-hypotheses. Only absence is reported in terms of measurement and disclosure scores as well as an aggregate score, the measures for divergence and nonconformity are only available as aggregate scores.

Ding et al.'s (2005) variables of interest in their hypothesis testing models are Hofstede's (1980) four cultural dimension scores and a measure of legal origin. For our hypothesis testing models, we replace Hofstede's (1980) four cultural dimension scores with the quantified conservatism and secrecy scores. We use the same measure of legal origin as Ding et al. (2005). They use the same common law or code law classification as La Porta, Lopez-De-Slianes, Shleifer, and Vishny (1997) and use the classification method devised by the JuriGlobe research group at the University of Ottawa for missing countries (Ding, et al., 2005).

Table 1: Pearson Correlations for Variables in Tests on Absence Measures

	1	2	3	4	5	6	7	8	9
1. Absence									
2. Absence (measurement)	0.95**								
3. Absence (disclosure)	0.77**	0.53**							
4. Conservatism	0.35*	0.43**	0.06						
5. Secrecy	0.26	0.37*	-0.05	0.96**					
6. PDI	0.18	0.32*	-0.19	0.72**	0.69**				
7. IDV	-0.21	-0.29	0.04	-0.71**	-0.67**	-0.70**			
8. MAS	0.05	0.07	0.01	0.13	0.16	0.05	0.05		
9. UAI	0.47**	0.39*	0.49**	0.34*	0.23	0.12	-0.16	0.15	
10. Common Law	-0.48**	-0.39*	-0.51**	-0.13	-0.03	-0.17	0.23	0.09	-0.53**

$p < 0.05 = *$; $p < 0.01 = **$

Bivariate analysis, as presented in Table 1, provides initial empirical support for three of the four hypotheses. The Pearson correlation coefficient for the relationship between Absence and Conservatism shows a statistically significant positive association ($p = 0.02$), which supports hypothesis H1. The Pearson correlation coefficient for the relationship between Absence (Measurement) and Conservatism shows a statistically significant positive association ($p < 0.01$), which supports hypothesis H1a. The Pearson correlation coefficient for the relationship between Absence and Secrecy shows a marginally statistically significant positive association ($p = 0.10$), which provides at least some support for hypothesis H2. The Pearson correlation coefficient for the relationship between Absence (Disclosure) and Secrecy shows no statistically significant association, which fails to support hypothesis H2a.

The full regression model tested by Ding et al. (2005) is as follows:

$$ABS_i = \alpha_i + \beta_{i1}PDI_i + \beta_{i2}IDV_i + \beta_{i3}MAS_i + \beta_{i4}UAI_i + \beta_{i5}Common\ law_i + \varepsilon_i,$$

where: ABS_i = Absence index of company i ; PDI_i = power distance value of company i ; IDV_i = individualism value of company i ; MAS_i = masculinity value of company i ; UAI_i = uncertainty avoidance value of company i ; $Common\ law_i$ = 1 if company i belongs to common law countries, and 0 if company i belongs to code law countries; β_{i1-5} = coefficients of variables from 1 to 5; ε_i = residual term.

The full regression model used for testing hypothesis 1 is as follows:

$$ABS_i = \alpha_i + \beta_{i1}Conservatism_i + \beta_{i2}Common\ law_i + \varepsilon_i,$$

where: ABS_i = Absence index of company i ; $Conservatism_i$ = Conservatism versus Optimism accounting value score quantified in the Appendix of company i ; $Common\ law_i$ = 1 if company i belongs to common law countries, and 0 if company i belongs to code law countries; β_{i1-2} = coefficients of variables from 1 to 2; ε_i = residual term.

The full regression model used for testing hypothesis 2 is as follows:

$$ABS_i = \alpha_i + \beta_{i1}Secrecy_i + \beta_{i2}Common\ law_i + \varepsilon_i,$$

where: ABS_i = Absence index of company i ; $Secrecy_i$ = Secrecy versus Transparency accounting value score quantified in the Appendix of company i ; $Common\ law_i$ = 1 if company i belongs to common law countries, and 0 if company i belongs to code law countries; β_{i1-2} = coefficients of variables from 1 to 2; ε_i = residual term.

The full regression model used for testing hypothesis 1a is as follows:

$$ABS-M_i = \alpha_i + \beta_{i1}Conservatism_i + \beta_{i2}Common\ law_i + \varepsilon_i,$$

where: $ABS-M_i$ = Measurement-specific absence index of company i ; $Conservatism_i$ = Conservatism versus Optimism accounting value score quantified in the Appendix of company i ; $Common\ law_i$ = 1 if company i belongs to common law countries, and 0 if company i belongs to code law countries; β_{i1-2} = coefficients of variables from 1 to 2; ε_i = residual term.

The full regression model used for testing hypothesis 2a is as follows:

$$ABS-D_i = \alpha_i + \beta_{i1}Secrecy_i + \beta_{i2}Common\ law_i + \varepsilon_i,$$

where: $ABS-D_i$ = Disclosure-specific absence index of company i ; $Secrecy_i$ = Secrecy versus

Transparency accounting value score quantified in the Appendix of company i ; Common law $_i$ = 1 if company i belongs to common law countries, and 0 if company i belongs to code law countries; β_{i1-2} = coefficients of variables from 1 to 2; ε_i = residual term.

4. Analysis of Results

Ding et al. (2005) hypothesized a non-directional relationship between their absence measure and culture (Perera, 1994), as well as a negative relationship between their absence measure and common law countries (Hope, 2003; Jaggi & Low, 2000). They were unable to empirically support either relationship due to the failure of their hypothesis testing model to reach statistical significance at the 0.05 level.

In Table 2 Panel A Models 1 and 2, we have replicated Ding et al.'s (2005) tests (model significances of $p < 0.05$). Model 2 produced statistically significant support for their hypothesis of a negative relationship between their absence measure and common law countries ($p < 0.05$). Model 1 produced a statistically significant relationship between absence and one of Hofstede's (1980) cultural dimensions – uncertainty avoidance ($p < 0.01$); however, this relationship becomes only marginally significant ($p = 0.10$) when the common law variable is added in Model 2.

Table 2: OLS Regression Results

Panel A: Absence						
	Pred. Sign	Model 1	Model 2	Model 3	Model 4	Model 5
PDI	(?)	0.059	0.048			
IDV	(?)	-0.092	-0.059			
MAS	(?)	-0.012	0.039			
UAI	(?)	0.454***	0.287			
Common law	(-)		-0.313**	-0.491***	-0.454***	-0.485***
Conservatism	H1 (+)				0.283**	
Secrecy	H2 (+)					0.238**
Observations		41	41	42	42	42
R ²		0.24	0.31	0.24	0.32	0.30
Adj R ²		0.16	0.21	0.22	0.29	0.26
F		2.905**	3.140	12.734***	9.190***	8.288***
R ² Change			0.07		0.08	0.06
F Change			3.327*		4.524**	3.156*

	Panel B: Absence (Measurement)			Panel C: Absence (Disclosure)		
	Pred. Sign	Model 6	Model 7	Pred. Sign	Model 8	Model 9
Common law	(-)	-0.401***	-0.350**	(-)	-0.514***	-0.516***
Conservatism	H1a (+)					
Secrecy			0.381***	H2a (+)		-0.070
Observations		42	42		42	42
R ²		0.16	0.30		0.27	0.27
Adj R ²		0.14	0.27		0.25	0.23
F		7.662**	8.506		14.395***	7.196***
R ² Change			0.14			0.01
F Change			8.008**			0.262

Tests of significance on variables with a predicted sign are one-tailed.

Tests of significance on variables with no predicted sign are two-tailed.

All model tests of significance are two-tailed.

p<0.10 = *; p<.05 = **; p<.01 = ***

Table 2 Panel A Models 3, 4, and 5 show tests of the relationship between the deviation of domestic GAAP from IFRS and two of Gray's (1988) accounting values – conservatism and secrecy. In the base model (Model 3), common law countries are shown to be negatively related ($p < 0.01$) to Ding et al.'s (2005) absence measure. Model 4 adds conservatism to Model 3 and Model 5 adds secrecy to Model 3. Both of the accounting values are positively and significantly ($p < 0.05$) related to the absence measures. This provides empirical support

for hypotheses H1 and H2 as countries that value conservatism and secrecy are shown to have higher deviations from IFRS when compared to domestic GAAP.

Table 2 Panel B presents tests of the two sub-hypotheses. Ding et al. (2005) also deconstruct their absence measure into a measure of the absence from domestic GAAP of measurement-specific IFRSs and a measure of the absence from domestic GAAP of disclosure-specific IFRSs. These two measures are the dependent variables in the four Models reported in Panel B. Common law country classification is the control variable in the two base models (Models 6 and 8) and continues to be statistically significant ($p < 0.01$). When added to Model 6, conservatism is positively and significantly ($p < 0.01$) related to the measurement-specific absence measure. This provides empirical support for hypothesis H1a as countries that value conservatism are shown to have higher deviations from IFRS measurement-specific standards when compared to domestic GAAP. When added to Model 8, secrecy has no significant explanatory power beyond the variability explained by the common law variable; therefore, hypothesis H2a is not empirically supported.

5. Additional Test of H1 and H2

Despite the ingenuity of the Ding et al. (2005) absence measures, a potential drawback of their work is the age of the data. It is based on data collected in 2001 (Nobes, 2001) and the years since then have seen increased convergence between domestic GAAP and IFRS. As an alternative measure for additional tests, we have created a Use of IFRS measure based on data reported by IAS Plus (www.iasplus.com) as of February 2008. This measure categorizes countries as prohibiting (value of -1), permitting (0), or requiring (1) the use of IFRS. The measure is similar to one used by Hope et al. (2006); they categorized countries as adopting IFRS (value of 1) or not (0) as of 2005.

Hope et al. (2006) investigated the factors that influence a country's decision to adopt IFRS. They hypothesized that, due to bonding (Coffee, 2002) and signaling theories (Spence, 1973; Tarca, 2004), countries with less stringent domestic investor protection would be more likely to adopt IFRS to attract foreign equity investment and as a signal to the rest of the world. As measures of domestic investor protection, they used the country's disclosure requirements (La Porta, Lopez-De-Silanes, & Shleifer, 2006), anti-director rights (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1998), and capital market access (Schwab, Porter, & Sachs, 1999). For control variables, they used the logarithm of per capita 1996 gross national product (Mundial, 1996) and a proxy for market development – the ratio of stock market capitalization held by small shareholders to gross domestic product (La Porta, Lopez-de-Silanes, & Shleifer, 1999).

Hope et al. (2006, 15) reported (Table 5, Model 5) that a country's disclosure requirements (negative relationship), anti-director rights (negative relationship), and capital market access (positive relationship), as well as the control variable market capitalization (positive relationship), all had significant effects ($p \leq 0.05$) on the country's decision to adopt IFRS. Gross national product, their other control variable, had at least a marginally significant ($p \leq$

0.10) negative relationship with a country's decision to adopt IFRS by 2004 (Table 2, Models 5 and 6), but no significant relationship with a country's decision to adopt IFRS by 2005 (Table 5, Models 5 and 6) (Hope et al. (2006, 14-15).

As an additional test of hypotheses H1 and H2, we replicate the tests in Hope et al. (2006) with updated data and the conservatism and secrecy accounting values variables. The dependent variable for this additional test is created from data from the IAS Plus website (<http://www.iasplus.com>) operated by the Deloitte Touche Tohmatsu CPA firm. The use of IFRS by country as of February 2008 is reported in terms of required, permitted, and prohibited. We have quantified this variable by coding countries that require their public companies to use IFRS as 1, countries that permit the use of IFRS as 0, and those that prohibit the use of IFRS as -1. The disclosure requirements variable (La Porta, et al., 2006) is recent and not modified for the additional test of hypotheses H1 and H2. The anti-director rights variable (La Porta, et al., 1998) is also not modified because neither updated data nor an acceptable substitute was available. An updated version of the capital market access variable (Lopez-Claros, Schwab, & Porter, 2005) was available and is used for this additional test. Hope et al. (2006) used two control variables. The first was a proxy for market development – the ratio of stock market capitalization held by small shareholders to gross domestic product (La Porta, et al., 1999). We were not able to update this proxy; however, we found financial market sophistication (Lopez-Claros, et al., 2005) in the World Economic Forum's Global Competitiveness Report 2005-2006. The other control variable used by Hope et al. (2006) was the 1996 per capita GNP by country. This has been updated to the 2006 per capita GNI for the additional test of hypotheses H1 and H2. Finally, although Hope et al. (2006) included a common law variable in their sensitivity analysis and found no significant relationship between it and the adoption of IFRS, we have included it in this additional test because of the associations found in our earlier tests and reported in Table 2 Panels A and B.

Table 3 presents the results of the bivariate analysis. Both of the variables of interest have the predicted negative relationship with the Use of IFRS dependent variable. Also, using a one-tailed test of statistical significance, which is a proper test of a predicted relationship, both of the variables of interest are at least marginally significant – Conservatism ($R=-0.27$, $p=0.05$) and Secrecy ($R=-0.24$, $p=0.07$). However, as reported in Table 4, the multivariate analysis of these relationships fails to show the same negative and statistically significant result. Of the control variables, Disclosure Requirement has the predicted negative relationship with Use of IFRS and is statistically significant ($p<0.01$). There is no predicted relationship between Logarithm of GNI and Use of IFRS and Table 3 reports a positive and significant relationship ($R=0.37$, $p=.02$). This is the same relationship found in the multivariate analysis reported in Table 4.

Table 3: Pearson Correlations for Variables in Tests on Use of IFRS

	1	2	3	4	5	6	7	8
1. Use of IFRS								
2. Conservatism	-0.27							
3. Secrecy	-0.24	0.96**						
4. Disclosure Req.	-0.41*	-0.18	-0.08					
5. Anti-Director Rights	-0.21	-0.19	-0.09	0.52**				
6. Access to Equity	-0.09	-0.49**	-0.37*	0.73**	0.45**			
7. Market Soph.	0.21	-0.80**	-0.73**	0.47**	0.36*	0.70**		
8. Log of GNI	0.37*	-0.74**	-0.72**	0.16	0.04	0.33*	0.76**	
9. Common Law	-0.12	-0.12	0.00	0.65**	0.63**	0.54**	0.39*	-0.03

p<0.05 = *; p<.01 = **

The dependent variable, Use of IFRS, is a trichotomous variable with possible values of -1 (IFRS prohibited), 0 (IFRS permitted), or 1 (IFRS required), which warrants the use of ordinal probit regression analysis (McCullagh, 1980)². The results of this analysis are reported in Table 4. Model 1 presents the results of the relationship between the control variables and the use of IFRS. As found in the primary hypothesis testing reported in Table 2, common law countries are less likely to have differences between their domestic GAAP and IFRS ($p < 0.05$). Of the three hypotheses in Hope et al. (2006), only the negative relationship between disclosure requirement and the required use of IFRS is statistically significant ($p < 0.01$). Interestingly, the marginal significance ($p < 0.10$) of the negative relationship between gross national product and the use of IFRS reported in Model 5 of Table 4 by Hope et al. (2006, 14) is a positive relationship ($p < 0.10$) in our analysis (Table 5, Model 1). Table 4 Models 2 and 3 present the results of additional tests of hypotheses H1 and H2. Although the significant variables in Model 1 retain their significant relationships to the dependent variable, neither of the variables of interest (conservatism in Model 2 and secrecy in Model 3) is significantly related to the use of IFRS.

² As an additional test, we transformed the trichotomous dependent variable into a dichotomous variable with a value of 1 for IFRS permitted or required and 0 for IFRS prohibited and tested the hypotheses with bivariate logistic regression analysis. The results were qualitatively similar to the results of the ordinal probit regression analysis, including no empirical support for the hypotheses.

Table 4: Ordinal Probit Regression Results

	Use of IFRS			
	IFRS Not Permitted = -1			
	IFRS Permitted = 0			
	IFRS Required = 1			
	Pred. Sign	Model 1	Model 2	Model 3
Common Law	(+)	3.360**	3.517**	3.918**
Disclosure Requirement	(-)	-12.881***	-15.163***	-18.427***
Anti-Director Rights	(-)	-0.400	-0.358	-0.318
Access to Equity	(+)	1.067	1.227	1.318
Market Sophistication	(?)	-0.493	0.192	0.535
Log of GNI	(?)	3.173*	3.598*	4.297**
Conservatism	H1 (-)		0.033	
Secrecy	H2 (-)			0.060*
Observations		39	39	39
<i>Goodness of Fit Tests</i>				
Log Likelihood		46.275	45.130	42.885
Model Chi-Square		24.522***	25.667***	27.912***
Pseudo R ²				
Cox and Snell		0.47	0.48	0.51
Nagelkerke		0.56	0.58	0.61
McFadden		0.35	0.36	0.39

Tests of significance on variables with a predicted sign are one-tailed.

Tests of significance on variables with no predicted sign are two-tailed.

All model tests of significance are two-tailed.

$p < 0.10 = *$; $p < 0.05 = **$; $p < 0.01 = ***$

6. Conclusion

This study examines the effect of accounting values on the level of use of IFRS in approximately 40 countries. The decision to replace current domestic GAAP with a set of foreign constructed accounting standards must be justified with benefits to offset the associated costs. These benefits, such as high quality financial statements and increased transparency, are valued differently by countries with differing accounting values. We hypothesize and find empirical support for the caution exhibited by countries that value conservatism and secrecy in approaching the implementation of IFRS.

A limitation of this study is the disappearance of the relationship between accounting values and the level of adoption of IFRS for later time periods (the analysis presented in Table 4 with dependent variable data from 2008 versus the analysis presented in Table 2 with dependent variable data from 2001). The changing role of the control variable Gross National Product (Income) can possibly shed some light on this limitation. Hope et al. (2006) posited

that firms in countries with smaller economies would prefer the bonding effects associated with IFRS and press their regulators to adopt the international standards. They found empirical evidence for this relationship using dependent variable data of adoption of IFRS by 2005. In Table 4, we present tests of this relationship using dependent variable data of adoption of IFRS by 2008 and find that countries with larger economies are more likely to require IFRS. This could simply be the effects of increased convergence between local GAAP and IFRS, which would erode the explanatory power of accounting values and other predictor variables as more and more countries are adopting some form of IFRS. A future study could examine the explanatory power of accounting values at predicting the actual level of implementation or compliance with IFRS of firms operating in countries that have adopted IFRS.

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Appendix

The Quantification of Gray's Accounting Values

Gray's Accounting Values

Gray (1988) described the four accounting values presented in Table 5 in terms of their relationship to Hofstede's (1980) cultural dimensions. He summarized these relationships through the presentation of four untested hypotheses. Additionally, he described the strength of the various relationships with the terms strong, less strong, and weak. We use these hypotheses and the three levels of relationship strengths to quantify the accounting values scores. Each accounting value and related hypothesis is discussed below.

Table 5: Matrix of Relationships of Accounting Values with Hofstede's (1980) Values

Accounting Value	Relationship Strength	Uncertainty Avoidance	Long-Term Orientation	Power Distance	Individualism	Masculinity
Professionalism vs. Statutory Control	Strong	Negative			Positive	
	Less Strong			Negative		
	Weak		Negative			Positive
Uniformity vs. Flexibility	Strong	Positive			Negative	
	Less Strong			Positive		
	Weak					
Conservatism vs. Optimism	Strong	Positive	Positive			
	Less Strong				Negative	Negative
	Weak					
Secrecy vs. Transparency	Strong	Positive	Positive	Positive	Negative	
	Less Strong					Negative
	Weak					

Blank squares indicate no relationship.

Professionalism versus Statutory Control

Professionalism versus statutory control (referred to as professionalism) is defined as a society's "preference for the exercise of individual professional judgment and the maintenance of professional self-regulation as opposed to compliance with prescriptive legal requirements and statutory control" (Gray, 1988). This construct captures the importance of authority in a society's accounting rules and regulations (Perera, 1989). Accountants must exercise professional judgment in the course of their duties and this accounting value captures the variation in the extent of the use of professional judgment at the country level. Gray (1988) posited that professionalism has the strongest link with individualism and uncertainty avoidance. He also proposed a less strong link with power distance. Gray's (1988)

first hypothesis follows:

H1: The higher a country ranks in terms of individualism and the lower it ranks in terms of uncertainty avoidance and power distance, the more likely it is to rank highly in terms of professionalism.

Subsequently, Radebaugh, Gray, and Black (2006) expanded on professionalism by noting a weak relationship with masculinity and long term orientation. They state that professionalism is negatively related with long term orientation and positively related to the assertiveness aspect of masculinity. The relationships between professionalism and all of the relevant cultural dimensions are presented in Table 5.

Uniformity versus Flexibility

Uniformity versus flexibility (referred to as uniformity) is defined as a society's "preference for the enforcement of uniform accounting practices between companies and for the consistent use of such practices over time as opposed to flexibility in accordance with the perceived circumstances of individual companies" (Gray, 1988). This construct captures the importance of enforcement in a society's accounting rules and regulations (Perera, 1989). Accounting rules and regulations are, to some extent, applied differently between industries and over time. This accounting value captures these variations in the flexibility of accounting rules and regulations across reporting entities as well as across time at the country level. Gray (1988) posited that uniformity has the strongest link with uncertainty avoidance and individualism. He also proposed a less strong link with power distance. The relationships between uniformity and the cultural dimensions are presented in Table 5. Gray's (1988) second hypothesis follows:

H2: The higher a country ranks in terms of uncertainty avoidance and power distance and the lower it ranks in terms of individualism, the more likely it is to rank highly in terms of uniformity.

Conservatism versus Optimism

Conservatism versus optimism (referred to as conservatism) is defined as a society's "preference for a cautious approach to measurement so as to cope with the uncertainty of future events as opposed to a more optimistic, laissez-faire, risk-taking approach" (Gray, 1988). This construct captures the importance of measurement in a society's accounting rules and regulations (Perera, 1989). Accounting rules and regulations govern the acceptable methods for measuring and reporting the value of net assets and profits. The reported value of net assets and profits for the same underlying transactions can vary by country based on different levels of cautiousness. This accounting value captures variations in the level of cautiousness at the country level. Gray (1988) posited that conservatism has the strongest link with uncertainty avoidance. He also proposed a less strong link with individualism and

masculinity. Gray's (1988) third hypothesis follows:

- H3: The higher a country ranks in terms of uncertainty avoidance and the lower it ranks in terms of individualism and masculinity, the more likely it is to rank highly in terms of conservatism.

Subsequently, Radebaugh, et al. (2006) expanded on conservatism by noting a strong relationship with long term orientation. They state that conservatism is positively related with long term orientation. The relationships between conservatism and all of the relevant cultural dimensions are presented in Table 5.

Secrecy versus Transparency

Secrecy versus transparency (referred to as secrecy) is defined as a society's "preference for confidentiality and the restriction of disclosure of information about the business only to those who are closely involved with its management and financing as opposed to a more transparent, open and publicly accountable approach" (Gray, 1988). This construct captures the importance of disclosure in a society's accounting rules and regulations (Perera, 1989). Financial statements are meant to depict the state of the firm in an accurate, yet concise, way. This balance between accuracy and conciseness results in variations in disclosure at the country level. Gray (1988) posited that secrecy has the strongest link with uncertainty avoidance, power distance, and individualism. He also proposed a less strong link with masculinity. Gray's (1988) fourth hypothesis follows:

- H4: The higher a country ranks in terms of uncertainty avoidance and power distance and the lower it ranks in terms of individualism and masculinity, the more likely it is to rank highly in terms of secrecy.

Subsequently, Radebaugh, et al. (2006) expanded on secrecy by noting a strong relationship with long term orientation. They state that secrecy is positively related with long term orientation. The relationships between secrecy and all of the relevant cultural dimensions are presented in Table 5.

Quantification of Gray's Accounting Values

Although the quantification of accounting values for 58 countries has not been previously completed, prior researchers have attempted this on a smaller scale. Eddie (1990) and Salter and Niswander (1995) create proxies for the accounting values from measures such as the wording within audit opinions and the valuation of assets and liabilities. They then examine the association between these measures of accounting values and Hofstede's (1980) cultural dimensions as described in Gray's (1988) four accounting value hypotheses. Eddie (1990) found statistically significant associations between his measures of accounting values and Hofstede's (1980) cultural dimensions for all thirteen of Gray's (1988) hypothesized

relationships using data from thirteen countries³. Salter and Niswander (1995) found statistically significant associations for six of Gray's (1988) thirteen hypothesized relationships using data from twenty-seven countries.

Braun and Rodriguez (2008) created a quantification of accounting values for 56 countries; however, they used Hofstede's (1980) data which has been criticized for a lack of theoretical foundation (Baskerville, 2003; McSweeney, 2002; Schwartz, 1994; Schwartz, 1992) and for being outdated (Shenkar, 2001). Others (Gray & Vint, 1995; Hope, 2003; Jaggi & Low, 2000; Wingate, 1997; Zarzeski, 1996) have used a country's disclosure index to focus specifically on the secrecy accounting value, finding full to partial support for Gray's (1988) hypothesized relationships using six to thirty-nine different countries. These studies have quantified Gray's (1988) accounting values in various ways, such as content analyses of audit opinion letters (Salter & Niswander, 1995), the presence or absence of a professional exam (Salter & Niswander, 1995), and content analyses of financial statements (Sudarwan & Fogarty, 1996; Zarzeski, 1996). A drawback to a majority of these studies is the subjectivity inherent in the method of quantification of the accounting values (Chanchani & MacGregor, 1999; Douppnik & Tsakumis, 2004).

In addition to these attempts at the quantification of accounting values, an attempt to collect primary data has been initiated. Chanchani and Willett (2004) present an accounting values survey (AVS) meant to measure a country's accounting values via financial statement preparers and users. While they state that the measurement of accounting values is in progress on a large scale, they have to date only presented results for India and New Zealand. One of their reasons for choosing these countries is their use of the English language. This avoids a very troublesome challenge of international business research – survey translation. This problem must be addressed before this large scale quantification of accounting values can continue.

We create a large scale quantification of accounting values by treating each accounting value as a multi-item measure. The items comprising each accounting value measure are the cultural dimensions described by Gray's (1988) four hypotheses. For example, hypothesis 1 states that the higher a country ranks in terms of individualism and the lower it ranks in terms of uncertainty avoidance and power distance, the more likely it is to rank highly in terms of professionalism. Therefore, to create the measure of a country's professionalism, we combine available measures of that country's individualism, uncertainty avoidance, and power distance dimensions of culture in the directions and strengths posited by Gray (1988). This indirect method of quantification essentially creates a proxy for each accounting value using culture as a basis.

Hofstede's (1980) cultural dimension scores would seem to be the likeliest candidate for the basis of the quantified accounting values because Gray (1988) used Hofstede's definitions of

³ The results in Eddie (1990) have been questioned Chanchani and MacGregor (1999) and Douppnik and Tsakumis (2004) due to the lack of independent validation of his accounting values measures.

cultural dimensions to describe accounting values. However, a major limitation of Hofstede's scores is the age of the data. Hofstede collected his data in the 1960s and 1970s. Although Hofstede (2001) argues that his scores are valid because culture changes slowly over time, Shenkar (2001) posits that cultures can substantially change over time and cultural stability is an illusion, thereby eroding the utility of Hofstede's (1980) scores. This and other criticisms have led some researchers (Baskerville, 2003; McSweeney, 2002; Schwartz, 1994; Schwartz, 1992) to argue that Hofstede's (1980) scores may no longer be completely valid. Schwartz (1999, 1994) presents cultural dimension scores based on data collected in the late 1980s and early 1990s; however, only 38 countries are represented. On the other hand, the GLOBE team present cultural dimension scores for 61⁴ societies based on recently collected data (House, Hanges, Javidan, Dorfman, & Gupta, 2004). We use the GLOBE data as an alternative to Hofstede's (1980) cultural dimension scores for the basis of the accounting values scores due to the scope and age of the GLOBE data.

Initially, Hofstede (1980) described culture through the use of four dimensions –uncertainty avoidance, power distance, individualism, and masculinity. Subsequently, he added a fifth dimension – long term orientation (Hofstede, 2001). As the state of the literature has progressed, the cultural dimensions have become more complex; for example, Schwartz (1994) described seven culture level value types. The GLOBE project (2004) followed Schwartz' (1994) theory-driven approach to scale development (Hanges & Dickson, 2004) and identified nine cultural dimensions.

The GLOBE project is primarily based on the results of the survey of over 17,000 middle managers in three industries: banking, food processing, and telecommunications, as well as archival measures of country economic prosperity and the physical and psychological well-being of the cultures studied (House, et al., 2004). The GLOBE cultural dimensions are uncertainty avoidance, power distance, future orientation, institutional collectivism, in-group collectivism, gender egalitarianism, performance orientation, assertiveness, and humane orientation. The cultural dimensions are described as (House, et al., 2004: 30, 239, 282, 513, 569):

Uncertainty Avoidance is the extent to which a society, organization, or group relies on social norms, rules, and procedures to alleviate the unpredictability of future events.

Power Distance is the extent to which a community accepts and endorses authority, power differences, and status privileges.

Future Orientation is the degree to which a collectivity encourages and

⁴ The GLOBE team administered their surveys in 62 societies, but scores for the Czech Republic are not presented due to response bias problems. Additionally, the GLOBE team captures different, yet similar, dimensions for two societies in each of three nations (Germany, South Africa, and Switzerland). Although culture can vary within the borders of a nation, accounting rules and regulations do not; therefore, I have averaged the GLOBE scores for the societies residing within one nation. This brings the total number of countries in our study to 58.

rewards future-oriented behaviors such as planning and delaying gratification.

Institutional Collectivism is the degree to which organizational and societal institutional practices encourage and reward collective distribution of resources and collective action.

In-Group Collectivism is the degree to which individuals express pride, loyalty, and cohesiveness in their organizations or families.

Gender Egalitarianism is the degree to which a collective minimizes gender inequality.

Performance Orientation reflects the extent to which a community encourages and rewards innovation, high standards, excellence, and performance improvement.

Assertiveness is the degree to which individuals are assertive, confrontational, and aggressive in their relationships with others.

Humane Orientation is the degree to which an organization or society encourages and rewards individuals for being fair, altruistic, friendly, generous, caring, and kind to others.

The nine GLOBE cultural dimensions can be related back to Hofstede's (2001, 1980) five dimensions. Three of them can be equated on a one to one basis. Hofstede's (2001, 1980) uncertainty avoidance, power distance, and long term orientation are similar to uncertainty avoidance, power distance, and future orientation; however, there are no statistically significant correlations between Hofstede's uncertainty avoidance, power distance, and long term orientation and GLOBE's uncertainty avoidance, power distance, and future orientation. Hofstede's (1980) individualism dimension has been split into institutional collectivism and in-group collectivism. Individualism is not statistically associated with in-group collectivism and negatively correlated with institutional collectivism ($R=-0.513$; $p=0.00$) (House, et al., 2004). Hofstede's (1980) masculinity dimension has been deconstructed into gender egalitarianism, performance orientation, assertiveness, and humane orientation. Hofstede's (1980) masculinity is not statistically associated with any of these GLOBE variables.

The GLOBE study decomposes the collectivism dimension of culture into institutional and in-group collectivism. The primary difference between the two is the level of analysis. The "level of analysis" concept portrays differences between the perspectives of individuals, groups, organizations, societies, countries, and global regions. For example, an examination of the economy at a high level of analysis would yield data on trade imbalances and tariff impacts while an examination at a low level of analysis would yield data on consumer behavior and local demand. Institutional collectivism concerns a higher level of analysis,

such as at the societal level. On the other hand, in-group collectivism focuses on a lower level of analysis, such as at the work group level of analysis. Accounting rules and regulations and, hence, accounting values, are applied at the country level. Therefore, institutional collectivism is the more appropriate dimension for the quantification of accounting values. However, an exception to this is the professionalism accounting value. This accounting value is concerned with the level of decision-making authority granted at the individual accountant level. Consequently, the in-group collectivism dimension is more appropriate for the quantification of the professionalism accounting value.

Gray (1988) and GLOBE (House, et al., 2004)

Gray (1988) explained the influence of culture on accounting with an objective and comprehensive framework. Additionally, he equated the accounting values framework to Hofstede's (1980) cultural dimensions in four testable hypotheses. However, in describing the relationships between the accounting values framework and Hofstede's cultural dimensions Gray (1988) left the door open for the use of a different measure of culture because he described the particular aspect of each dimension that related to the accounting values framework. We use Gray's (1988) additional information to equate accounting values to the GLOBE cultural scores, which makes the following quantification of the accounting values possible. A matrix of these relationships is presented in Table 6.

Table 6: Matrix of Relationships of Accounting Values with GLOBE Values

Accounting Value	Relationship Strength	Uncertainty Avoidance	Future Orientation	Power Distance	Institutional Collectivism
Professionalism vs. Statutory Control	Strong	Negative			
	Less Strong			Negative	
	Weak		Negative		
Uniformity vs. Flexibility	Strong	Positive			Positive
	Less Strong			Positive	
	Weak				
Conservatism vs. Optimism	Strong	Positive	Positive		
	Less Strong				Positive
	Weak				
Secrecy vs. Transparency	Strong	Positive	Positive	Positive	Positive
	Less Strong				
	Weak				

Accounting Value	Relationship Strength	Performance Orientation	In-Group Collectivism	Humane Orientation	Assertiveness
Professionalism vs. Statutory Control	Strong		Negative		
	Less Strong				
	Weak				Positive
Uniformity vs. Flexibility	Strong				
	Less Strong				
	Weak				
Conservatism vs. Optimism	Strong				
	Less Strong	Negative			
	Weak				
Secrecy vs. Transparency	Strong				
	Less Strong	Negative		Negative	
	Weak				

Gender Egalitarianism is not associated with any Accounting Value.

Blank squares indicate no relationship.

Mechanics of the Quantification

Each accounting value is a summative combination of the GLOBE cultural dimensions listed in Table 6. More specifically, the scores for the cultural dimensions in Table 6 that comprise each of the accounting values are added together to create a single score for each of the four accounting values. In addition, we have applied a weighting system to the quantification process. This weighting system is based on the accounting values literature. Gray (1988), Radebaugh, et al. (2006) used the terms strong, less strong, and weak to describe the

relationships between the cultural dimensions and the accounting values. In order to facilitate a weighted combination of the multiple items comprising an accounting value, we have translated this into a weight of three, two, and one for strong, less strong, and weak, respectively. In other words, a relationship described as less strong carries twice the effect in our weighting method as a relationship described as weak. Similarly, a relationship described as strong carries three times the effect of a relationship described as weak. As an alternative, we used weights of four, two, and one for strong, less strong, and weak (i.e., strong carried twice the weight of less strong and less strong carried twice the weight of weak); however, the difference between the two weighting systems was small or nonexistent⁵ and we employ the three, two, one weighting method here. This weighting method is straightforward and considers the varying strengths of the relationships described by Gray (1988) and Radebaugh, et al. (2006). The weighting is explained in greater detail for each accounting value below.

⁵ We tested the two weighting methods using paired *t* tests of means analyses. The 4-2-1 and 3-2-1 weighting methods produced no statistically significant difference in means for the Uniformity versus Flexibility ($t=0.490$, $p=0.626$) and Secrecy versus Transparency ($t=-0.991$, $p=0.326$) accounting values. The 4-2-1 method produced a Professionalism versus Statutory Control accounting value with a mean of 45.32 and the 3-2-1 method produced a mean of 45.81. This small difference (0.49) is statistically significant ($t=2.137$, $p=0.037$). The 4-2-1 method produced a Conservatism versus Optimism accounting value with a mean of 52.39 and the 3-2-1 method produced a mean of 51.61. This small difference (0.78) is statistically significant ($t=-3.902$, $p=0.000$). The four accounting values produced with the 4-2-1 method were virtually perfectly correlated with the four accounting values produced with the 3-2-1 method (Pearson $R \geq 0.998$).

Table 7: Descriptive Statistics, Tests of Normality, and Pearson Correlations

Accounting Value	Mean	S.D.	Min	Max	Kolmogorov- Smirnov Z	Corr.1	Corr. 2	Corr. 3
1. Professionalism vs. Statutory control	45.81	23.3	0.00	100.0	0.527			
2. Uniformity vs. Flexibility	54.96	27.1	0.00	100.0	0.770	-0.842		
3. Conservatism vs. Optimism	51.61	24.8	0.00	100.0	0.785	-0.859	0.935	
4. Secrecy vs. Transparency	52.47	23.5	0.00	100.0	0.663	-0.865	0.955	0.946

n = 58

Note: All Kolmogorov-Smirnov Z statistics are non-significant with p-values > 0.10 and all correlations are significant at the $p < .01$ level.

Professionalism versus Statutory Control

As shown in Table 6, the professionalism accounting value is strongly and negatively associated with uncertainty avoidance, weakly and negatively associated with future orientation, less strongly and negatively associated with power distance, strongly and negatively associated with in-group collectivism, and weakly and positively associated with assertiveness. To illustrate the quantification, the accounting values scores for Australia will be calculated. Using the weights described earlier and the GLOBE study (House, et al., 2004) cultural dimension scores, the professionalism score for Australia is the weighted sum of strong and negative uncertainty avoidance (3 X -3.98), weak and negative future orientation (1 X -5.15), less strong and negative power distance (2 X -2.78), strong and negative in-group collectivism (3 X -5.75), and weak assertiveness (1 X 3.81). Descriptive and other statistics for this score are presented later in Table 7.

Uniformity versus Flexibility

As shown in Table 6, the uniformity accounting value is strongly and positively associated with uncertainty avoidance, less strongly and positively associated with power distance, and strongly and positively associated with institutional collectivism. Using the weights described earlier and the GLOBE study (House, et al., 2004) cultural dimension scores, the uniformity score for Australia is the weighted sum of strong uncertainty avoidance (3 X 3.98), less strong power distance (2 X 2.78), and strong institutional collectivism (3 X 4.40). Descriptive and other statistics for this score are presented later in Table 7.

Conservatism versus Optimism

As shown in Table 6, the conservatism accounting value is strongly and positively associated with uncertainty avoidance, strongly and positively associated with future orientation, less strongly and positively associated with institutional collectivism, and less strongly and negatively associated with performance orientation. Using the weights described earlier and the GLOBE study (House, et al., 2004) cultural dimension scores, the conservatism score for Australia is the weighted average of strong uncertainty avoidance (3 X 3.98), strong future orientation (3 X 5.15), less strong institutional collectivism (2 X 4.40), less strong and negative performance orientation (2 X -5.89). Descriptive and other statistics for this score are presented later in Table 7.

Secrecy versus Transparency

As shown in Table 6, the secrecy accounting value is strongly and positively associated with uncertainty avoidance, strongly and positively associated with future orientation, strongly and positively associated with power distance, strongly and positively associated with institutional collectivism, less strongly and negatively associated with performance orientation, and less strongly and negatively associated with humane orientation. Using the weights described earlier and the GLOBE study (House, et al., 2004) cultural dimension scores, the secrecy score for Australia is the weighted sum of strong uncertainty avoidance (3 X 3.98), strong future orientation (3 X 5.15), strong power distance (3 X 2.78), strong institutional collectivism (3 X 4.40), less strong and negative performance orientation (2 X -5.89), and less strong and negative humane orientation (2 X 5.58). Descriptive and other statistics for this score are presented later Table 7.

Standardization of Quantified Scores

The GLOBE cultural dimension scores were gathered with a survey using a seven-point scale (House, et al., 2004). This characteristic was transferred to the unstandardized accounting values scores⁶. For increased clarity of understanding and the intuitiveness of the accounting values scores, the scores presented are standardized to create a range between zero and 100. Standardization converts variables to a common scale and is generally performed to create data with a mean of zero and standard deviation of one (Hair, Black, Babin, Anderson, & Tatham, 2006). For the accounting values scores, we standardized to a given range rather than a given mean and standard deviation. This creates scores that look similar to one another, but allows for different, albeit similar, means and standard deviations. This is important because readers will likely be more comfortable reading a secrecy score for Australia of 26 rather than 4.465. Furthermore, comparing the secrecy scores of Australia and China may be easier for some if the scores are 26 and 58 rather than 4.465 and 4.780. The unstandardized and standardized scores are perfectly correlated, have the same distribution, and are statistically identical in all other respects.

⁶ The unstandardized accounting values scores are not presented.

Characteristics of Quantified Scores

Table 7 presents some descriptive information about the quantified scores. The accounting values scores have means of 46 to 55 and standard deviations of 23 to 27, as presented in Table 7. Due to the standardization step of the quantification process, all of the scores range from zero to 100. A normal distribution is an important characteristic in data such as these because of the assumptions of ordinary least squares regression. Table 9 shows the Kolmogorov-Smirnov Z scores for all four accounting values scores. All four of the accounting values scores have Kolmogorov-Smirnov Z scores that are not statistically significant. This indicates normal distributions for all four scores (Massey, 1951).

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