

Lost in Translation: Cultural Differences and Earnings Management Contagion

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ABSTRACT

Do cultural differences deter or facilitate accounting-manipulation practices propagated across countries? While firms attempt to operate in countries that offer the best opportunities to maximize returns on their investments, their managers' acquaintance with different practices at foreign subsidiaries generates contagion effects that eventually influence the firms' opportunistic accounting decisions to move toward the common practices in those countries. This effect can cause financial reporting practices to converge; however cultural differences may prevent the direct transfer of opportunistic accounting choices between countries. This article proposes and empirically verifies that cultural differences, mainly in power distance and uncertainty avoidance, constrain the contagion effects while differences in masculinity facilitate the spread of earnings manipulations across borders.

Keywords: earnings management contagion, culture differences, law and finance

JEL Codes: G30, M40, O10, Z10

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“The U.S. equipment maker (Caterpillar) said last week that it would write off \$580 million of the about \$700 million it paid in June to buy ERA Mining Machinery Ltd., a Chinese maker of mine-safety equipment. Caterpillar alleged ‘accounting misconduct’ at ERA, including overstatements of its profit in the years before the acquisition.”

– The Wall Street Journal¹

January 20th, 2013

I. INTRODUCTION

There is ample evidence that opportunistic managerial behavior is “contagious,” in the sense that it spreads through economically and socially connected firms. However, the main body of research on this contagious aspect of ethical issues in business decision making focuses on corporate governance and data within a given country (e.g., Bouwman 2011; Chiu, Teoh and Tian 2013). Even among the studies that specifically examine the cross-country evidence of accounting misconduct, the heterogeneity in managers’ decisions to manipulate financial statements is attributed to differences in legal systems, enforcement, and institutional environment (e.g., earnings management in Leuz, Nanda and Wysocki 2003; Dyreng, Hanlon and Maydew 2012). In the United States, the Sarbanes-Oxley Act was passed as an amendment to existing securities laws to strengthen corporate governance and the financial reporting system. Its ultimate goal is to protect investors from misleading and incomplete financial statement information necessary to make informed investment decisions. Across countries and regions, there are significant differences in the extent to which investors are protected from expropriation by managers, and the so-called Anglo-Saxon model (including United Kingdom and United States) has been identified as the “best” or “most appropriate” for protecting the rights of investors (La Porta, Lopez-de-Silanes, Shleifer and Vishny 2000). The question of what caused the cross-country differences in accounting manipulation and investor protection remained unanswered, and Stulz and Williamson (2003) is among the first attempts to explore whether differences in culture should be taken seriously as a potential contributing factor.

What exactly is culture and how does it influence the legal and institutional arrangements in each country? Boyd and Richerson (1988, 2005) define culture as “transmission from one generation to the next, via teaching and imitation, of knowledge, values, and other factors that influence behavior.” Greif (1994) further suggests that “differences in the societal

¹ Excerpt from Areddy (2013).

organization of the two trading societies can be consistently accounted for as reflecting diverse cultural beliefs.” In essence, the cultural perspectives in its broadest sense, or those values, opinions, attitudes, and expectations that make up the culture, appear to constitute the fundamental building blocks of legal and institutional environments (Friedman 1986), because people in the society have real, concrete interests and needs, and some of these turn into demands on laws and institutions (Friedman 1975). More precisely, Stulz and Williamson (2003) suggest three underlying channels through which national culture can have significant impact on finance in general. First, the values that are predominant in a country depend on its culture. Second, the legal system and institutions are influenced by cultural values. Third, resource allocation in an economy is determined by national culture. Therefore, the authors call for a direct investigation to determine whether there is evidence that culture matters for finance beyond its relation with legal origins.

Despite a long tradition showing that culture matters, the impact of culture on opportunistic managerial behavior (including account manipulations) has not been investigated directly. Given the endogenous nature of the legal origin (including the operation of legal systems), the institutional environment (including the functioning of financial systems), and the business activities (including financial and accounting decisions) of a country, recent empirical studies have gone beyond the dichotomy of comprehensiveness versus precedence underlying the “civil versus common” law origin debate and started exploring the interaction of business strategy and national culture. For example, Li, Griffin, Yue and Zhao (2013) establish statistical associations between corporate risk-taking and various measures of national culture. Specifically the authors show that individualism has positive effects, whereas uncertainty avoidance and harmony have negative effects on corporate risk-taking.

This paper takes a slightly different tack, arguing that it is the similarity or difference in cultural perspectives between two countries, rather than the level of cultural measures (as in Li et al. 2013), influences opportunistic managerial behavior (accounting choices). Therefore, its focus is not only to delve into the effects of individual dimensions of cultural perspectives on accounting choices, but also to study the phenomenon of earnings management contagion that a firm is more likely to manipulate financial reporting when it operates subsidiaries in a country with more pervasive practices of earnings management. While firms attempt to operate in countries that offer the best opportunities to maximize returns on their investments, their managers’ acquaintance with different practices at foreign subsidiaries might affect the firms’

accounting decisions to move toward the common practices in those countries. This contagious effect can cause earnings management practices to converge; however cultural differences may also deter earnings management contagion between countries. In this research, we empirically verify that cultural differences, mainly in power distance and uncertainty avoidance, two dimensions of national culture, prevent the direct transfer of accounting practices while differences in masculinity, another dimension of cultural values, facilitate the spread of opportunistic accounting choices across borders.

The remainder of the paper is organized as follows. Section II reviews the relevant prior research on the subjects of earnings management, governance contagion, and national culture. Section III illustrates the empirical strategy. Section IV presents the sample data and measurement choice. Section V evaluates the results. Section VI conducts robustness checks. Section VII discusses the limitations and concludes.

II. LITERATURE AND HYPOTHESES

This paper is related to three strands of literature. The first one, starting with an influential paper by Leuz, Nanda and Wysocki (2003), investigates earnings management activities and investor protection in cross-country and regional settings. Leuz et al. (2003) find large international differences across several earnings management measures and suggests that firms in countries with less-developed equity markets, concentrated ownership structure, and weaker investor right and legal enforcement are more likely to engage in accounting manipulations. Kedia and Rajgopal (2011) study the geography of financial misreporting in the United States by examining the distances between corporate headquarters and SEC offices and report a higher incidence of earnings-decreasing restatements by firms located in counties far away from local SEC offices. McGuire, Omer and Sharp (2012) focus on the effect of social norms on earnings management and find evidence that firms located in counties with lower levels of religious adherence are more likely to manipulate earnings. The evidence in Leuz et al. (2003), Kedia and Rajgopal (2011), and McGuire et al. (2012) answers a broad research question of whether the institutions, customs, laws and accounting standards of a region affect the financial reporting practices of firms located here. In a recent study, Dyreng et al. (2012) attempt to answer a more specific question: do U.S. firms with extensive foreign operations in weak rule of law countries have more earnings management despite the firms as a whole being subject to GAAP accounting standards and SEC regulations? Its departure from previous work lies in the fact

that it looks at the geographic location of the earnings management within the (multinational) firm.

The finding in Dyreng et al. (2012) that firms with foreign subsidiaries in weaker rule of law countries have more foreign earnings management is indeed interesting and is, to some extent, closely related to the empirical studies of corporate governance contagion. This second strand of literature that is related to our paper investigates the role of “social networks” in the propagation of both good and bad corporate practices. Bouwman (2011) hypothesizes that the choice of a firm’s corporate governance practices is affected by the governance practices of other firms where its directors serve at. The author attributes the phenomenon of governance practices spreading across firms that share directors to the inter-firm communication and learning facilitated by the “social networks” of their overlapped directors. Chiu, Teoh and Tian (2013) provide evidence that a firm is more likely to engage in earnings management that later results in restatements if it shares a common director with another firm that is currently managing earnings. Interestingly, a more important board position held by the overlapped director in the “exposed” firm has a stronger contagion effect. In an attempt to study the direction of governance contagion in the mutual fund industry, Calluzzo and Dong (2014) examine the employment-history data of mutual fund directors and find that fund boards dominated by directors tied to the finance industry, to shareholder unfriendly firms, and to shareholder unfriendly funds, have worse governance, suggesting that directors act as vectors, transmitting governance attributes from their primary place of employment to the fund.

There are several gaps among these two strands of literature, which are relevant to our study. First, most studies in contagion literature focus on social networks and corporate governance and so it is unclear whether such contagion effect exists in opportunistic managerial behavior such as financial reporting, although these two issues are closely related. Second, although several studies have investigated earnings management in an international setting, most of them attribute the heterogeneity of accounting manipulations across countries to differences in legal origin and enforcement that are endogenous in nature. Thus, the socioeconomic channel of the effect of country-specific characteristics (including legal characteristics) on earnings management contagion is unclear. Our study addresses these gaps by studying the relationship between corporate practices and national culture which, in the broadest sense, constitutes the fundamental building blocks of a country’s legal and institutional environments.

Before we present the hypotheses, we need to briefly discuss the social, economic, and psychological channels through which specific cultural values may influence opportunistic managerial behavior. The main assumption behind our propositions is that even in a globalized business environment, national culture operates on accounting manipulations both directly through business decision making (firm characteristics and opportunistic managerial behavior) and indirectly through country-level characteristics (laws, regulations, and market development). Countries differ in the type and level of formal institutions (e.g., investor protection and rule of law) that regulate and facilitate opportunistic managerial (including financial management) behavior (La Porta Lopez-de-Silanes, Shleifer and Vishny 1997, 1998). However, to some extent a country's legal and institutional frameworks might be an endogenous outcome of, or at least shaped by, national cultural values (Licht, Goldschmidt and Schwartz 2005, 2007). Hofstede (1980, 2001) and Hofstede, Hofstede and Minkov (2010) define cultural values in five dimensions including power distance, individualism, masculinity, uncertainty avoidance and long-term orientation. Such psychological theories of cultural differences were originally based on a research project examining national culture differences across subsidiaries of International Business Machines Co. (IBM), a multinational corporation operating in more than sixty countries. In the rest of this section we will review and discuss the key constructs of national cultural values and their relationships to opportunistic accounting choices in the conceptual framework and develop the hypotheses to be tested in our study.

The measure of *Power Distance* is about the extent to which the less powerful members of societies, institutions and organizations accept and expect that power (and wealth implicitly) is distributed unequally. A higher score of power distance represents more power inequality and a lower score means more power equality. It suggests that a society's level of inequality is endorsed by the followers (or workers) as much as by the leaders (or executives). For example, compared to China and Mexico where the power inequality is very high (80 for China and 81 for Mexico on the cultural scale of Hofstede's analysis), Scandinavian countries have low power inequality (33 for Finland, 31 for Norway and Sweden, and 18 for Denmark). Licht et al. (2007) argues that societies with power inequality emphasize accepting the world as it is, so their members are uncomfortable with conflict and assertiveness, and thus are less supportive of a market-based financial system that encourages direct conflict to advance personal interests. By contrast, members of societies with power equality societies are more comfortable with institutions that encourage people to stand up for their rights, even to the extent of exploiting

others. When a firm from a country of high power distance (such as China) extends its business to a country of low power distance (such as United State with 40 on the scale of power distance), it is possible to observe a divergence in opportunistic managerial behavior between the firm and the norm of the host country. For example, the 2011 financial scandals of “reverse mergers” or “backdoor listings”, that privately-held Chinese companies having difficulties of raising equity capital in China went public in the United States by merging with U.S. publicly-traded shell companies, have demonstrated the existence of this phenomenon. Based on the influence outlined here, our first hypothesis regarding the effects of cultural values on earnings management contagion is as follows:

H1. (Divergence of Accounting Practices): There is a positive association of the differences in earnings management practices (between the firm and the country where its subsidiary operates in) and the differences in national levels of power distance (between the firm’s country and its subsidiary’s country).

Individualism (versus its opposite, *collectivism*) measures the degree to which people are integrated into societies. On the individualist side we find societies in which the ties between individuals are loose: everyone is expected to look after herself and her immediate family. On the collectivist side, we find societies in which people from birth onwards are integrated into strong, cohesive in-groups, often extended families which continue protecting them in exchange for unquestioning loyalty. For example, United States is often considered individualistic and empirically confirmed by a relatively high score (80) on the scale of Hofstede’s measure of individualism compared to China (20 on the scale). American tends to have more loose relationships than China where there is collectivism where people have large extended families. In United States people stress on personal achievements and individual rights. American expect from each other to fulfill their own needs. Group work is important, but everybody has the right of his own opinion as is expected to reflect those. The “American dream” is clearly a representation of this. Because individualistic societies emphasize individual freedom, autonomy, and self-interested competition, they require formal institutions that protect the rights of competing parties. For example, investor protection ensures that capital providers including shareholders and creditors receive their deserved returns on their investments. By contrast, collectivist societies emphasize strong informal ties among in-groups and rely on

informal networks and relationships rather than formal institutions to protect against opportunism. Therefore, it is possible that the laws and regulations shaped the structure of the individualistic societies (such as United States) will make firms coming from collectivistic societies (such as China) to behave just like local firms. Based on the discussion above, our second hypothesis regarding the effects of cultural values on earnings management contagion is as follows:

H2. (Convergence of Accounting Practices): There is a negative association of the differences in earnings management practices (between the firm and the country where its subsidiary operates in) and the differences in national levels of individualism (between the firm's country and its subsidiary's country).

Masculinity (versus its opposite, femininity) refers to the distribution of roles between the genders. It has shown that women's values differ less among societies than men's values and hence men's values from one country to another contain a dimension from very assertive and competitive and maximally different from women's values on the one side, to modest and caring and similar to women's values on the other. Masculine traits include assertiveness, materialism, self-centeredness, power, strength, and individual achievements. For example, Japan has a masculine culture with a 95 on the scale of Hofstede's measure masculinity, whereas Scandinavian countries are more modest in this measure (26 for Finland, 16 for Denmark, 8 for Norway, and 5 for Sweden). It is not difficult to imagine that, if two cultures share, in terms of masculinity, similar values, as the case of Scandinavian countries, it is more likely that managerial behavior such as the financial reporting practices will converge for firms with headquarters and subsidiaries located in these countries. Based on the potential effect outlined here, our third hypothesis regarding the effects of cultural values on earnings management contagion is as follows:

H3. (Convergence of Accounting Practices): There is a negative association of the differences in earnings management practices (between the firm and the country where its subsidiary operates in) and the differences in national levels of masculinity (between the firm's country and its subsidiary's country).

Uncertainty Avoidance deals with a society's tolerance for uncertainty and ambiguity and it ultimately refers to risk-aversion. Uncertainty avoiding cultures try to minimize the possibility of the unstructured situations that are novel, unknown, surprising, and different from usual by strict laws and rules, safety and security measures. Therefore, members in such risk-averse societies tend to plan everything carefully in order to avoid the unpredictable outcomes. For example, there is a very high uncertainty avoidance in Greece (112) and Portugal (104) compared to Singapore (8) and Hong Kong (29). In addition, because risk-averse societies emphasize social conformity and rule following, their members are more comfortable with the traditional bank-oriented financing, whereas risk-loving societies are more likely to adopt market-based equity financing (Kwok and Tadesse 2006; Beckmann et al. 2008; Li and Zahra 2012). Therefore, it is not difficult to imagine that, when firms from Asian countries that are more adventurous, risk-taking and willing to try new things and expecting higher returns invest in Southern Europe countries that are more obeying local rules, laws and regulations, the divergence of opportunistic behavior will become noticeable. Therefore, our fourth hypothesis regarding the effects of cultural values on earnings management contagion is as follows:

H4. (Divergence of Accounting Practices): There is a positive association of the difference in earnings management practices (between the firm and the country where its subsidiary operates in) and the difference in national levels of uncertainty avoidance (between the firm's country and its subsidiary's country).

Long-Term Orientation is the fifth dimension of national cultural values which includes persistence, observing order, thrift, and having a sense of shame, whereas short term orientation is about personal steadiness, protecting respect, and reciprocation of favors. East Asian countries have the highest scores in long-term orientation (118 for China, 96 for Hong Kong, 87 for Taiwan, 80 for Japan, and 75 for South Korea). The effects of long-term orientation on managerial opportunistic behavior can be two-fold. On the one hand, foreign firms obeying local rules and regulations reflect their managerial strategies for business sustainability and profitability, especially for those originated from countries that appreciate the importance of long-termism. On the other hand, the short-termism of the local culture creates many potential opportunities that the firms cannot simply ignore, and hence move toward the common accounting practices in local countries.

H5. (*Convergence or Divergence of Accounting Practices*): There is an ambiguous association of the differences in earnings management practices (between the firm and the country where its subsidiary operates in) and the differences in national levels of long-term orientation (between the firm's country and its subsidiary's country).

III. EMPIRICAL METHODS

The objective of this study is to examine to what extent cultural differences constrain or facilitate the contagion effects of earnings management between firms and their subsidiaries in foreign countries. We conduct pooled cross-sectional OLS regressions that relate discretionary accruals to firms' financial characteristics and cultural differences with their foreign subsidiaries. In the first set of baseline analysis, the regression model takes the following form:

$$\Delta DiscretionaryAccruals_{i,c,t} = \alpha + \beta \Delta Culture_{i,c} + \gamma FirmCharacteristics_{i,t} + \varepsilon_{i,t}$$

The dependent variable is the difference in discretionary accruals between firm i and foreign country c in which the subsidiary resides in year t . After obtaining $DiscretionaryAccruals_{i,t}$ for firm i in year t using the methods of Jones (1991) Dechow, Sloan and Sweeney (1995), we calculate the country average $DiscretionaryAccruals_{c,t}$. The difference between these two variables ($\Delta DiscretionaryAccruals_{i,c,t}$) measures the contagion effects of earnings management because it reflects the extent to which the firm changes its accrual accounting practices toward the norm of the country where its subsidiaries are located:

$$\Delta DiscretionaryAccruals_{i,c,t} = DiscretionaryAccruals_{i,t} - DiscretionaryAccruals_{c,t}$$

The main predictor variables are the differences in five measures of culture: power distance, individualism, masculinity, and uncertainty avoidance, and long-term orientation (Hofstede 1980, 2001; Hofstede et al. 2010). To control for firm characteristics we include the level of discretionary accruals, firm age, size, market to book, financial leverage, asset turnover, profit margin and current ratio. Still, there might be differences across countries and time that are not captured by these control variables and that affect discretionary accruals and cultural differences variables simultaneously. This may lead to biased and inconsistent parameter estimates; therefore, we add both country and year fixed-effects to the regression models to address this concern. It is well known that OLS standard errors can be biased that will either over- or under-estimate the true variability of the coefficient estimates when the residuals are

correlated across observations (Petersen 2009). To specifically address the concern that standard error clustering in certain countries might have biased our coefficient estimation, we use clustered standard errors on the country level to correct for heteroskedasticity.

In the second set of analysis, we are concerned about the potential omitted variable bias that occurs when we leave out some important firm and country characteristics that are correlated with both the dependent and independent variables. We add more control variables including operating cycle, return on assets, cash to assets ratio, and differences in population and per capital GDP between the headquarter and subsidiary countries to the regression models.

Finally, we recognize that the close relationship between a firm's decision to establish subsidiaries in a foreign country and its similarity in cultural perspectives to that of the foreign country and overall labor cost differentials may limit our understanding of the effects of cultural differences on earnings manipulation contagion. For instance, in equilibrium it is indeed difficult to distinguish whether the primary reason of operating in a foreign country is to take advantage of cheap labor or cultural similarity. If it is indeed the ease of communication and compatibility of laws and regulations (e.g., between U.S. and Canada), the observed relationship between earnings management contagion and cultural differences may be confounded by self-selection. A possible solution to address this issue is to separate the "cost differential effect" from the "cultural affinity effect". Therefore, in the third set of analysis, we focus on newly established subsidiaries in countries where the firm does not currently operate and the difference in GDP per capita between headquarter and subsidiary countries is substantial (e.g., between U.S. and China). In the following empirical tests, we define "substantial" as at least the median of the differences in GDP per capita between two countries, and delete those observations with differences in GDP per capita below this threshold.

IV. DATA

The primary source of firm-level financial data is the OSIRIS dataset from the Bureau van Dijk (BvD). OSIRIS is a database containing financial information on globally listed public companies from over 190 countries. It contains standardized financial statements for up to 20 years on over 55,000 companies. We identify the foreign subsidiaries of a firm with their staff numbers being more than 1% of the total number of employees of the firm. The final sample includes 1,133 firms residing and operating in 17 countries: Australia, Brazil, China, Germany,

UK, Hong Kong, India, Japan, Nigeria, Netherland, Norway, New Zealand, Philippines, Sweden, Singapore, Thailand, and Taiwan.

To determine the extent to which firms are manipulating financial reports, we first need to construct a variable that describes a firm's earnings management. Prior studies of earnings management examine the use of discretionary accruals to produce accounting reports that may over- or under-state a company's business activities and financial position. The models used in these studies range from the simple, in which the change in total accruals is used as a measure of discretionary accruals to the relatively sophisticated, which decompose accruals into discretionary and non-discretionary components using regression analysis. The total accruals of firm i in year t ($TA_{i,t}$) can be defined as:

$$TA_{i,t} = \frac{\Delta CurrentAssets_{i,t} - \Delta CurrentLiabilities_{i,t} - \Delta Cash_{i,t} - \Delta ShortTermDebt_{i,t} - Depreciation_{i,t}}{TotalAsset_{i,t-1}}$$

where the Δ sign denotes the change in the variable. By definition total accruals include both non-discretionary (involuntary) and discretionary (voluntary) portions.

Managers can not alter non-discretionary accruals to manage earnings because they reflect the fluctuation of business operations. Healy (1985) proposes a simple method to estimate non-discretionary accruals by comparing mean total accruals (scaled by lagged total assets) across the earnings management partitioning variable. Similarly, DeAngelo (1986) computes first differences in total accruals and assumes that the first differences have an expected value of zero under the null hypothesis of no earnings management. It is noted that both Healy (1995) and DeAngelo (1986) are built on the assumption that non-discretionary accruals are constant. Jones (1991) relaxes this assumption by controlling for the effects of changes in a firm's economic circumstances on non-discretionary accruals. This "Jones Model" in the accounting literature estimates non-discretionary accruals ($NDAJ_{i,t}$) of firm i in year t as:

$$NDAJ_{i,t} = \alpha_1 \frac{1}{TotalAssets_{i,t-1}} + \alpha_2 \frac{\Delta Revenues_{i,t}}{TotalAssets_{i,t-1}} + \alpha_3 \frac{\Delta PropertyPlantEquipment_{i,t}}{TotalAssets_{i,t-1}}$$

Discretionary accruals is calculated as the residual of the difference between total accruals ($TA_{i,t}$) and the predicted level of non-discretionary accruals ($NDAJ_{i,t}$):

$$DAJ_{i,t} = TA_{i,t} - NDAJ_{i,t}$$

The Jones Model implicitly assumes that revenues are non-discretionary and therefore extracts the discretionary components of accruals; however, this assumption biases the estimate toward zero earnings management. Recognizing this limitation, Dechow, Sloan and Sweeney (1995) modifies the Jones Model to eliminate the estimation error by deducting account receivables from revenues. This so-called “Modified Jones Model” estimates non-discretionary accruals ($NDAMJ_{i,j}$) of firm i in year t as:

$$NDAMJ_{i,t} = \alpha_1 \frac{1}{TotalAssets_{i,t-1}} + \alpha_2 \frac{\Delta Revenues_{i,t} - \Delta Receivables_{i,t}}{TotalAssets_{i,t-1}} + \alpha_3 \frac{\Delta PropertyPlantEquipment_{i,t}}{TotalAssets_{i,t-1}}$$

Rather than assuming that earnings management is not exercised over revenues, this modified Jones Model implicitly assumes that all changes in credit sales actually resulted from earnings management. Again, the difference between the level total accruals ($TA_{i,j}$) and that of non-discretionary accruals ($NDAMJ_{i,j}$) is discretionary accruals ($DAMJ_{i,j}$):

$$DAMJ_{i,t} = TA_{i,t} - NDAMJ_{i,t}$$

After obtaining the discretionary accruals for firms in all countries using both the Jones (1991) Model and the Modified Jones Model, we calculate the absolute difference between the firm’s discretionary accruals and the average discretionary accruals of country c in which its subsidiary operates:

$$\text{Jones Model: } \Delta DAJ_{i,c,t} = |DAJ_{i,t} - DAJ_{i,c,t}|$$

$$\text{Modified Jones Model: } \Delta DAMJ_{i,c,t} = |DAMJ_{i,t} - DAMJ_{i,c,t}|$$

The variables we use to measure cultural value are based on Hofstede’s five cultural dimensions: power distance, individualism, uncertainty avoidance, masculinity, and long-term orientation. Because in this article we are interested in the question whether cultural similarity or difference can facilitate or deter the spread of earnings management practices across borders, we calculate the absolute difference in cultural measures of the countries where the firm is headquartered and its subsidiary is located:

$$\text{Power distance: } \Delta PDI_{i,c,t} = |PDI_{i,t} - PDI_{c,t}|$$

$$\text{Individualism: } \Delta IDV_{i,c,t} = |IDV_{i,t} - IDV_{c,t}|$$

$$\text{Uncertainty Avoidance: } \Delta UAI_{i,c,t} = |UAI_{i,t} - UAI_{c,t}|$$

Masculinity: $\Delta MAS_{i,c,t} = |MAS_{i,t} - MAS_{c,t}|$

Long-term orientation: $\Delta LTO_{i,c,t} = |LTO_{i,t} - LTO_{c,t}|$

To control for firm characteristics we create variables that measure firm age, size (total assets), growth opportunity (market to book), risk-taking (financial leverage), operating efficiency (asset turnover and operating cycle), profitability (profit margin and return on assets), and asset liquidity (current ratio and cash to assets ratio). To avoid the problem of skewed distribution of total assets and potential outliers that may bias the regression results, we use a natural logarithm transformation to normalize the distribution: $\log(\text{Total Assets}_i)$.

Financial leverage is the degree to which a firm is taking risk by utilizing borrowed money, mainly in the form of debt financing. For firm i , we define the financial leverage as its long-term debt to asset ratio: $Leverage_i = LT\ Debt_i / Total\ Assets_i$. We use two variables to measure the asset liquidity, meaning the firm's ability to pay short-term obligations (e.g., debt, payables) using its short-term assets (e.g., cash, inventory, receivables): *Current Ratio* _{i} and *Cash to Assets*. We also construct several variables to control for operating efficiency. *Asset Turnover* indicates how efficiently a firm generates revenue on each dollar of its total assets, and *Operating Cycle* is how many days it takes for a company to produce a product or service and receive the cash from the sale. A longer operating cycle suggests a lower efficiency because essentially it takes longer time to convert labor, capital and material inputs into goods and services and the firm is selling its them on credit and taking longer to get paid.

In addition, we include population data and GDP per capita to reflect the relevance and affluence of each country. Population and GDP per capita data are obtained from the World Bank and IMF. The detailed definition of all variables can be found in Table 1.

[Insert Table 1 Here]

V. RESULTS

The summary statistics of the sample are shown in Table 2. The average discretionary accruals are 3.24% and 3.21% estimated using the Jones Model and the Modified Jones Model respectively. On average, the difference between the firm's discretionary accruals and the average discretionary accruals of the country in which its subsidiary operates is 0.116 regardless the estimation method. The average firm in our sample is 57.6 years old and the market value of its equity is 1.74 times of its book value. Its long-term debt is about 19.1% of its total assets

whereas cash is 13.5% of total assets. The average asset turnover ratio of 0.866 suggests that, on average, firms are able to generate about 90 cents revenue from each dollar of total assets, and it takes about half a year (161 days) to convert inventories to cash. On the other hand, firms are able to keep only one cent out of every dollar of sales in earnings and two cents out of total assets.

[Insert Table 2 Here]

The Pearson's correlations of the sample are reported in Table 3. An examination of the correlation matrix indicates that correlations between independent variables are generally small. This low correlation among the covariates helps prevent the problem of multicollinearity that causes high standard errors and low significance levels when both variables are included in the same regression. The two measures of discretionary accruals are highly correlated (0.99), and we will separate them in different regression specifications.

[Insert Table 3 Here]

We conduct pooled OLS regressions and report the coefficient estimates in Table 4 with t-statistics shown in the parentheses with ***, ** and * indicating its statistical significant level of 1%, 5% and 10% respectively. The dependent variable is the discretionary accruals estimated by the Jones model in specifications (1) and (2) and that estimated by the modified Jones model in specifications (3) and (4). Specifications (2) and (4) use industry fixed-effects and all four specifications use country and year fixed effects with clustered standard errors on the country level. After controlling for various firm characteristics including company age, total assts, market-to-book, financial leverage, asset turnover, profit market and current ratio, the differences in power distance and uncertainty avoidance have positive effects on the difference in discretionary accruals of the firm and the foreign country in which its subsidiary resides, whereas the differences in individualism, masculinity and long-term orientation have negative effects. This evidence implies that cultural differences, mainly in power distance and uncertainty avoidance, constrain the contagion effects while differences in masculinity facilitate the spread of earnings management practices across borders.

[Insert Table 4 Here]

In addition, we include population data and GDP per capita to reflect the size and affluence of each country and report the coefficient estimates in Table 5. Similar to the results from the unmatched sample, the effects of power distance and uncertainty avoidance remain positive and the effects of masculinity and long-term avoidance remain negative across all specifications. However, the statistical significance of the effect of individualism is no longer significant at the 1% and 5% level when we control for the differences in country size and wealth.

[Insert Table 5 Here]

VI. ROBUSTNESS TEST

In the empirical tests reported in the previous section, we employ various fixed effect estimators with clustered standard errors to provide strong controls for unobserved firm, industry and country characteristics that affect the differences in earnings management. Although the results are informative and interesting, the endogenous nature of a firm's decision to establish subsidiaries in a foreign country may limit our understanding of the effects of cultural differences on earnings manipulation contagion. The primary motive to operate in a foreign country might be the similarity in cultural perspectives or the differential in labor costs. If it is indeed the case of ease of cultural similarity (for example, communication and compatibility of laws and regulations between U.S. and Canada), the observed relationship between earnings management contagion and cultural differences can be confounded by self-selection.

In order to address this concern, we need to separate the "cost differential effect" from the "cultural affinity effect". Specifically we focus on newly established subsidiaries in countries where the firm does not currently operate and the difference in labor costs between two countries is substantial (for example, between U.S. and China). The implicit assumption underlying the empirical analysis in this section is that the establishment of a new subsidiary in a foreign country is driven primarily, if not exclusively, by the labor cost difference between the home and host countries. There are, however, two technical complications that must be taken into consideration: 1) data availability and comparability of labor costs across countries, and 2) the threshold in labor-cost differentials that is necessary to separate high and low labor-cost countries. In this article, we take a simplistic approach to use GDP per capita obtained from the World Bank and IMF to proxy for labor costs in each country. In addition, we rank countries by their GDP per capita and define "substantial" as at least the median of the differences in GDP

per capita between two countries. Those observations with differences in GDP per capita below this threshold are dropped from this subsample.

[Insert Table 6 Here]

The summary statistics and correlation matrix of this subsample are shown in the Section A and B of Table 6, and the values are very similar to those of the main sample reported in Table 2 and 3 respectively. The coefficient estimates of the pooled OLS regression results shown in Section C of Table 6 suggest that cultural difference effects remain in power distance, individualism, masculinity and uncertainty avoidance, though the effect of long-term orientation is diminished in this rather small sample. A useful way to look at the economic significance of the ability of the cultural differences to affect the contagious phenomenon of accounting manipulations is to examine the changes of differences in discretionary accruals when each measure of cultural differences is increased by one standard deviation. We estimate the magnitude of the cultural effects on earnings management contagion for all three models that were studied in Table 4, 5, and 6. The results are reported in Table 7.

[Insert Table 7 Here]

For the benchmark model (1), the percent changes in the predicted differences in discretionary accruals estimated by the Jones Model are 7.7%, -29.3%, -31.4%, 33.5%, and -55.1% in response to one standard deviation shocks to each of the explanatory variables of interest (differences in power distance, individualism, masculinity, uncertainty avoidance, and long-term orientation) respectively. The estimates using the Modified Jones Model are similar to those using the Jones Model. For the extended model (2) which includes country characteristics as control variables, the responses are stronger for differences in power distance (38.5% in Jones and 40.4% in Modified Jones) but weaker for differences in individualism (0%) and long-term orientation (-21.8% in Jones and -16.5 in Modified Jones). The economic significance is substantial in the sub-sample which only includes firms of high GDP per capita countries opening new subsidiaries in low GDP per capita countries. The percentage changes in the predicted earnings management differentials are almost 130%, -250%, and -200% for differences in power distance, individualism, and masculinity respectively, indicating a strong constraining effect of national culture (mainly from differences in power distance) and a facilitation effect

(from differences in individualism and masculinity) in propagating earnings manipulation practices across countries.

Finally, it would be intuitive and useful to explicitly control for legal origin, investor rights and enforcement. On the one hand, managers and boards in common law countries have more flexibility than their counterparts do in civil law countries, but they are more likely and easily to be sued than they are in civil law countries. On the other hand, the states in common law countries are less prescriptive than in civil law countries with respect to the goals and objects of a corporation: value maximization for shareholders or, more broadly, value creation for all stakeholders (La Porta et al. 1998, 1999; La Porta 2000; Stulz and Williamson 2003). However, as we discussed previously, a country's legal and institutional frameworks are the outcome, or at least, shaped by national cultural values (Licht, Goldschmidt and Schwartz 2005, 2007). Given the endogenous nature of the legal origin (including the enforcement of investors' rights) and the institutional environment (including the functioning of financial systems) of a country, it is not appropriate to have legal origin, investor rights and enforcement as the predictive variables on the RHS of the regression model. Nevertheless, we use the variables of cultural dimensions (power distance, individualism, masculinity, uncertainty avoidance and long-term orientation) to instrument for legal origin and conduct the 2SLS instrumental variable (IV) regression to examine the relationship between the earnings management differentials and the legal origin differentials instrumented by the differences in predicted culture values between two countries (headquarter at home and subsidiary in host):

$$\text{First Stage: } \Delta \text{LegalOrigin}_c = \theta_0 + \theta_1 \Delta \text{Culture}_c + \theta_2 \Delta \text{Population}_c + \theta_3 \Delta \text{GDP}_c + e_c$$

$$\text{Second Stage: } \Delta \text{DiscretionaryAccruals}_{i,c,t} = \alpha + \beta \widehat{\Delta \text{LegalOrigin}_c} + \gamma \text{FirmCharacteristics}_{i,t} + \varepsilon_{i,c,t}$$

The dependent variable of the first-stage regression is a country's legal origin which has a value one for common law and zero for civil law and other legal origin. The instrumental variables are the differences in power distance, individualism, masculinity, uncertainty avoidance, and long-term orientation, population and GDP per capita. The dependent variable of the second-stage regression is the absolute difference in discretionary accruals between the firm and the average of the country where its subsidiary is located. Discretionary accruals are estimated using both the Jones Model and the Modified Jones Model. The independent variables include the level of discretionary accruals, firm age, natural logarithm of total assets, market to book, financial leverage, total asset turnover, profit margin, and current ratio.

[Insert Table 8 Here]

The coefficient estimates of the first-stage regression reported in specification (1) of Table 8 suggest that power distance, individualism, masculinity, uncertainty avoidance, population and wealth are indeed important predictors of a country's legal origin. The negative relationship between the differences in legal origin and the differences in earnings management indicates that the earnings management contagion is more likely to occur between countries with different law systems, supporting the view that national culture differences affect the convergence or divergence of accounting manipulation practices across borders through the channel of legal and institutional arrangements.

VII. DISCUSSION AND CONCLUSION

We see situations that a firm is more likely to manipulate financial reporting when it operates in certain countries than in others, and more often than not, we attribute this phenomenon to differences in rules and regulations. Indeed, international evidence has shown that earnings management is more pervasive in countries where the legal protection of outside investors is weak, because in these countries insiders enjoy greater private control benefits and hence have stronger incentives to obfuscate firm performance (Leuz et al. 2003), and earning management practices within multinational firms can be affected by the local institutional regimes in which their foreign subsidiaries operate (Dyreng et al. 2012). However, the legal system, as one of the institutions which comprise the society, and the extent to which the rule of law is enforced, are shaped by and reflects the dominant values, culture, and power relations within the society. Therefore, the fundamental building blocks of the legal and institutional environment that protects (and constrains) investors are essentially an endogenous outcome of national cultural perspectives along with other social, economic, and political factors.

Recent empirical studies have started exploring the interaction of business strategies that are risk-taking in nature and the national culture that shapes the legal and institutional arrangements. Li et al. (2013) is among the earliest to reveal statistical relationships between corporate risk-taking and various measures of national culture. Specifically the authors show that individualism has positive effects, whereas uncertainty avoidance and harmony have negative effects on corporate risk-taking. Different to their paper, we argue that it is the difference (or similarity) rather than the level of cultural measures (as in Li et al. 2013) influences opportunistic managerial behavior in general and accounting choices in particular.

Therefore, its focus is not only to delve into the effects of individual dimensions of cultural perspectives on accounting manipulations, but also to study the phenomenon of earnings management contagion that a firm is more likely to manipulate financial reporting when it operates subsidiaries in a country with more pervasive practices of earnings management.

We use the Hofstede's five dimensions (power distance, individualism, masculinity, uncertainty avoidance, and long-term orientation) to quantify national culture and study the interaction effects that cause financial reporting practices to converge or diverge. Specifically, we find that cultural differences, mainly in power distance and uncertainty avoidance, deter the contagion effects while differences in masculinity facilitate the spread of earnings management practices across borders. The results provide more convincing evidence than previous studies which did not treat a country's legal origin endogenously and separate the "cost differential effect" from the "cultural affinity effect".

When interpreting the evidence presented in this paper, however, it is important to bear in mind that our results rely on the Hofstede's measures of cultural perspectives. There are, certainly, some caveats associated with these measures. First, these measures are created by collecting data through questionnaires which have their own limitations of accuracy. Second, these culture proxies are mostly time invariant or persistent over time and therefore cross-sectional in nature. Third, the average score of a country do not relate to any specific individuals of that country. It is possible that managers of firms operating in that country are not necessarily influenced by that national culture. The ideal answer to these concerns is to survey company executives directly over time, and we will leave further exploration of self-reported cultural measures for future research. Nevertheless, we believe the contribution of this paper to be complementary to present work that is mainly focused on law and finance.

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Table 1. Variable definitions

Variable Name	Definition
DAJ	Discretionary Accruals using Jones Model: Jones (1991)
DAMJ	Discretionary Accruals using Modified Jones Model: Dechow, Sloan and Sweeney (1995)
Δ DAJ	Absolute difference in Discretionary Accruals using Jones Model: $\text{abs}(\text{DAJ}_{\text{HQ}} - \text{DAJ}_{\text{SUB}})$
Δ DAMJ	Absolute difference in Discretionary Accruals using Modified Jones Model: $\text{abs}(\text{DAMJ}_{\text{HQ}} - \text{DAMJ}_{\text{SUB}})$
Firm Age	Years in business
Natural log of Total Assets	$\log(\text{Total assets})$
Market to Book	Stock market value \div Book equity
Financial Leverage	Total long-term debt \div Total assets
Asset Turnover	Revenue \div Total assets
Operating Cycle	$\text{Day sales outstanding} + \text{Days inventory on hand} = \text{Total Revenue} \times 365 \div \text{Accounts receivables} + \text{Cost of goods sold} \times 365 \div \text{Inventory}$
Profit Margin	Net income \div Revenue
Return on Assets	Net income \div Total assets
Current Ratio	Current assets \div Current liabilities
Cash to Assets	$(\text{Cash} + \text{Cash equivalents}) \div \text{Total assets}$
Δ PDI	Absolute difference in Power Distance: $\text{PDI}_{\text{HQ}} - \text{PDI}_{\text{SUB}}$
Δ IDV	Absolute difference in Individualism: $\text{IDV}_{\text{HQ}} - \text{IDV}_{\text{SUB}}$
Δ MAS	Absolute difference in Masculinity: $\text{MAS}_{\text{HQ}} - \text{MAS}_{\text{SUB}}$
Δ UAI	Absolute difference in Uncertainty Avoidance: $\text{UAI}_{\text{HQ}} - \text{UAI}_{\text{SUB}}$
Δ LTO	Absolute difference in Long-Term Orientation: $\text{LTO}_{\text{HQ}} - \text{LTO}_{\text{SUB}}$

Table 2. Summary statistics

Variable	N	Mean	Standard Deviation	Minimum	Maximum
DAJ (Discretionary Accruals using Jones Model)	2,204	0.0324	0.131	-3.16	2.11
DAMJ (Discretionary Accruals using Modified Jones Model)	2,204	0.0321	0.127	-3.16	1.56
Δ DAJ (Difference in Discretionary Accruals using Jones Model)	2,204	0.116	0.169	0.000	3.23
Δ DAMJ (Difference in Discretionary Accruals using Modified Jones Model)	2,204	0.116	0.166	0.000	3.24
Firm Age	2,204	57.6	41.24	1	358
Natural log of Total Assets	2,204	15.2	3.214	7.75	23.3
Market to Book	2,204	1.74	7.608	0.09	358
Financial Leverage	2,204	0.191	0.157	0	0.898
Asset Turnover	2,204	0.866	0.537	0	4.58
Operating Cycle	2,204	161	422	0	12926
Profit Margin	2,204	0.0091	2.41	-83.2	58.5
Return on Assets	2,204	0.0198	0.125	-2.83	0.564
Current Ratio	2,204	2.057	3.20	0.0583	89.4
Cash to Assets	2,204	0.135	0.127	0.00	1.00
Δ PDI (Difference in Power Distance)	2,204	0.854	19.6	0	56
Δ IDV (Difference in Individualism)	2,204	6.45	29.0	0	72
Δ MAS (Difference in Masculinity)	2,204	17.5	34.7	0	90
Δ UAI (Difference in Uncertainty Avoidance)	2,204	27.0	33.2	0	84
Δ LTO (Difference in Long-Term Orientation)	2,204	14.8	35.1	0	98

Table 3. Correlation matrix

	D AJ	D AMJ	ΔDAJ	ΔDAMJ	Firm Age	log of Total Assets	Market to Book	Financial Leverage	Asset Turnover	Operating Cycle	Profit Margin	Return on Assets	Current Ratio	Cash to Assets	ΔPDI	ΔIDV	ΔMAS	ΔUAI
DAMJ	0.99																	
ΔDAJ	-0.11	-0.14																
ΔDAMJ	-0.14	-0.16	0.99															
Firm Age	-0.02	-0.02	-0.08	-0.08														
log of Total Assets	-0.06	-0.06	-0.03	-0.03	0.06													
Market to Book	0.05	0.05	0.02	0.02	-0.03	-0.06												
Financial Leverage	-0.01	-0.01	-0.07	-0.07	0.16	0.15	0.01											
Asset Turnover	0.02	0.02	-0.01	-0.01	0.02	-0.00	0.13	-0.17										
Operating Cycle	0.03	0.03	0.00	0.00	-0.03	0.02	-0.00	-0.01	-0.12									
Profit Margin	-0.00	-0.00	-0.01	-0.00	0.08	0.09	-0.01	-0.02	0.01	0.21								
Return on Assets	-0.04	-0.03	-0.03	-0.02	0.04	0.13	-0.45	-0.06	-0.05	0.01	0.40							
Current Ratio	0.05	0.05	0.02	0.02	-0.09	-0.05	-0.00	-0.12	-0.14	0.00	-0.12	0.00						
Cash to Assets	-0.05	-0.05	0.02	0.02	-0.21	0.02	0.01	-0.17	-0.06	-0.03	-0.09	-0.00	0.35					
ΔPDI	-0.03	-0.03	-0.10	-0.10	-0.03	0.08	-0.04	0.01	-0.08	0.04	0.02	0.05	0.04	0.03				
ΔIDV	0.08	0.08	0.07	0.07	0.03	-0.14	0.06	-0.02	0.10	-0.03	-0.03	-0.08	-0.04	-0.03	-0.83			
ΔMAS	-0.02	-0.01	-0.10	-0.10	0.03	0.01	-0.04	0.03	-0.07	0.01	-0.01	-0.00	-0.02	-0.01	0.13	-0.06		
ΔUAI	-0.10	-0.11	-0.04	-0.04	0.07	0.10	-0.06	0.05	-0.07	0.00	0.01	-0.02	-0.01	-0.01	-0.09	-0.08	0.53	
ΔLTO	-0.07	-0.07	-0.18	-0.18	-0.02	0.10	-0.07	0.00	-0.08	0.03	0.02	0.03	0.03	0.01	0.69	-0.70	0.29	0.38

Table 4. Earnings management and cultural differences (Model 1)

The dependent variable is the absolute difference in discretionary accruals between the firm and the average of the country where its subsidiary is located. Discretionary accruals are estimated using the Jones Model in specifications (1) and (2) and Modified Jones Model in specifications (3) and (4). The independent variables include the level of discretionary accruals, firm age, natural logarithm of total assets, market to book, financial leverage, total asset turnover, profit margin, current ratio, and differences in five measures of national culture (power distance, individualism, masculinity, uncertainty avoidance, and long-term orientation). All specifications include country and year fixed-effects with clustered standard errors on the country level, and specifications (2) and (4) include industry fixed-effects. z-statistics are shown in the parentheses with ***, ** and * indicating its statistical significant level of 1%, 5% and 10% respectively.

Dependent Variable: Absolute Difference in Discretionary Accruals	<u>ΔJones</u>		<u>ΔModified Jones</u>	
	(1)	(2)	(3)	(4)
Discretionary Accruals (Jones Model)	-0.159 (-0.561)	-0.176 (-0.601)		
Discretionary Accruals (Modified Jones Model)			-0.229 (-0.912)	-0.249 (-0.967)
Firm Age	-8.98e-05 (-1.591)	-0.000114* (-1.874)	-7.97e-05 (-1.327)	-9.45e-05 (-1.433)
Natural log of Total Assets	-0.000964 (-0.988)	-0.00100 (-1.073)	-0.000976 (-0.953)	-0.00104 (-1.046)
Market to Book	0.000424 (1.277)	0.000398 (1.400)	0.000441 (1.413)	0.000430 (1.622)
Financial Leverage	-0.0569** (-2.783)	-0.0400 (-1.393)	-0.0543** (-2.906)	-0.0329 (-1.307)
Asset Turnover	-0.00586 (-0.491)	-0.00488 (-0.427)	-0.00619 (-0.525)	-0.00411 (-0.368)
Profit Margin	-0.000245 (-0.245)	-0.000255 (-0.153)	-0.000150 (-0.144)	-0.000217 (-0.120)
Current Ratio	0.00119 (0.693)	0.00159 (0.962)	0.00133 (0.758)	0.00182 (1.108)
ΔPDI (Difference in Power Distance)	0.000554* (2.137)	0.000454** (2.430)	0.000657** (2.638)	0.000547*** (3.084)
ΔIDV (Difference in Individualism)	-0.00118** (-2.639)	-0.00117*** (-3.031)	-0.00112** (-2.471)	-0.00112** (-2.836)
ΔMAS (Difference in Masculinity)	-0.000897** (-2.542)	-0.00105*** (-2.993)	-0.000910** (-2.754)	-0.00106*** (-3.170)
ΔUAI (Difference in Uncertainty Avoidance)	0.00106** (2.276)	0.00117** (2.516)	0.00106** (2.209)	0.00117** (2.452)
ΔLTO (Difference in Long-Term Orientation)	-0.00189*** (-4.144)	-0.00182*** (-4.286)	-0.00190*** (-4.130)	-0.00183*** (-4.233)
Constant	0.166*** (7.882)	0.123*** (5.433)	0.138*** (6.644)	0.101*** (4.038)
Country Fixed-Effects (Clustered SE)	Yes	Yes	Yes	Yes
Year Fixed-Effects	Yes	Yes	Yes	Yes
Industry Fixed-Effects	No	Yes	No	Yes
N	2,204	2,204	2,204	2,204
Adj. R-squared	0.189	0.211	0.206	0.228

Table 5. Robustness checks with additional firm characteristic control variables (Model 2)

The dependent variable is the absolute difference in discretionary accruals between the firm and the average of the country where its subsidiary is located. Discretionary accruals are estimated using the Jones Model in specifications (1) and (2) and Modified Jones Model in specifications (3) and (4). The independent variables include the level of discretionary accruals, firm age, natural logarithm of total assets, market to book, financial leverage, total asset turnover, profit margin, current ratio, differences in populations and GDP per capita, and differences in five measures of national culture (power distance, individualism, masculinity, uncertainty avoidance, and long-term orientation). All specifications include country and year fixed-effects with clustered standard errors on the country level, and specifications (2) and (4) include industry fixed-effects. z-statistics are shown in the parentheses with ***, ** and * indicating its statistical significant level of 1%, 5% and 10% respectively.

Dependent Variable:	Δ Jones		Δ Modified Jones	
Absolute Difference in Discretionary Accruals	(1)	(2)	(3)	(4)
Discretionary Accruals (Jones Model)	-0.173 (-0.606)	-0.187 (-0.632)		
Discretionary Accruals (Modified Jones Model)			-0.244 (-0.976)	-0.262 (-1.014)
Firm Age	-0.000112* (-1.907)	-0.000110 (-1.713)	-0.000108 (-1.740)	-9.33e-05 (-1.365)
Natural log of Total Assets	-0.000866 (-0.980)	-0.000962 (-1.250)	-0.000901 (-0.968)	-0.00102 (-1.221)
Market to Book	0.000269 (0.930)	0.000117 (0.397)	0.000371 (1.115)	0.000217 (0.673)
Financial Leverage	-0.0603*** (-3.191)	-0.0417 (-1.606)	-0.0580*** (-3.206)	-0.0345 (-1.471)
Asset Turnover	-0.0100 (-1.003)	-0.00700 (-0.643)	-0.0104 (-1.049)	-0.00625 (-0.582)
Operating Cycle	3.36e-06 (0.807)	5.11e-06 (0.831)	3.55e-06 (0.889)	5.77e-06 (1.097)
Profit Margin	0.00273 (0.289)	0.00217 (0.276)	0.00279 (0.276)	0.00253 (0.297)
Return on Assets	-0.0274 (-0.589)	-0.0427 (-0.858)	-0.0145 (-0.289)	-0.0321 (-0.606)
Current Ratio	0.00185 (1.066)	0.00181 (0.910)	0.00213 (1.255)	0.00215 (1.132)
Cash to Assets	-0.0463 (-1.349)	-0.0198 (-0.551)	-0.0564* (-1.928)	-0.0281 (-0.845)
Δ PDI (Difference in Power Distance)	0.00229** (2.930)	0.00228*** (3.034)	0.00242*** (3.131)	0.00239*** (3.238)
Δ IDV (Difference in Individualism)	0.000162 (0.288)	0.000215 (0.448)	0.000239 (0.421)	0.000281 (0.579)
Δ MAS (Difference in Masculinity)	-0.000774** (-2.541)	-0.000937*** (-3.155)	-0.000786** (-2.807)	-0.000940*** (-3.415)
Δ UAI (Difference in Uncertainty Avoidance)	0.00115** (2.597)	0.00118** (2.580)	0.00116** (2.526)	0.00118** (2.519)
Δ LTO (Difference in Long-Term Orientation)	-0.000720*** (-4.581)	-0.000548** (-2.524)	-0.000723*** (-4.624)	-0.000545** (-2.739)
Difference in Population (in millions)	-7.33e-05** (-2.917)	-8.39e-05*** (-3.330)	-7.39e-05*** (-3.303)	-8.51e-05*** (-3.727)
Difference in GDP per capita (in thousands)	0.000348 (0.799)	0.000208 (0.459)	0.000350 (0.848)	0.000197 (0.449)
Constant	0.341*** (13.75)	0.377*** (12.89)	0.347*** (15.76)	0.377*** (13.97)
Country Fixed-Effects (Clustered SE)	Yes	Yes	Yes	Yes
Year Fixed-Effects	Yes	Yes	Yes	Yes
Industry Fixed-Effects	No	Yes	No	Yes
N	2,204	2,204	2,204	2,204
Adj. R-squared	0.205	0.226	0.223	0.245

Table 6. Establishing new subsidiaries in developing countries (Model 3)

Section A. Summary Statistics

This sample only includes newly established subsidiaries in countries where the firm does not currently operate and the difference in GDP per capita between headquarter and subsidiary countries is substantial. The threshold is defined as the median of the differences in GDP per capita between two countries. Those observations with differences in GDP per capita below this threshold are dropped from the original sample.

Variable	N	Mean	Standard Deviation	Minimum	Maximum
DAJ (Discretionary Accruals using Jones Model)	1,518	0.0377	0.151	-3.16	2.11
DAMJ (Discretionary Accruals using Modified Jones Model)	1,518	0.0371	0.145	-3.17	1.56
Δ DAJ (Difference in Discretionary Accruals using Jones Model)	1,518	0.132	0.194	0.000	3.23
Δ DAMJ (Difference in Discretionary Accruals using Modified Jones Model)	1,518	0.131	0.190	0.001	3.24
Firm Age	1,518	57.5	40.4	1	357
Natural log of Total Assets	1,518	15.1	3.21	7.80	23.3
Market to Book	1,518	1.64	7.608	0.09	28
Financial Leverage	1,518	0.188	0.157	0	0.86
Asset Turnover	1,518	0.855	0.545	0	4.58
Operating Cycle	1,518	174	517	0	12926
Profit Margin	1,518	-0.0107	2.95	-83.2	58.5
Return on Assets	1,518	0.0196	0.129	-2.83	0.564
Current Ratio	1,518	2.09	3.57	0.0708	89.4
Cash to Assets	1,518	0.135	0.129	0.00	1.00
Δ PDI (Difference in Power Distance)	1,518	0.895	19.5	0	56
Δ IDV (Difference in Individualism)	1,518	7.61	28.9	0	72
Δ MAS (Difference in Masculinity)	1,518	17.1	34.2	0	90
Δ UAI (Difference in Uncertainty Avoidance)	1,518	24.6	32.6	0	84
Δ LTO (Difference in Long-Term Orientation)	1,518	16.8	35.1	0	98

Section B. Summary Statistics

	D AJ	D AMJ	Δ DAJ	Δ DAMJ	Firm Age	log of Total Assets	Market to Book	Financial Leverage	Asset Turnover	Operating Cycle	Profit Margin	Return on Assets	Current Ratio	Cash to Assets	Δ PDI	Δ IDV	Δ MAS	Δ UAI
DAMJ	0.99																	
ΔDAJ	-0.14	-0.17																
ΔDAMJ	-0.17	-0.20	0.99															
Firm Age	-0.04	-0.04	-0.09	-0.08														
log of Total Assets	-0.07	-0.07	-0.02	-0.02	0.09													
Market to Book	0.00	-0.00	0.02	0.03	-0.05	-0.06												
Financial Leverage	-0.01	-0.01	0.03	-0.07	0.18	0.18	0.04											
Asset Turnover	0.02	0.03	-0.07	-0.01	0.03	-0.01	0.10	-0.19										
Operating Cycle	0.03	0.03	-0.01	-0.01	-0.04	0.03	0.01	-0.00	-0.13									
Profit Margin	-0.01	-0.01	-0.00	-0.00	0.09	0.12	0.03	-0.01	0.05	0.25								
Return on Assets	-0.02	-0.01	-0.02	-0.02	0.04	0.15	0.20	-0.03	-0.03	0.01	0.44							
Current Ratio	0.04	0.04	0.02	0.02	-0.10	-0.04	-0.02	-0.14	-0.13	-0.01	-0.18	-0.03						
Cash to Assets	-0.06	-0.07	0.04	0.04	-0.23	0.01	0.04	-0.25	-0.05	-0.04	-0.10	-0.02	0.34					
ΔPDI	-0.05	-0.05	-0.17	-0.16	-0.03	0.08	-0.02	0.02	-0.09	0.05	0.06	0.04	0.05	0.04				
ΔIDV	0.11	0.11	0.12	0.12	0.02	-0.14	0.07	-0.02	0.11	-0.04	-0.06	-0.07	-0.06	-0.06	-0.83			
ΔMAS	-0.02	-0.02	-0.12	-0.11	0.03	0.01	-0.18	0.04	-0.10	0.02	-0.02	-0.02	-0.03	-0.04	0.16	-0.11		
ΔUAI	-0.12	-0.13	-0.02	-0.02	0.10	0.11	-0.19	0.07	-0.08	0.01	0.02	-0.03	-0.01	-0.01	-0.03	-0.20	0.49	
ΔLTO	-0.10	-0.10	-0.24	-0.24	-0.01	0.10	-0.08	0.00	-0.10	0.04	0.05	0.02	0.05	0.03	0.72	-0.74	0.28	0.42

Section C. Regressions of firms establishing new subsidiaries in developing countries

The dependent variable is the absolute difference in discretionary accruals between the firm and the average of the country where its subsidiary is located. Discretionary accruals are estimated using the Jones Model in specifications (1) and (2) and Modified Jones Model in specifications (3) and (4). The independent variables include the level of discretionary accruals, firm age, natural logarithm of total assets, market to book, financial leverage, total asset turnover, profit margin, current ratio, and differences in five measures of national culture (power distance, individualism, masculinity, uncertainty avoidance, and long-term orientation). All specifications include country and year fixed-effects with clustered standard errors on the country level, and specifications (2) and (4) include industry fixed-effects. z-statistics are shown in the parentheses with ***, ** and * indicating its statistical significant level of 1%, 5% and 10% respectively.

Dependent Variable: Absolute Difference in Discretionary Accruals	<u>ΔJones</u>		<u>ΔModified Jones</u>	
	(1)	(2)	(3)	(4)
Discretionary Accruals (Jones Model)	0.715*** (7.065)	0.753*** (6.103)		
Discretionary Accruals (Modified Jones Model)			0.591*** (5.114)	0.608*** (3.825)
Firm Age	4.00e-05 (0.155)	-0.000197 (-0.449)	-1.85e-05 (-0.0766)	-0.000211 (-0.502)
Natural log of Total Assets	0.00271 (1.550)	0.00244 (1.178)	0.00318* (1.919)	0.00247 (1.281)
Market to Book	0.00159 (0.137)	-0.0244 (-0.957)	0.00291 (0.286)	-0.0222 (-0.916)
Financial Leverage	-0.0895 (-0.825)	-0.116 (-1.305)	-0.0933 (-0.910)	-0.107 (-1.115)
Asset Turnover	-0.0413 (-1.247)	-0.0343 (-0.956)	-0.0403 (-1.239)	-0.0327 (-0.898)
Profit Margin	0.00156 (0.526)	-0.00277 (-0.619)	0.000723 (0.253)	-0.00413 (-0.916)
Current Ratio	0.00211 (0.472)	-0.000250 (-0.0387)	0.00153 (0.369)	0.000405 (0.0597)
ΔPDI (Absolute Difference in Power Distance)	0.00659* (2.080)	0.00854** (2.406)	0.00811*** (3.480)	0.00899** (2.303)
ΔIDV (Absolute Difference in Individualism)	-0.00739*** (-3.772)	-0.0116** (-2.804)	-0.00762*** (-4.878)	-0.0111** (-2.789)
ΔMAS (Absolute Difference in Masculinity)	-0.00581*** (-13.17)	-0.00771*** (-10.08)	-0.00559*** (-11.93)	-0.00756*** (-9.202)
ΔUAI (Absolute Difference in Uncertainty Avoidance)	0.00249*** (3.510)	0.00166 (0.517)	0.00337*** (3.297)	0.00223 (0.671)
ΔLTO (Absolute Difference in Long-Term Orientation)	-0.00149 (-1.404)	0.000433 (0.144)	-0.00189 (-1.570)	-5.31e-05 (-0.0186)
Difference in Population (in millions)	0.000153* (2.110)	8.63e-05 (0.447)	0.000189* (2.181)	0.000114 (0.609)
Difference in GDP per capita (in thousands)	-0.00821* (-2.104)	-0.0160 (-1.803)	-0.00451 (-1.070)	-0.0130 (-1.519)
Constant	1.108*** (6.421)	1.556** (2.908)	0.969*** (5.150)	1.361** (2.661)
Country Fixed-Effects (Clustered SE)	Yes	Yes	Yes	Yes
Year Fixed-Effects	Yes	Yes	Yes	Yes
Industry Fixed-Effects	No	Yes	No	Yes
N	1,518	1,518	1,518	1,518
Adj. R-squared	0.697	0.801	0.681	0.789

Table 7. Economic significance

To better quantify the results of models (1), (2) and (3), we estimate the percent change in the predicted Difference in Discretionary Accruals (between firm and the average of the country where its subsidiary is located) that our models generate in response to one standard deviation shocks to each of the explanatory variables of interest: Differences in Power Distance, Individualism, Masculinity, Uncertainty Avoidance, and Long-Term Orientation.

Regression Model	Model 1	Model 2	Model 3
Δ PDI (Difference in Power Distance)			
Δ Jones	7.7%	38.5%	126.2%
Δ Modified Jones	9.2%	40.4%	133.8%
Δ IDV (Difference in Individualism)			
Δ Jones	-29.3%	0.0%	-254.0%
Δ Modified Jones	-28.0%	0.0%	-244.9%
Δ MAS (Difference in Masculinity)			
Δ Jones	-31.4%	-28.0%	-199.8%
Δ Modified Jones	-31.7%	-28.1%	-197.4%
Δ UAI (Difference in Uncertainty Avoidance)			
Δ Jones	33.5%	33.8%	0.0%
Δ Modified Jones	33.5%	33.8%	0.0%
Δ LTO (Difference in Long-Term Orientation)			
Δ Jones	-55.1%	-21.8%	0.0%
Δ Modified Jones	-55.4%	-16.5%	0.0%

Table 8. Instrumental variable (IV) 2SLS regressions

The dependent variable of the 1st-stage regression is country legal origin which is one for common law and zero for others. The instrumental variables are the differences in power distance, individualism, masculinity, uncertainty avoidance, and long-term orientation, population and GDP per capita. The dependent variable of the 2nd-stage regression is the absolute difference in discretionary accruals between the firm and the average of the country where its subsidiary is located. Discretionary accruals are estimated using the Jones Model in specification (2) and Modified Jones Model in specification (3). The independent variables include the level of discretionary accruals, firm age, natural logarithm of total assets, market to book, financial leverage, total asset turnover, profit margin, and current ratio. Specifications (2) and (3) include country and year fixed-effects and z-statistics are shown in the parentheses with ***, ** and * indicating its statistical significant level of 1%, 5% and 10% respectively.

Dependent Variable:	1st-Stage	2nd-Stage	
	Legal Origin (1)	Δ Jones (2)	Δ Modified Jones (3)
Instrument: Country Legal Origin		-0.0465*** (-4.078)	-0.0478*** (-4.317)
Discretionary Accruals (Jones Model)		-0.161*** (-6.092)	
Discretionary Accruals (Modified Jones Model)			-0.231*** (-8.718)
Firm Age		-6.33e-05 (-0.707)	-5.29e-05 (-0.609)
Natural log of Total Assets		-0.000787 (-0.704)	-0.000799 (-0.737)
Market to Book		0.000671 (1.513)	0.000690 (1.600)
Financial Leverage		-0.0553** (-2.335)	-0.0527** (-2.293)
Asset Turnover		-0.00207 (-0.308)	-0.00234 (-0.357)
Profit Margin		-0.000112 (-0.0793)	-2.81e-06 (-0.00205)
Current Ratio		0.000667 (0.598)	0.000810 (0.749)
Δ PDI (Difference in Power Distance)	-0.014 (-8.78)		
Δ IDV (Difference in Individualism)	0.00848 (10.63)		
Δ MAS (Difference in Masculinity)	-0.00326 (-6.93)		
Δ UAI (Difference in Uncertainty Avoidance)	0.0153 (24.67)		
Δ LTO (Difference in Long-Term Orientation)	0.000678 (0.88)		
Difference in Population (in millions)	-0.00011 (-4.24)		
Difference in GDP per capita (in thousands)	0.00358 (3.59)		
Constant		0.333*** (10.07)	0.336*** (10.46)
N	2,204	2,204	2,204
Adj. R-squared	0.434	0.130	0.145