Effect of Cultural Environmental and Accounting Regulation on Earnings Management: A Multiple Year-Country Analysis

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Abstract

We analyze the effect of cultural values and disclosure and earnings management scores on earnings management in 27 countries. The results indicate that debt-to-equity ratio (total assets) affects the earnings management upwards (downwards). These results are consistent with prior studies. Uncertainty Avoidance also affects the direction of earnings management downwards. Other cultural values, such as Individualism, Power Distance, and Masculinity, have a significant effect on the magnitude of earnings management. The results indicate that the higher the values of these variables, the higher the magnitude of earnings management. Furthermore, Disclosure Index has a significant effect on the magnitude of earnings management.

JEL Classifications: M41

Keywords: earnings management, cultural values, accounting values, multi-country comparison

1. Introduction

There is a large volume of empirical research that seeks to document earnings management in the U.S. and identify some of its causes and consequences (see Healy and Wahlen, 1999; Beneish, 2001; and Schipper and Vincent, 2003 for literature reviews). Some of the more recent studies have examined earnings management in an international context by associating earnings management of various countries to country-specific institutional factors (see e.g., Darrough, Pourjalali, and Saudagaran, 1998; Bhattacharya, Daouk, and Welker, 2003; Kinnunen and Koskela, 2003). Factors

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identified in prior research as potential determinants of earnings management include debt contracting costs, political costs, and ownership and management incentive compensation plans. The research, however, has not emphasized the possible effects of cultural values on earnings management. We address this issue here by identifying measures of cultural values and linking these measures to earnings management.

In this paper, we evaluate the effect of cultural values on earnings management for 27 countries. To test the effect, this paper uses Hofstede’s\(^1\) (1983) four cultural value measures: Individualism, Power Distance, Masculinity, and Uncertainty Avoidance. To control the environmental variables beyond those of culture, we will include Leuz, Nanda, and Wysocki’s (2003) disclosure indices, which are based on factors that are not necessarily culture-related. Our results suggest a significant cultural effect on the earnings management behavior across the countries.

The organization of this paper is as follows: Section 2 provides literature background and hypotheses. The sample selection and research design are reported in Section 3. Section 4 presents the results of the tests for the hypotheses. In Section 5 we provide some sensitivity analysis to address some of the methodological difficulties in our research. The paper is summarized and concluded in section 6.

### 2. Background and Hypothesis Development

A firm’s accounting accrual choices are affected by its social, cultural, political, legal, and economic environment. Since it is virtually impossible to consider all of these factors in one project, this paper focuses on the effects of cross-country cultural differences on discretionary accrual choices, hence the effect of culture on earnings management. To control for variables known to affect earnings management, some of these variables, such as debt-to-equity and size, are also added to our model.

#### Cultural variables

There is probably an infinite number of ways in which cultures differ. Many theorists have classified cultures and suggested some of the dimensions of cultural differences. Empirical investigations (e.g., Hofstede, 1980 and 1983; Hofstede and Bond, 1988; Schwartz, 1994; House et al., 2004) have also provided such dimensions. These empirical dimensions give social science researchers a basis for linking culture to different aspects of social choices. For example, accounting theorists (e.g., Gray, 1988) have linked cultural values to accounting values and practices. While Hofstede (1983) was able to quantify his cultural dimensions among countries, Gray (1988) did not provide quantitative values for his accounting values. This lack of the quantitative accounting values has made it difficult to test theories that relate accounting practices and managerial and financial decisions to cultural values in different nations, that is,

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\(^1\) Hofstede and Bond (1988) report five cultural value measures: Individualism, Power Distance, Masculinity, Uncertainty Avoidance, and Long-term Social Value. Because of the lack of available data for the Long-term Social Value for all counties under study, we did not include this variable in our analysis.
to test theories such as Gray’s. This paper attempts to provide empirical evidence for the association between cultural values and companies’ earnings management. The following paragraphs provide more details on both Hofstede’s and Gray’s theories.

Hofstede obtained data from more than 116,000 questionnaires answered by employees of a large multinational corporation in 72 countries. Using factor analysis, he found at least four factors underlying differences in nations’ cultural values: individualism, power distance, uncertainty avoidance, and masculinity. These factors, which provide information about cultural differences across nations and thus permit comparisons among countries, are explained as follows (Robock and Simmonds, 1989, pp. 421-422):

**Individualism** (vs collectivism): The extent to which the individual expects personal freedom versus the acceptance of responsibility to family, tribal, or national groups (i.e., collectivism).

**Power Distance**: The degree of tolerance for inequality of wealth and power indicated by the extent to which centralization and autocratic power are permitted. People in large power distance societies accept a hierarchical order in which everybody has a place which needs no further justification. People in small power distance societies strive for power equalization and demand justification for power inequalities.

**Uncertainty Avoidance**: The extent to which society avoids risk and creates security by emphasizing technology and buildings, laws and rules, and religion. Weak uncertainty avoidance societies maintain a more relaxed atmosphere in which practice counts more than principles and deviance is more easily tolerated.

**Masculinity** (vs Femininity): The extent to which society differentiates roles between the sexes and places emphasis on masculine values of performance and visible achievement. Femininity stands for a preference for relationships, modesty, caring for the weak, and the quality of life.

Hofstede also noted the role of a fifth dimension of culture, long-term versus short-term orientation in life (Hofstede, 1991). This long-term perspective in Asian countries can be considered a direct consequence of Confucian teaching, which has been passed on by the large Chinese population in Asian-Pacific countries and has resulted in a

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2 Accounting literature provides evidence that social values are reflected in accounting values (e.g., see Pourjalali and Meek, 1995; and Chow, Shields, and Wu, 1999). Gray (1988) provided a theoretical linkage between accounting practices and cultural values (pp. 9-11).

3 A more detailed definition is provided by Lau and Mau (1997, p. 69): Individualism stands for a preference for a loosely knit framework in a society wherein individuals are only supposed to take care of themselves and their immediate families. On the other hand, collectivism stands for a preference for a tightly knit social framework in which individuals can expect their relatives, clan, or other in-group to look after them in exchange for unquestioning loyalty.

4 Lau and Ma (1997, p. 70) discuss this dimension in Chinese culture: “Chinese culture is long-term oriented; it focuses on the future and values thrift, perseverance and the family.”
large amount of savings and conservative behavior.\textsuperscript{5} Accounting literature provides a theoretical basis (and some empirical evidence) for the argument that accounting practices (and/or accounting values) are affected by cultural and social values. Because different accounting practices result in different choices of accounting accruals, we propose that accounting values affect the choices of earnings management.

For example, countries with a high degree of Conservatism may choose income-decreasing accounting accruals more often than those with a low degree of Conservatism. On the other hand, information disclosure may depend upon the level of Secrecy in a culture. Firms from countries with a higher Secrecy level are likely to disclose less public information (Zarzeski, 1996). Firms engaging in more earnings management may also provide fewer disclosures (Leuz \textit{et al.}, 2003). Therefore, if a country ranks high in Secrecy, the accounting information system might provide a greater opportunity for earnings management because the managers are not required to disclose as much information as are managers in countries that rank low in Secrecy.

Unfortunately, the lack of quantitative measurements for accounting values makes direct tests of the effect of these values on earnings management very difficult. One way to remedy this problem is to test the effect of cultural values (as defined and quantified by Hofstede) on earnings management directly. Hofstede presents ordinal values for cultural dimensions, alleviating the difficulty imposed by the dummy variable issue. Furthermore, if we detect that cultural values are affecting earnings management, we can infer that it is the relationship between cultural values and accounting values that is driving different earnings management behavior in the countries. Table 1 provides index values for sample countries on four cultural factors (dimensions) as reported by Hofstede (1983, 1988).

\begin{table}[h]
\centering
\caption{Scores on Five Cultural Dimensions for Fifty Countries and Three Regions}
\begin{tabular}{|c|c|c|c|c|c|}
\hline
\textbf{Country} & \textbf{Power Distance} & \textbf{Individualism} & \textbf{Masculinity} & \textbf{Uncertainty Avoidance} & \textbf{Confucian Dynamism (long-term orientation)} \\
\hline
Australia & 36 & 90 & 61 & 51 & 31 \\
Austria & 11 & 55 & 79 & 70 & \\
Belgium & 65 & 75 & 54 & 94 & \\
Canada & 39 & 80 & 52 & 48 & 23 \\
Denmark & 18 & 74 & 16 & 23 & \\
Finland & 33 & 63 & 26 & 59 & \\
France & 68 & 71 & 43 & 86 & \\
Germany (W) & 35 & 67 & 66 & 65 & 31 \\
Great Britain & 35 & 89 & 66 & 35 & 25 \\
Greece & 60 & 35 & 57 & 112 & \\
Hong Kong & 68 & 25 & 57 & 29 & 96 \\
India & 77 & 48 & 56 & 40 & 61 \\
Italy & 50 & 76 & 70 & 75 & \\
Japan & 54 & 46 & 95 & 92 & 80 \\
Korea (S) & 60 & 18 & 39 & 85 & 75 \\
\hline
\end{tabular}
\end{table}

\textsuperscript{5} Because of limited data, we have not included this variable in our analysis.
Malaysia & 104 & 26 & 50 & 36 \\
Netherlands & 38 & 80 & 14 & 53 & 44 \\
Norway & 31 & 69 & 8 & 50 \\
Philippines & 94 & 32 & 64 & 44 & 19 \\
Portugal & 63 & 27 & 31 & 104 \\
S. Africa & 49 & 65 & 63 & 49 \\
Singapore & 74 & 20 & 48 & 8 & 48 \\
Spain & 57 & 51 & 42 & 86 \\
Sweden & 31 & 71 & 5 & 29 & 33 \\
Switzerland & 34 & 68 & 70 & 58 \\
Taiwan & 58 & 17 & 45 & 69 & 87 \\
Thailand & 64 & 20 & 34 & 64 & 56 \\

(Source: Hofstede, 1983 and 1988)

Hofstede’s measurement of culture has faced challenges. For example, Baskerville (2003) criticized the assumption that mere difference in nationality represents differences in culture. Baskerville points out that one country may represent several cultures. However, Hofstede (1998) argues that a considerable number of nations represent homogeneous cultural values and that national media and national institutions improve the homogenization of the national culture. Hofstede (1998) suggests that the significant correlations among the data collected from a nation validate this reasoning. McSweeney (2002) has a more fundamental criticism of Hofstede’s values, suggesting that Hofstede’s methodology is fundamentally flawed.

In summary, because of difficulties in measuring accounting values and their relationship to cultural values, we cannot directly test the effect of accounting values on earnings management. To test the effect of accounting values indirectly, we will evaluate whether a meaningful and significant relationship between Hofstede’s cultural values and earnings management exists. When such a relationship is observed, we infer indirectly that accounting values (by virtue of their linkage to cultural values) affect earnings management.

The effect of cultural values on earnings management

While the effect of most of the cultural values on earnings management may be difficult to explain, the relationship between Uncertainty Avoidance and earnings management is straightforward. By definition, a society is considered high in Uncertainty Avoidance when it avoids risk and creates security by emphasizing technology and buildings, laws and rules, and religion. A weak Uncertainty Avoidance society maintains a more relaxed atmosphere in which practice counts more than principles and deviance is more easily tolerated. Given this definition, we expect that managers in high Uncertainty Avoidance societies will choose income-decreasing accounting accruals to report earnings downward and avoid future risks. Furthermore, they can create a safety zone for future reports, in case they need to adjust earnings upward during the years when actual earnings are lower than expected. Consequently, the following hypothesis will be tested in this paper:
**H1:** The higher the degree of Uncertainty Avoidance in a society, the more income-decreasing accounting accruals will be used by companies.

The effect of other cultural values on the direction of earnings management is not as clear as that of Uncertainty Avoidance. For example, in societies high in Individualism, managers have more flexibility and freedom to choose their accounting methods (or accruals); hence the magnitude of earnings management in these societies is expected to be higher. However, there is no reason for managers in highly individualistic societies to choose income increasing or decreasing accounting accruals. His/her choice of the direction of earnings management may depend on factors other than cultural values, such as traditional factors for earnings management in the U.S. (e.g. closeness to debt covenants). A similar argument can be made for Masculinity and Power Distance. The Masculinity factor addresses the values that the society gives to performance and visible achievement. Consequently, managers in high Masculinity societies may tend to manage earnings more often (to show their achievement in case of upward earnings choices or to reduce it - take a bath - in anticipation of future increases in earnings). In the case of Power Distance, in which the degree of hierarchical order is measured, a higher magnitude of earnings management can be expected for higher Power Distance societies because power equalization and the demand for justification for power inequalities is not highly regarded in these societies. Since we are unable to predict the direction of the earnings management for these three cultural values, the following hypothesis will be tested:

**H2:** The higher the degrees of Individualism, Masculinity, and Power Distance, the higher the magnitude of earnings management (no direction for earnings management is predicted).

Table 2 summarizes our expectations for the effect of cultural values on the magnitude and direction of earnings management.

<table>
<thead>
<tr>
<th>Effect on</th>
<th>Power Distance</th>
<th>Individualism</th>
<th>Masculinity</th>
<th>Uncertainty Avoidance</th>
<th>Long term orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnitude of Earnings management</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>?</td>
<td>--</td>
</tr>
<tr>
<td>Direction of earnings management</td>
<td>?</td>
<td>?</td>
<td>?</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

Notes:

(--) Represents negative relationship
(+ ) Represents positive relationship

* Not included in this study
Traditional reasons for earnings management

Previous studies provide evidence that factors which have traditionally affected choices of accounting accruals may hold in different countries. These traditional factors are Debt/Equity (as a measure for closeness to debt covenants), Size (as a measure for political sensitivity), and Bonus variables. Another variable that may affect the choices of accounting accruals is the firm’s effective income tax rate. Depending on the environment in which a firm operates, these variables may have different effects on the choices of accounting accruals and earnings management. For example, while a high degree of leverage may be considered an unhealthy signal in western countries (such as in the U.S. and Australia), it is (or used to be) considered a healthy signal in the Japanese environment. In Japan, the close relationship between firms and banks allows managers to take a long-term perspective without worrying about short-term corporate performance (Darrough, Pourjalali, and Saudagaran, 1998). Therefore, debt-related variables may not have any effect on the accounting accrual or earnings management choice in Japan, but may be very important for choices in Australia.

Debt Covenants

Most accounting-choice research has used the debt-to-equity ratio as a surrogate for a firm’s closeness to debt covenant violations and found that the higher the debt-to-equity ratio, the more income-increasing accounting methods managers choose. The results of Duke and Hunt (1990) suggest that the debt-to-equity ratio is a good surrogate for the closeness to or existence of debt covenant restrictions for more than 60 percent of the restrictions that relate to retained earnings, working capital, and net tangible assets (p. 56). Thus, as the debt-to-equity ratio increases, income-increasing activity is expected; that is, a positive association is predicted.

As mentioned previously, even though the debt ratio may be a good proxy for measuring closeness to debt covenants, there is no compelling reason to believe that the closeness to debt covenants will influence the managers in other countries to choose to increase accruals. Different sources of debt could also result in different effects of debt covenants on earnings management. Most Japanese corporations borrow money from banks, while most large U.S. corporations borrow through the issuance of long-term bonds. Furthermore, on average, Japanese companies have a higher debt-to-equity ratio than do U.S. companies, and the higher rate does not necessarily mean that the firm is closer to debt covenant violations. The following hypothesis is suggested with the expectation that it might not hold for the countries under study:

H3: The larger the firm’s debt/equity ratio, the greater the manager’s incentive to choose income-increasing accruals (positive earnings management).

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6 We did not include the Bonus variable in this study, as we did not have access to the relevant data.
Political cost/public exposure variables

Past studies often used size (measured by total assets) as a proxy for political sensitivity (Watts and Zimmerman, 1990). The expectation is that larger firms are more subject to political scrutiny because they play a larger role in a country’s economy. Stated differently, larger firms are watched more closely than smaller companies in any nation. When a firm provides high levels of income, it is suggested, the regulatory bodies question whether the company is exercising monopoly power. A current example in the U.S. is Microsoft and its problems with U.S. and EU regulatory bodies. We do not expect that the same relation will necessarily hold in countries such as Japan and Hong Kong, because their economic climate is friendlier to large businesses than that in western countries. These governments focus on the competitiveness of their companies in the global market, while U.S. authorities have largely focused on the domestic market when measuring market dominance. Furthermore, these governments have not been as concerned with anti-trust regulation as has the United States.

Another noteworthy point is that the Size variable may also be a proxy for effects other than political sensitivity. For example, the operating characteristics of smaller firms may be significantly different from those of larger firms (e.g., greater default risk). Thus, it seems possible that the accounting accrual behavior of larger and smaller firms may differ because of factors other than political sensitivity. The following hypothesis is suggested here to capture the effect of size on the choice of accounting accruals. While this hypothesis may not hold for individual countries, we expect that it will hold for our sample, which comprises multiple country-years.

**H4: The larger the size of the firm, the greater the manager’s incentive to choose income-decreasing accruals (negative earnings management).**

**Tax variable**

Managers of international companies may change accounting accruals to minimize the company’s income taxes. It is obvious that if earnings management can affect the amount of income taxes, managers in higher tax rate environments have more incentives to manage earnings downward. Since it is not possible to determine the “true” marginal tax rate (i.e., the marginal tax rate without earnings management), we use the average effective tax rate based on the company’s ratio of total tax payment to total taxable income. The following hypothesis will be used to test this argument:

**H5: The higher the tax rates, the greater the manager’s incentive to choose income-decreasing accruals (negative earnings management).**

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7 However, Darrough, Pourjalali, and Saudagar (1998) found that the Size variable affected the choices of accounting accruals in Japan after the 1990s Japanese stock market crash.
The Disclosure Index and Earnings Management scores

Using annual reports of companies in over 30 countries, Leuz et al. (2003) compiled two different scores for each country: the Disclosure Index (DI) score and the Earnings Management Score (EMS). The Disclosure Index variable measures the inclusion or omission of 90 accounting items in firms’ 1990 annual reports, and hence captures firms’ disclosure policies, the level of disclosure of non-financial information, at the country level. Leuz et al. (2003) suggest that when the level of disclosure increases, the magnitude of earnings management decreases. This argument is consistent with the suggestion that with a decrease in the level of Secrecy, annual reports provide less deceptive information.

The EMS is the country’s rank in the aggregate measure of four earnings management metrics: smoothing reported operating earnings using accruals, the correlation between changes in accounting accruals and operating cash flows, the magnitude of accruals, and small loss avoidance. The higher this measure, the more management is expected to manage earnings. Since both of these scores can be a surrogate for measures other than the cultural values in each country, we have included them in the model, and the following hypothesis will be tested:

\[ H6: \text{The lower the Disclosure Index (DI) and the Earnings Management Scores (EMS), the higher the magnitude of earnings management.} \]

3. Sample Selection and Research Design

Sample selection and description

Several sources of data were used for this study. The main source was the 2003 version of the Global Vantage database. Data for the 15-year period 1987-2001 were used in both the estimation of discretionary accruals and subsequently in the multivariate regressions. Data were limited to the 27 countries for which the disclosure and earnings management scores (DI and EMS) were available in Leuz et al. (2003). The final sample consisted of 84,748 firm-year observations across the 27 countries. Hofstede’s indices were available for all the countries in the sample. If we had included the fifth index – long-term social value - in the model, the number of countries would have been limited to 14 (66,847 firm-year observations).

Measurement of earnings management

A number of the prior studies investigating earnings management behavior have focused on explaining accounting choices by examining the relationship between an accounting choice variable and a number of explanatory variables. In defining the

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8 We used the EMS score as a dependent variable and Hofstede’s cultural values as independent variables. The cultural values explain over 40 per cent of the variations in EMS scores, suggesting that cultural values are represented in the EMS scores.
accounting choice variable, four different approaches have been most widely used: (1) single procedure (e.g., Hagerman and Zmijewski, 1979), (2) sets of procedures (e.g., Zmijewski and Hagerman, 1981; Press and Weintrop, 1990; Inoue and Thomas, 1996), (3) net accruals (e.g., Healy, 1985; DeAngelo, 1988), and (4) the discretionary component of total accruals (e.g., Jones, 1991). The first three definitions of accounting choice have been criticized as being poorly specified (Watts and Zimmerman, 1990).

Dechow, Sloan, and Sweeney (1995) assess the relative performance of five discretionary accrual models (Healy; DeAngelo; Jones; modified Jones; and industry) in detecting earnings management. Based on four sets of power tests, they conclude that a modified version of the Jones (1991) model provides the most powerful tests of earnings management. Therefore, the cross-sectional variation of the modified Jones (1991) model is used in this study to measure the discretionary accruals. Total accruals ($TA_t$) are measured as the change in noncash working capital (excluding current maturities of long-term debt) less total depreciation expense for the current period in year $t$, scaled by total assets at year $t-1$; that is, 

$$TA_t = \left[ (\Delta CA_t - \Delta CASH_t) - (\Delta CL_t - \Delta CMLTD_t) - DEP_t \right] / A_{t-1}$$

where

- $TA_t$ = total accruals in year $t$
- $\Delta CA_t$ = change in current assets in year $t$
- $\Delta CASH_t$ = change in cash in year $t$
- $\Delta CL_t$ = change in current liabilities in year $t$
- $\Delta CMLTD_t$ = change in current portion of long-term debt in year $t$
- $DEP_t$ = depreciation and amortization expense in year $t$
- $A_{t-1}$ = total assets at the end of year $t-1$.

We measure nondiscretionary accruals for firm $i$ in year $t$ ($NDA_{it}$) as

$$NDA_{it} = \alpha_{it} (1 / A_{it-1}) + \beta_{1it} (\Delta REV_{it} / A_{it-1}) - \Delta REC_{it} / A_{it-1} + \beta_{2it} \left( PPE_{it} / A_{it-1} \right)$$

where

- $\Delta REV_{it}$ = change in revenue for firm $i$ in year $t$
- $\Delta REC_{it}$ = change in net receivables for firm $i$ in year $t$
- $PPE_{it}$ = gross property, plant, and equipment for firm $i$ at the end of year $t$
- $\alpha_{it}, \beta_{1it}, \beta_{2it}$ = firm-specific parameters for firm $i$ in year $t$.

The Jones model has also been the subject of criticism, for example critiques by Holthausen, Larker, and Sloan (1995), Beneish (1997), and McNichols (2000). They criticized the model for its inability to isolate the earnings management component of total accruals. Thomas and Zhang (2000) suggest that the performance of accrual models is dismal.
The firm-specific parameters, $\alpha_{it}$, $\beta_{1it}$, and $\beta_{2it}$, for every sample firm $i$ in year $t$, are estimated with the cross-sectional variation of the modified Jones (1991) model using the one-digit SIC code for firm $j$’s data ($j \neq i$):

$$TA_{jt} = \alpha_{it} \left(1/A_{jt-1}\right) + \beta_{1it} \left(\frac{\Delta REV_{jt}}{A_{jt-1}} - \frac{\Delta REC_{jt}}{A_{jt-1}}\right) + \beta_{2it} \left(\frac{PP{E}_{jt}}{A_{jt-1}}\right) \quad (3)$$

Discretionary accruals for firm $i$ in year $t$ ($DA_{it}$) are defined as

$$DA_{it} = TA_{it} - NDA_{it}. \quad (4)$$

**Model specification**

The model to be tested takes the following form:

$$DA_{it} = b_0 + b_1 DE_{it-1} + b_2 ASSET_{it-1} + b_3 TR_{it} + b_4 POWER_i + b_5 UNCERT_i + b_6 INDIV_i + b_7 MASC_i + b_8 DI_i + b_9 EMS_i + \epsilon_{it} \quad (5)$$

where

- $DE_{it-1}$ = book debt to book equity ratio for firm $i$ at the end of year $t-1$
- $ASSET_{it-1}$ = total assets (in millions of U.S. dollars) for firm $i$ at the end of year $t-1$
- $TR_{it}$ = effective tax rate for firm $i$ in year $t$
- $POWER_i$ = Power Distance index of firm $i$ (from Table 1)
- $UNCERT_i$ = Uncertainty Avoidance index of firm $i$ (from Table 1)
- $INDIV_i$ = Individualism index of firm $i$ (from Table 1)
- $MASC_i$ = Masculinity index of firm $i$ (from Table 1)
- $DI_i$ = Disclosure score from Leuz, Nanda, and Wysocki (2003)
- $EMS_i$ = Earnings Management score from Leuz, Nanda, and Wysocki (2003)
- $\epsilon_{it}$ = random error term
- $b_0 \ldots b_9$ = model parameters.

When both the direction and magnitude of earnings management is tested, the expected signs of the coefficients are $b_1>0$, $b_2<0$, $b_3<0$, $b_4$ no direction, $b_5<0$, $b_6$ no direction, $b_7<0$, and $b_8<0$.

When only the magnitude of earnings management is tested, the expected signs of the coefficients are $b_1>0$, $b_2<0$, $b_3<0$, $b_4>0$, $b_5<0$, $b_6>0$, $b_7<0$, and $b_8<0$.

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10 Most other studies using the cross-sectional Jones (1991) model with U.S. data use the two-digit SIC code. However, due to the limitation of the Global Vantage database, it is not practical to use the two-digit SIC code; therefore, we chose to use the one-digit SIC code in the cross-sectional regression.
4. Results

Sample

Table 3 provides details of observations per country and year. As Table 3 shows, Japan and Great Britain, with observations of 29,515 and 12,885 respectively, represent about 50 per cent of observations in the sample. Consequently, the results of this study may be heavily biased on the variables that are significant in these two countries. Other countries such as the Philippines, Portugal, South Africa, Greece, Taiwan, and Austria have fewer than 1,000 observations per country. This small number of observations can also bias the results, as the results may not be affected by the observations in these countries. However, given the number of observations (84,748), we believe that the sample is large enough not to be affected by these problems.

Table 3 Details of observations per country and year

<table>
<thead>
<tr>
<th>Year</th>
<th>Australia</th>
<th>Austria</th>
<th>Belgium</th>
<th>Canada</th>
<th>Switzerland</th>
<th>Germany</th>
<th>Denmark</th>
<th>Spain</th>
<th>Finland</th>
<th>France</th>
</tr>
</thead>
<tbody>
<tr>
<td>1987</td>
<td>197</td>
<td>13</td>
<td>43</td>
<td>121</td>
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<td>980</td>
<td>129</td>
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</table>

11 The tests were also run without the Japanese and British companies. Although the number of observations was reduced to almost half, the results did not materially change. However, the results of the analysis may differ for the samples with and without Japanese and British firms, depending on the choice of dependent variables in the model. We attribute these differences to the multicollinearity problem that exists in the sample.
Table 4 provides the average values for the traditional independent variables (debt-to-equity, total assets, and tax rate). Cultural values and disclosure and earnings management scores are not provided in Table 4 as these values remain the same across the years in each country. Inspection of the values reveals that, on average, sample companies are heavily financed and have continued to grow in size (in all years except 1993 and 1994, in which the economic recession in Asia became a reality). The tax rate,
which ranges from 36 per cent (in 1987) to 25 per cent (in 2001), decreased steadily during the years under study.\textsuperscript{12}

Table 4 Descriptive Statistics of Dependent Variables

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<th>N</th>
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<th>a</th>
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</table>

Note: Values for cultural values and Disclosure and Earnings Management scores are similar for each nation across years.

Table 5 reports the correlation matrix for the independent variables. As Table 5 shows, all independent variables have statistically significant correlations with each other. We expected the high correlation because the cultural index value and the earnings management and disclosure scores for each country are the same, and thus are reported multiple times in observations in the model.\textsuperscript{13} As such, we must be cautious when interpreting the results of the analyses. For example, since multicollinearity inflates the standard errors of the parameter estimates, the estimates tend to appear statistically insignificant while in fact they may be significant without the multicollinearity.\textsuperscript{14}

\textsuperscript{12} The overall average values for the sample without Japanese and British companies indicate a lower debt-to-equity ratio (0.81 vs. 0.97), larger size companies (3.7 vs. 2.19) and lower tax rates (0.24 vs. 0.30). The lower debt-to-equity ratio was influenced by the exclusion of Japanese companies that have the highest debt-to-equity ratios. The larger firm size average, in part, is related to the size of listed companies in developing companies (smaller companies are not listed in these countries).

\textsuperscript{13} For this research, we considered these values as group representatives, distinguishing a group or a country higher or lower (than another country) in a specific independent variable. We do not consider these values specific to an observation.

\textsuperscript{14} Since most of the estimates of interest are statistically significant in our model, we believe that multicollinearity among the independent variables has not caused a great problem in finding significant variables. However, the multicollinearity problem may have caused some of the variables in some years to be (in)significant.
Table 5 Pearson Correlation Coefficients

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<th>DI</th>
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Variable definition:
- de = book debt to book equity ratio for firm I at the end of year t-1
- a = total assets (in millions of U.S. dollars) for firm I at the end of year t-1
- tr = effective tax rate for firm I in year t
- power = power distance index of firm I (from Table 1)
- uncert = uncertainty avoidance index of firm I (from Table 1)
- indiv = individualism index of firm I (from Table 1)
- masc = masculinity index of firm I (from Table 1)
- di = disclosure Score from Leuz, Nanda, and Wysocki (2003)
- ems = earnings management Score from Leuz, Nanda, and Wysocki (2003)

Results of analysis

The data were analyzed using Ordinary Least Square (OLS). Each hypothesis was tested in two different ways: by the direction of the earnings management and by the magnitude of the earnings management. To test the magnitude, we used the absolute value of earnings management. Table 6 provides the results for both the directional test (Panel A) and the magnitude test (Panel B). In the directional test, results for debt-to-equity ratios and for assets (both significant) are consistent with our predicted directions: the higher the debt-to-equity ratio, the more upward earnings management and the larger the firm, the more downward earnings management.
Table 6 Regression results for Pooled sample

Panel A: Directional test

| Variable | Parameter Estimate | Standard Error | t Value | Pr > |t| |
|----------|--------------------|----------------|---------|-------|
| Intercept | 0.23545 | 0.10169 | 2.32 | 0.0206 |
| de | 0.00007224 | 0.00001888 | 3.83 | 0.0001 |
| a | -0.01885 | 0.00023384 | -80.62 | <.0001 |
| tr | 0.00018753 | 0.00012270 | 1.53 | 0.1264 |
| power | -0.00222 | 0.00030594 | -7.27 | <.0001 |
| uncert | 0.00043448 | 0.00022901 | 1.90 | 0.0578 |
| indiv | -0.00234 | 0.00032069 | -7.29 | <.0001 |
| masc | -0.00176 | 0.00019520 | -9.04 | <.0001 |
| DI | 0.000187 | 0.00110 | 1.71 | 0.0872 |
| EMS | 0.00011643 | 0.00125 | 0.09 | 0.9257 |

Panel B. Magnitude test

| Variable | Parameter Estimate | Standard Error | t Value | Pr > |t| |
|----------|--------------------|----------------|---------|-------|
| Intercept | 0.15747 | 0.0001870 | -4.27 | <.0001 |
| a | 0.01866 | 0.00023152 | 80.58 | <.0001 |
| tr | -0.00087044 | 0.00012148 | -7.17 | <.0001 |
| power | 0.00281 | 0.00030291 | 9.29 | <.0001 |
| uncert | -0.00097093 | 0.00022674 | -4.28 | <.0001 |
| indiv | 0.00264 | 0.00031751 | 8.32 | <.0001 |
| masc | 0.00041655 | 0.00019327 | 2.16 | 0.0311 |
| DI | -0.00377 | 0.00108 | -3.47 | 0.0005 |
| EMS | -0.00191 | 0.00124 | -1.55 | 0.1218 |

Variable definition:

de = book debt to book equity ratio for firm I at the end of year t-1
a = total assets (in millions of U.S. dollars) for firm I at the end of year t-1
tr = effective tax rate for firm I in year t
power = power distance index of firm I (from Table 1)
uncert = uncertainty avoidance index of firm I (from Table 1)
indiv = individualism index of firm I (from Table 1)
masc = masculinity index of firm I (from Table 1)
DI = disclosure Score from Leuz, Nanda, and Wysocki (2003)
EMS = earnings management Score from Leuz, Nanda, and Wysocki (2003)

Panel A results also indicate that a higher Uncertainty Avoidance value results in downwards earnings management (at 0.056 level of significance), similar to our hypothesis. We had not predicted any direction for other cultural factors (Individualism, Power Distance, and Masculinity), but the results suggest that higher values for all of these variables significantly affect the direction of earnings management downwards. The Disclosure Index (DI) and Earnings Management (EMS) scores have no significant
directional affect on earnings management.\textsuperscript{15} The tax rate also does not show a significant effect on the direction of earnings management. Our expectation that the higher the tax rate, the more downward earnings management, was not supported. This result could, in part, be related to the decreasing tax rate that was observed over the years under study. Given that the tax rate, on average, decreased, managers may not have had as much tax incentive to manage earnings. However, as will be discussed, the tax rate shows a significant effect on the magnitude of earnings management.

Panel B of Table 6 displays the effect of the independent variables on the magnitude of earnings management. The dependent variable in this panel is the absolute value of the earnings management for the sample. Interestingly, all variables (except the EMS score) are significant. The variables that we expected to have a positive magnitude affect on earnings management, Power Distance, Individualism, and Masculinity, were all significant with the expected direction. We did not predict any effect for debt-to-equity and tax rate on the magnitude of earnings management. These variables, however, show a significant and negative affect, suggesting that earnings management is lower in magnitude when the firms have higher debt-to-equity ratios and tax rates. We do not suggest any theoretical frameworks to explain this phenomenon.

The size of companies (measured by total assets) also affects the magnitude of earnings management significantly and in the positive direction. This result suggests that larger firms manage earnings in larger magnitude, which can be expected as the larger firms have more ability to find accounting methods that allow them to manage earnings.\textsuperscript{16}

Overall our results are very consistent with the hypotheses developed in this paper, providing the first extensive evidence for the effect of cultural values on earnings management in different countries for 1987 to 2001. The results, however, do not address whether the independent variables have had similar effects continuously for each year of the sample. To find whether the results are different for each year, we applied both the directional and magnitude tests for each year from 1987 to 2001. The results are shown in Panels A and B of Table 7.

\textsuperscript{15} To see whether the results were related to the method by which the earnings management score (EMS) by Leuz, Nanda, and Wysocki (2003) was calculated, we used a similar method to calculate a ranking for discretionary accruals (DA) using the Jones 1991 model. That is, for each country, the median DA of all year observations was selected. Then the 27 countries in our sample were ranked based on the median DA of each country. We expected to find a high correlation between the ranking in DA and EMS. However, the correlation was small (0.22) and insignificant. It is possible that the Jones model is not equally useable in an international setting. Another possibility is that the EMS score is not able to explain the earnings management behavior as we originally expected. The yearly results (Table 7), however, show a significant effect for EMS on earnings management in some years, although not in the pooled data as reported in Table 6.

\textsuperscript{16} Note that the earnings management has already been standardized by the companies’ total assets. Consequently, the results are not driven by the absolute size of the dependent variable.
Table 7 Regression results for each year of the sample
Panel A: Directional Test

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</table>

Note:
+, ++, +++ stand for positively significant at 0.10, 0.05, and 0.01 level, respectively;
-, --, --- stand for negatively significant at 0.10, 0.05, and 0.01 level, respectively.
# model is not significant.

Variable definition:

de = book debt to book equity ratio for firm I at the end of year t-1
a = total assets (in millions of U.S. dollars) for firm I at the end of year t-1
tr = effective tax rate for firm I in year t
power = power distance index of firm I (from Table 1)
uncert = uncertainty avoidance index of firm I (from Table 1)
indiv = individualism index of firm I (from Table 1)
masc = masculinity index of firm I (from Table 1)
DI = disclosure Score from Leuz, Nanda, and Wysocki (2003)
EMS = earnings management Score from Leuz, Nanda, and Wysocki (2003)
### Table 7 Regression results for each year of the sample (continued)

**Panel B: Magnitude Test**

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<tr>
<td>Adj. R-sq.</td>
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<td>.0073</td>
<td>.0085</td>
<td>.0094</td>
<td>.0031</td>
</tr>
</tbody>
</table>

**Note:**

+, ++, +++ stand for positively significant at 0.10, 0.05, and 0.01 level, respectively;
-,-, --- stand for negatively significant at 0.10, 0.05, and 0.01 level, respectively.

# model is not significant.

de = book debt to book equity ratio for firm I at the end of year t-1
a = total assets (in millions of U.S. dollars) for firm I at the end of year t-1
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DI = disclosure Score from Leuz, Nanda, and Wysocki (2003)
EMS = earnings management Score from Leuz, Nanda, and Wysocki (2003)
As Table 7 indicates, the results for the directional test (Panel A) are not very strong for each year. For 1987, 1989, 1991, 1994, 1995, 1997, 1998, 1999, and 2000, the models are not significant\(^{17}\). Consequently, we are unable to have meaningful results for nine out of 15 years for the direction of earnings management. While the “F Value” for models for 1988, 1990, 1992, 1993, 1996, and 2001 represent significant results, the $R^2$ is very low; indicating that while some variables may be significant, the power of the model to explain the direction of earnings management is very small. Most of the findings for 2001 (in Panel A of Table 7) are similar to those reported in Panel A of Table 6. Only Masculinity and debt-to-equity ratio in 2001 (Table 7) are not significant, while they are significant in the pooled sample (Table 6). We attribute differences in results for different years to changes in economic and environmental variables (including cultural values) in different nations.\(^{18}\) Furthermore, manipulation of earnings upside (downside) cannot continue beyond a certain time and eventually the manipulation will result in downside (upside) earnings effects.

Panel B of Table 7 provides yearly regression results for magnitude tests. All models in the panel are significant and there is a clearer pattern of significant variables. For example, when Power Distance is significant, it has a positive effect on the magnitude of earnings management for all years (except 1992). Similar results can be seen for the Disclosure score (DI), debt-to-equity ratio, tax rate, and Uncertainty Avoidance. When significant, they have a negative effect on the magnitude of earnings management for all years (except 1987 and 1991 for DI and debt-to-equity ratio). Similar to the results of the directional regression test in 2001, the results of the magnitude regression test in 2001 are very similar to those observed in Panel B of Table 6. The only differences between the significant variables (in Panel B of Table 6) and significant variables (in Panel B of Table 6) in 2001 are the results for the Disclosure Index score and the debt-to-equity ratio. These two variables are significant in the pooled data (Table 6), while they are not in the test for 2001 (Table 7). Again, we attribute differences in results for different years to changes in economic and environmental variables (including cultural values) in different nations (see footnote 18).

5. Sensitivity Analysis

The above results can be subject to criticism such as:

- **Theoretical basis.** One may question if Hofstede’s cultural dimensions are appropriate for accounting research and more specifically if it has any effects on earnings management.
- **Statistical basis.** For example, is the sample size limited to the number of countries included in the test or is it inclusive of company-year observations (irrespective to the number of countries).
- **Missing variables.** For example, shall the research include control variables for other cultural and economical values?

\(^{17}\) Stated differently, the models had “F Value” with “Pr > F” over 0.05.

\(^{18}\) Even if one argues that cultural values do not change from year to year, they may become more or less important relative to environmental conditions, which could perhaps override them.
We have addressed the three first possible problems in this paper. The most current version of the Global Vantage database (2006) was used for this sensitivity analysis.

**Theoretical Basis**

Two main criticisms of Hofstede’s cultural values are related to the lack of theoretical basis for compiling these values and the age of the database. While Hofstede has argued that the first criticism is not valid (Hofstede 2006), no one can disagree that the cultural values were collected in 1970s and that they are now over 30 years old. It is intuitive to consider that cultures (and consequently cultural values) change.

To address these criticisms, we decided to use the most recent set of cultural values that was developed based on a theoretical basis. Our review of literature indicated that GLOBE (Global Leadership and Organizational Behavior Effectiveness, House, *et al.*, 2004) was the most recent index that met our criteria. If we found that both Hofstede and GLOBE can explain earnings management, we have addressed (to a large extent) this possible limitation on our results.

House *et al.* (2004) collected data from about 17,000 questionnaires completed by managers of none multinational firms to evaluate differences in cultural and leadership values. GLOBE reported results of a study conducted for 62 societies. The following provide a definition summary of culture construct as reported in House *et al.* 2004 (page 30).

<table>
<thead>
<tr>
<th>Culture Construct Definitions</th>
<th>Specific Questionnaire Item</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Power Distance</strong>: The degree to which members of a collective expect power to be distributed equally</td>
<td>Followers are (should be) expected to obey their leaders without questions.</td>
</tr>
<tr>
<td><strong>2. Uncertainty Avoidance</strong>: The extent to which a society, organization, or group relies on social norms, rules, and procedures to alleviate unpredictability of future events.</td>
<td>Most people lead (should lead) highly structured lives with few unexpected events.</td>
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<tr>
<td><strong>3. Humane Orientation</strong>: The degree to which a collective encourages and rewards individuals for being fair, altruistic, generous, caring, and kind to others</td>
<td>People are generally (should be generally) very tolerant of mistakes</td>
</tr>
<tr>
<td><strong>4. Collectivism I (Institutional Collectivism)</strong>: The degree to which organizational and societal institutional practices encourage and reward collective distribution of resources and collective action.</td>
<td>Leaders encourage (should encourage) group loyalty even if individual goals suffer.</td>
</tr>
<tr>
<td><strong>5. Collectivism II (in-group collectivism)</strong>: The degree to which individuals expect pride, loyalty, and cohesiveness in their organizations or families.</td>
<td>Employees feel (should feel) great loyalty toward this organization.</td>
</tr>
<tr>
<td><strong>6. Assertiveness</strong>: The degree to which individuals are assertive, confrontational, and aggressive in their relationships with others.</td>
<td>People are (should be) generally dominant in their relationships with each others.</td>
</tr>
</tbody>
</table>

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19 Some countries may include more than one societies, for example the white and black societies in South Africa have different cultural and leadership values.
7. **Gender Egalitarianism**: The degree to which a collective minimizes gender inequality

| Boys are encouraged (should be encouraged) more than girls to attain a higher education (Scored inversely). |

8. **Future Orientation**: The extent to which individuals engage in future-oriented behaviors such as delaying gratification, planning, and investing in the future.

| More people live (should live) for the present rather than for the future. (Scored inversely). |

9. **Performance Orientation**: The degree to which a collective encourages and rewards group members for performance improvement and excellence.

| Students are encouraged (should be encouraged) to strive for continuously improved performance. |

(Source: House, *et al.*, 2004, Table 2.1, page 30)

As noted in Table 8, House *et al.* (2004) suggest nine cultural construct (values)\(^{20}\) in comparison to Hofstede’s five cultural values. They designed their questions based on known cultural values that were theoretically derive; hence removing the first criticism for Hofstede’s values: lack of theoretical basis when he developed them. Given that House et al. collected the data between 1994 and 1997, the cultural values reported in GLOBE are rather new and only about 10 years old; hence addressing the issue of outdated data.

It is important to mention that GLOBE has also been subject to criticism (e.g., Hofstede, 2006). Hofstede mentions it as being too abstract. Smith (2006) mentions that the aggregation of individual survey responses to the cultural level of analysis is problematic. Earley (2006) suggests that large-scale multi-country studies of managerial beliefs may not measure organizational phenomena and actual behavior. On the other hand, many researchers have found the new index more comprehensive than the ones provided and used in prior research. Based on the definition of the GLOBE and Hofstede’s values, we tried to make a comparative table between the two cultural indexes and run similar tests.

Note that the new tests use a different and more current data set (earnings management data is calculated for 1994 to 2005). Furthermore, the number of observation and countries is less (52,857 observations in 25 countries; Belgium and Norway were missing in GLOBE). So, our results in sensitivity analysis using GLOBE may result in a different outcome because of the change in database. To alleviate this difficulty, we tested both Hofstede and GLOBE values using the new data sets.\(^{21}\) Our results are mostly similar to those reported for the original (and older data). Hence we are able to provide further evidence for our suggestions in this study. Only in the

\(^{20}\) Although we realize that there are differences between the words “construct” and “values,” given that our purpose is not to develop cultural values/constructs, for the purpose of this research, we use “values” and “construct” interchangeably. We used Hofstede and GLOBE cultural values. While we had Hofstede’s cultural values for 27 countries, we were limited to 25 countries in GLOBE’s (Belgium and Norway were missing in GLOBE).

\(^{21}\) Some of Hofstede’s values are reflected in more than one GLOBE value. Given the distinctive definition for Performance Orientation, we were unable to find any specific Hofstede value that could correspond to GLOBE’s Performance Orientation value. Our conclusion with respect to Performance Orientation is also shared by others (e.g., Smith, 2005).
case of Uncertainty Avoidance did we get opposite results for the direction of earnings management. We have summarized the results of the effect of cultural values on earnings management in Table 9.
Table 9 Relationship of Hofstede and GLOBE Cultural Values and Earnings Management

Observed Effect of the Cultural Values on the Magnitude and the Direction of Earnings Management

<table>
<thead>
<tr>
<th>Hofstede</th>
<th>Power Distance</th>
<th>Collectivism (Individualism)</th>
<th>Masculinity</th>
<th>Uncertainty Avoidance</th>
<th>Long term orientation **</th>
<th>--</th>
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</thead>
<tbody>
<tr>
<td>Magnitude of Earnings Management</td>
<td>--</td>
<td>+</td>
<td>--*</td>
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<td>+</td>
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<tr>
<td>Direction of Earnings Management</td>
<td>+</td>
<td>--</td>
<td>--</td>
<td></td>
<td>+*</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>GLOBE</th>
<th>Power Distance</th>
<th>Collectivism (in-group)</th>
<th>Collectivism (institutional)</th>
<th>Humane Orientation</th>
<th>Assertiveness</th>
<th>Gender Egalitarianism (Scored inversely)</th>
<th>Uncertainty avoidance</th>
<th>Future Orientation</th>
<th>Performance Orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnitude of Earnings Management</td>
<td>+ (N)</td>
<td>--</td>
<td>+*</td>
<td>+</td>
<td>-- (N)</td>
<td>--*</td>
<td>--</td>
<td>-- (N)</td>
<td>--(N)</td>
</tr>
<tr>
<td>Direction of Earnings Management</td>
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<td>+</td>
<td>--(N)</td>
<td>--(N)</td>
<td>+ (N)</td>
<td>+ (N)</td>
<td>+*</td>
<td>--</td>
<td>--(N)</td>
</tr>
</tbody>
</table>

(N)= not significant at 0.05

* Significant but opposite to expected direction.

** was not tested

Tests of Hofstede and GLOBE include 52,857 observations from 25 countries.
Statistical basis

Our study considers similar cultural values for all companies within a country. So one can question that, if our sample size is the number of countries (27) or the number of companies included in the sample.\(^{22}\) To address this issue, we divided the sample into two groups for each one of the cultural values.\(^{23}\) For example, we assigned countries with high individualism in one group and those with low level of individualism in another. As such, we were able to see if there were significant differences between the means\(^{24}\) of firms belonging to a high level of individualism versus those with a low level of individualism.

We found that there is a significant difference between the means of the two samples for all cultural values. This significance persisted for the actual estimated discretionary accrual and for discretionary accrual estimated absolute values.\(^{25}\) Consequently, our results indicate that mean of observations in high and low level cultural values are significantly different.

Missing variables

One can easily argue that earnings management is influenced by more variables than those included in this study (including cultural values). Missing variables weaken the model and its results. We understand that, no matter how many variables that we include, we will not be able to address the issue of missing variables. Based on GLOBE’s definition, we have already included some of the missing cultural values. Other missing values may include the effect of country corporate/investment governance (a multi-year index such as heritage) on earnings management. The heritage index (Index of Economic Freedom) is developed by a simple average of 10 indices (trade freedom, monetary freedom, freedom from government, fiscal freedom, property rights, investment freedom, financial freedom, freedom from corruption, and labor freedom).\(^ {26}\) The measure is country based and is provided yearly from 1995 to 2007, so researchers may be able to match it to each country on a yearly basis.

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\(^{22}\) We assumed the later in our study.

\(^{23}\) We used Hofstede and GLOBE cultural values. While we had Hofstede’s cultural values for 27 countries, we were limited to 25 countries in GLOBE’s (Belgium and Norway were missing in GLOBE).

\(^{24}\) We separated the sample based on both the mean and medium of the cultural values. The results were not different.

\(^{25}\) Using GLOBE and Hofstede’s cultural values produce similar results. We used t-test, Wilcoxon, and Kruskal-Wallis tests for our analysis. The Wilcoxon two-sample paired signed rank test is used to test the null hypothesis that the population median of the paired differences of the two samples is 0. The Kruskal-Wallis test is most commonly used when the measurement variable does not meet the normality assumption of an Anova. A one-way Anova may yield inaccurate estimates of the P-value when the data are very far from normally distributed. Sources (obtained on 12/20/2007) are mentioned below:

http://udel.edu/~mcdonald/statkruskalwallis.html

http://www.basic.northwestern.edu/statguidefiles/srank_paired.html

\(^{26}\) For additional information please see: http://www.heritage.org/research/features/index/chapters/htm/index2007_chap3.cfm
6. Summary and Conclusion

In this paper we addressed the direct effect of cultural values as developed by Hofstede (1983 and 1988) and disclosure indices and earnings management scores (as developed by Leuz, Nanda, and Wysocki, 2003) on earnings management (measured by the modified Jones 1991 model) in 27 countries. The total number of observations was 84,748 company-years for the period 1987 to 2001. We designed the test in response to the need to provide empirical evidence on the effect of accounting (cultural) values on earnings management in different countries. However, because we are unable to quantitatively define accounting values, we limited our tests to those values that Hofstede developed for cultural dimensions. Based on Gray’s 1988 theory, it is actually accounting values that affect accounting practices in different nations. However, since the accounting values of nations are affected by their cultural values, empirical evidence for the effect of cultural values on earnings management may provide indirect proof that accounting values are affecting earnings management in different nations. The Appendix provides a theoretical basis for linking accounting values to cultural values.

Our results indicate that debt-to-equity ratio (total assets) affect earnings management upwards (downwards). These results are consistent with prior studies. Uncertainty Avoidance also affects the direction of earnings management downwards as hypothesized in this paper. However, the pooled data does not support this direction. Other cultural values, Individualism, Power Distance, and Masculinity, have a significant effect on the magnitude of earnings management. The results indicate that the higher the values on these variables, the higher the magnitude of earnings management. Furthermore, Disclosure Index has a significant effect on the magnitude of earnings management, suggesting that less earnings management takes place when there are higher degrees of disclosure. When all of the years under study were included in the sample, our results provided evidence that cultural values have significant effects on the earnings management behavior in different countries.

Our sensitivity analysis introduced GLOBE’s cultural values and tested each cultural value (Hofstede and GLOBE) separately. Furthermore, we suggested Heritage Foundation index to address the possible effect of some of missing variables. We also used a more current sample of firms for our analysis. Our new results supported almost all of our previous findings and provided additional evidence for the effect of cultural values on earnings management.

Although this paper will continue to be subject to limitations, we believe that our research findings provide strong direct and empirical evidence of the effect of cultural values on earnings management in a multi-year and multi-country setting. As more and more countries adopt International Accounting Standards as their accepted Generally Accepted Accounting Principles and since managers have the ability to manage earnings within a set of GAAP, this type of research may explain some of systematic differences in earnings management in different countries that have resulted from cultural differences.

Additional research is necessary to refine this research and address limitations. For example, although the cultural values and the earnings management and disclosure scores are represented with quantitative values, they are included as categorical variables; these values remain constant within a country while prior research (such
as Pourjalali and Meek, 1995) suggests that cultural values within a nation shift, and consequently these values are subject to change from one period (especially in cases that culture shifts, such as revolutions) to another. Also, we did not control for sudden changes in economic conditions in the nations under study (such as economic recessions or growth). Our sample was also heavily representative of more developed nations (e.g., half of the sample represented Japanese and British companies), one extension of this paper could be grouping countries based on their economic development first and then testing the effect of cultural values on the earnings management. Finally, similar to most earnings management studies, another limitation of this paper is that of the Jones model in measurement of earnings management.

References


